



25 April 2023

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Attention: Natalie Swannack, Chris Williams, David Dack

Re: Response to RFI – Kamay Ferry Wharves

1 Introduction

Environmental Risk Sciences Pty Ltd (enRiskS) has been engaged by Arup (on behalf of Transport for NSW) to provide a response to the request for information provided by the Commonwealth in relation to potential sediment contamination for materials that might be disturbed during construction of public ferry wharves to allow a ferry service to operate between La Perouse and Kurnell in Botany Bay (<https://www.planningportal.nsw.gov.au/major-projects/projects/kamay-ferry-wharves>).

2 Objectives and scope of works

The overall objectives of this work are:

- Review existing available information on the project and contamination in Botany Bay such as the Kamay Ferry Wharves EIS including specialist reports on contamination, coastal process assessment and other relevant publicly available information.
- Provide input into the development of the Sampling Analysis Quality Plan required for characterisation of the shallow sediments.
- If contamination exceeds the guidelines, provide a report that satisfies DCCEEW RFI (attached) and specifically:
 - Describes the likely dispersal pathways during construction and operation for contaminants identified in the sediment analysis.
 - Discusses the potential impacts of contamination on protected matters during construction and operation, including *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion, White's Seahorse (*Hippocampus whitei*), Cauliflower Soft Coral (*Dendronephthya australis*), and Black Rockcod (*Epinephelus daemeli*).
 - Demonstrates how contamination will be managed to ensure construction and operation do not impact protected matters.

3 Methodology

The methodology adopted for the conduct of this review will be in accordance with the relevant National protocols/ guidelines including:

- Commonwealth of Australia, National Assessment Guidelines for Dredging (NAGD 2009)
- ANZG, Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)

- Simpson, SL, Batley, GB & Chariton, AA (2013), *Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines*, CSIRO Land and Water Science (Simpson, S.L. et al. 2013)
- ASC NEPM, National Environmental Protection Measure – Assessment of Site Contamination (NEPC 1999 amended 2013a, 1999 amended 2013b)
- enHealth, Environmental Health Risk Assessment, Guidelines for Assessing Human Health Risks from Environmental Hazards (enHealth 2012).

4 Project Description

The project includes the reinstatement/construction of two public ferry wharves and associated infrastructure to allow a ferry service to operate between La Perouse and Kurnell in Botany Bay.

Key features of the project include:

- demolition of the existing viewing platform at Kurnell
- construction of temporary ancillary works including access roads, compound areas, stockpiles, fencing and temporary building platforms (including a temporary causeway at Kurnell and temporary crane platform at La Perouse)
- relocation of swing moorings at La Perouse
- construction of two wharves on piles, one at La Perouse and one at Kurnell that would include:
 - a berth for ferries (to cater for ferries between 15 metres to 40 metres in length)
 - a multi-user berth for commercial and recreational vessels (to cater for vessels between 2 m and 20 m long)
 - sheltered waiting areas and associated furniture located on the wharves
 - signage and lighting
- landside paving and landscaping at the entrance to the wharves
- new footpaths connecting the entrance of the wharves to the existing footpaths
- reconfiguration of existing car parking area at La Perouse to increase the number of spaces, and associated footpath changes to accommodate these additional car parking spaces
- bicycle racks near the La Perouse wharf
- installation of utilities to service the wharves including power and water.

The following figures show the proposed project (**Figures 3.1-3.3**).



Figure 3.1: Project location – regional context



Figure 3.2: Artist's impression – La Perouse



Figure 3.3: Artist's impression – Kurnell

The project was approved by NSW authorities in July 2022.

It was then referred to the Commonwealth's Department of Climate Change, Energy, the Environment and Water (DCCEEW) for assessment under the EPBC Act as some parts of these works are located within the Kamay Botany Bay National Park.

5 Request for Information

DCCEEW provided advice in November 2022 that further information was required before a decision could be made (i.e. Stop the Clock). The letter is attached in **Appendix A**. The request indicates that DCCEEW considered that there was insufficient information in the planning documents in regard to the potential for there to be contaminated sediments present in the area where the wharves are to be installed or which may be affected by the operation of the ferries.

The additional information that DCCEEW required includes:

- further sediment sampling and characterisation within the top 1 metre of sediments and analysis of nominated contaminants
- comparison of contamination results against nominated water and sediment guidelines
- if contaminant levels exceed nominated guidelines, describe, likely dispersal pathways, potential impacts on protected matters during construction and operation of the wharves and demonstrate how contamination will be managed to not impact on protected matters.

6 Presence of chemicals in sediment, elutriate or surface water

6.1 Existing information (included in EIS)

6.1.1 General

A small number of sediment samples were collected during the development of the EIS for the project. These samples were taken at depths ranging from 1 m to 8 m below the surface. It is assumed that these depths were targeted to ensure appropriate understanding of the geotechnical characteristics of the sediments in the areas of interest for the wharves.

Samples were analysed for petroleum hydrocarbons, metals, organochlorine pesticides, organophosphorus pesticides and tributyltin related compounds. This is considered appropriate and in line with the requirements of the NAGD (NAGD 2009).

6.1.2 Screening assessment

As reported in the EIS (ERM 2021 – Appendix Q of EIS), the only chemicals that were detected above the limit of reporting in at least one sample were a number of the metals commonly found in most soils/sediments and monobutyltin (breakdown product from tributyltin which was used in antifouling paints on ships for decades prior to 2008).

All other chemicals were not detected above the limits of reporting. The limits of reporting used were those routinely provided by the commercial laboratories and relevant for Australian sediment quality guideline values.

Results for chemicals detected in the samples taken to date (prior to July 2022) are shown in **Table 6.1**.

Table 6.1: Sediment data from the EIS

Chemical	Concentration (mg/kg)					Sediment guideline (low/high) (mg/kg)
	KU-BH03-3.85	KU-BH03-4.15	LP-BH03-1.0	LP-BH02-2.5	LP-BH02-8.2	
Arsenic	2	7.7	<2	<2	8.4	20/70
Chromium	5.4	63	6.3	<5	32	80/370
Copper	<5	36	<5	<5	<5	65/270
Lead	<5	14	<5	<5	6.7	50/220
Nickel	<5	21	<5	<5	<5	21/52
Zinc	<5	59	<5	<5	10	200/410
Monobutyltin	0.00085	0.00075	NA	NA	NA	0.009/0.07

These results indicate that metals were present in these samples at normally expected levels.

Guidelines are normally considered to have been exceeded only if the measured level is actually above the relevant value. In this case, the only chemical close to a guideline value was nickel in one location at 21 mg/kg. This is equal to the sediment quality guideline for nickel and so no samples exceeded any of the guidelines for these metals.

If the sediment guideline for tributyltin is applied to the monobutyltin results (which is likely to be conservative), the levels measured near Kurnell are around 10 times lower than the sediment quality guideline and around 80 times lower than the high end sediment quality guideline.

These results confirm that the deeper sediments within the project footprint are not contaminated and effects to any organisms should those sediments be disturbed would be negligible.

6.2 Additional information (Dec/Jan 2022/23)

6.2.1 General

To develop a response to the RFI, ERM developed a sampling and analysis quality plan (SAQP) detailing the collection of appropriate sediment and water samples within the footprints of the proposed ferry wharves. This work was undertaken in December 2022.

Sediment samples were collected in 6 locations along the footprint of the proposed wharf at Kurnell and at La Perouse. Cores were taken to 1 m depth and sub sampled to provide the laboratory with 3 samples for analysis – surface, 0.5 m and 1 m depth (approximately). **Figures 6.1** and **6.2** show the sampling locations.

The detailed site investigation report prepared by ERM outlining the approach to sample collection and all laboratory reports is provided in **Appendix C**.



Legend

	Construction Boundary
	National Park
	Ferry Design (Concept)
	Sediment Core Location

Data Source:
 Site Layout : Client Provided
 NSW DFSI, DCDB/DTDB, 2020
 Nearmap Imagery September 2020

Sampling Locations - Kurnell Wharf Site		F6.1
Drawing No: 0564417s_SACP_G007_R0.mxd	Kamay Wharf Project Sediment Investigation	
Date: 1/10/2020	Drawing Size: A3	
Drawn By: GC	Reviewed By: IB	Client: Arup Australia Pty Ltd
Coordinate System: GDA 1994 MGA Zone 56		 <small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small>



Legend

- Construction Boundary
- Cadastre (Lot)
- National Park
- Ferry Design (Concept)
- Sediment Core Location

Sampling Locations - La Perouse Wharf Site		F6.2
Drawing No: 0564417s_SACP_G008_R0.mxd	Kamay Wharf Project Sediment Investigation	
Date: 1/10/2020	Drawing Size: A3	<div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 10px;"> </div> <div style="text-align: center;"> N </div> </div>
Drawn By: GC	Reviewed By: IB	
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.

Data Source:
 Site Layout : Client Provided
 NSW DFSI, DCDB/DTDB, 2020
 Nearmap Imagery September 2020



Elutriate samples were generated from the sediment samples in line with the NAGD (NAGD 2009). Elutriate was generated from sediment samples taken at the surface of 2 locations at La Perouse and 4 locations at Kurnell.

Water samples were also collected – 1 sample from each proposed wharf location.

All samples were sent to appropriate laboratories for analysis in line with the SAQP.

Sediment, elutriate and water samples were analysed for the list of chemicals in **Table 6.2**. The data are included in **Appendix B**.

Table 6.2: Analytical suite used

List of chemicals included in analytical suite – sediments and water		
Metals/metalloids	N-MeFOSA	Omethoate
Arsenic	N-MeFOSAA	Pirimiphos methyl
Barium	PFOSA	Pyrazophos
Beryllium	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	Naled (dibrom)
Boron	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	Tokuthion
Cadmium	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	Trichloronate
Chromium	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	O-Demeton
Cobalt	Pesticides	S-Demeton
Copper	DDTs	EPN
Lead	Aldrin	Fensulfothion
Manganese	Azinophos methyl	Polycyclic aromatic hydrocarbons (PAHs)
Mercury	BHC (α , β , δ & γ)	Acenaphthene
Nickel	Chlordane	Acenaphthylene
Vanadium	Chlorfenvinphos	Anthracene
Zinc	Coumaphos	Benz(a)anthracene
Antifouling compounds	Diazinon	Benzo(a)pyrene
Monobutyltin	Dichlorvos	Benzo(b&j)fluoranthene
Dibutyltin	Dieldrin	Benzo(g,h,i)perylene
Tributyltin	Dimethoate	Benzo(k)fluoranthene
PFAS	Disulfoton	Chrysene
PFBA	Endosulfan (I, II and sulfate)	Dibenz(a,h)anthracene
PFPeA	Endrin (parent, aldehyde, ketone)	Fluoranthene
PFHxA	Ethion	Fluorene
PFHpA	Ethoprop	Indeno(1.2.3-cd)pyrene
PFOA	Fenitrothion	Naphthalene
PFNA	Fenthion	Phenanthrene
PFDA	Heptachlor (parent and epoxide)	Pyrene
PFUnDA	Hexachlorobenzene	Petroleum hydrocarbons
PFDoDA	Malathion	Benzene
PFTTrDA	Merphos	Ethylbenzene
PFTeDA	Methoxychlor	Toluene
PFPrS	Methyl parathion	Xylenes
PFBS	Monocrotophos	Total recoverable hydrocarbons
PFPeS	Parathion	F1 – (C6-C10 fraction – BTEX)
PFHxS	Phorate	F2 – (>C10-C16 – naphthalene)
PFHpS	Ronnel	F3 – (>C16-C34)
PFOS	Sulfrofos	F4 – (>C34-C40)
PFNS	Terbufos	Others
PFDS	Tetrachlorvinphos	Fraction organic carbon (for sediments)
2-N-EtFOSE	Toxaphene	Moisture content (for sediments)
2-N-MeFOSE	Mevinphos	
N-EtFOSA		
N-EtFOSAA		

6.2.2 Sediments

Most chemicals analysed in the sediment samples were reported as not detected above the laboratory reporting limit in the analysis by Eurofins. This included the petroleum hydrocarbons, antifouling compounds, all of the PFAS and all of the pesticides. Only some of the metals were measured at levels above limits of reporting. Metals are naturally occurring in rocks and soil, so it is not unexpected that these chemicals were detected.

All of the samples from the Kurnell footprint and samples from 2 locations within the La Perouse footprint were sent to the National Measurement Institute for retesting for the pesticides, PCBs and antifouling compounds to achieve lower limits of reporting. The pesticides and PCBs were not reported above the more sensitive limit of reporting in any sample. Tributyltin and dibutyltin were not reported above the more sensitive limit of reporting in any sample. Monobutyltin (a breakdown product of tributyltin) was detected in most samples.

The complete dataset is included in **Appendix B**.

The limits of reporting used in the analysis are generally in line with the recommended practical quantitation limits listed in the NAGD (NAGD 2009).

Table 6.3 shows the measured concentrations that were reported in at least one sediment sample for Kurnell. **Table 6.4** shows the measured concentrations that were reported in at least one sediment sample for La Perouse.

Table 6.3: Results for sediment samples at Kurnell

Chemical	Concentration (mg/kg)																		Sediment guideline (low/high) (mg/kg)
	SED01			SED02			SED03			SED04			SED05			SED06			
	0	0.5	1	0	0.5	1	0	0.5	1	0.1	0.5	0.9	0.1	0.4	0.675	0.1	0.5	0.9	
Arsenic	3.6	3.9	3.6	4	2.8	<2	2.5	2.5	3.3	4.2	2.4	3.4	2.2	2.6	<2	<2	2	2.6	20/70
Boron	27	32	25	19	16	19	23	17	30	32	26	29	24	27	19	13	36	12	NG
Chromium	8.2	8.6	7	7.1	7.4	6.4	5.3	5	10	6.6	6.5	10	<5	6.7	6.4	<5	5.4	<5	80/370
Copper	<5	<5	5.1	<5	<5	<5	<5	<5	<5	<5	<5	5.9	<5	<5	6.3	<5	<5	<5	65/270
Lead	7.5	8.6	9.2	8.4	8.9	<5	5.6	5.5	12	7	7.5	12	7.4	9.8	9.5	<5	9.1	5.8	50/220
Manganese	39	46	42	26	29	23	33	33	43	37	34	37	29	31	23	24	37	45	260 ^N
Mercury	<0.1	<0.1	<0.1	0.1	0.1	<0.1	<0.1	<0.1	0.2	<0.1	<0.1	0.2	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	0.15/1.0
Nickel	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	21/52
Zinc	17	18	18	21	19	10	11	12	29	16	17	30	13	25	21	8.3	18	13	200/410
Tributyltin	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.009/0.07 @1% TOC
Dibutyltin	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Monobutyltin	0.00071	<0.0005	0.0018	<0.0005	0.001	<0.0005	0.00065	0.00085	0.00095	0.00068	0.00092	0.00064	<0.0005	0.0016	0.0014	<0.0005	0.0012	<0.0005	
Fraction organic carbon	0.8	1.1	1	1.1	1.3	1.1	0.5	0.7	1.3	1.7	0.8	1.4	0.4	1.3	<0.1	1.4	<0.1	<0.1	NR

Notes:

- ^a = Sediment guidelines (NAGD 2009; Simpson, S.L. et al. 2013)
- ^N = NOAA Screening Quick Reference Tables (SQUIRTs) (Buchman 2008)
- NG = no guideline available
- NR = guideline not relevant

Table 6.4: Results for sediment samples at La Perouse

Chemical	Concentration (mg/kg)																		Sediment guideline (low/high) (mg/kg)
	SED01			SED02			SED03			SED04			SED05			SED06			
	0	0.5	1	0	0.5	1	0	0.5	1	0	0.5	1	0.1	0.4	0.75	0	0.5	1	
Arsenic	<2	3.5	3.7	3.9	4.3	6.8	<2	2.8	2.2	2.1	3.3	<2	<2	<2	<2	4.3	2.4	5.8	20/70 ^a
Boron	<10	16	27	11	13	14	<10	26	17	18	18	27	15	17	14	18	22	38	NG
Chromium	<5	<5	<5	<5	<5	<5	<5	<5	<5	3	<5	<5	<5	<5	<5	3	<5	7.6	80/370 ^a
Cobalt	<2	NA	NA	<5	<5	7.7	<5	<5	<5	<2	NA	NA	NA	NA	NA	<2	NA	NA	10 ^N
Copper	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	65/270 ^a
Lead	6	<5	<5	7.4	6.8	5.5	<5	6.9	5.9	8.1	9.5	<5	6.5	7.8	17	6.9	<5	<5	50/220 ^a
Manganese	10	12	10	15	17	<5	7.3	12	8.5	15	17	11	13	14	8.3	14	12	15	260 ^N
Mercury	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.15/1.0 ^a
Nickel	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	21/52 ^a
Zinc	47	6.5	6	8	10	5.8	<5	12	8.1	19	15	7.4	23	13	13	8.8	5.8	7.1	200/410 ^a
Tributyltin	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.009/0.07 ^a @1% TOC
Dibutyltin	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Monobutyltin	<0.5	<0.5	<0.5	0.0011	0.0022	0.0009 7	0.0006 7	0.0007 8	0.0024	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	See guideline for Total PAHs
Benzo[ghi]fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[k]fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	0.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Chrysene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Benzo[a]pyrene equivalents	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	0.7	<0.6	0.7	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6	
Phenanthrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Pyrene	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	1.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Total PAHs	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	5.5	<0.5	3.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	10/50 @1% TOC
PFOS	0.0004	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.06 ^S @1% TOC
Fraction organic carbon	0.14	<0.1	0.8	1.1	3.7	1.8	<0.1	<0.1	2.1	1.5	2	0.6	<0.1	0.6	<0.1	0.8	1.5	0.3	NR

Notes:
^a = Sediment guidelines (NAGD 2009; Simpson, S.L. et al. 2013)
^N = NOAA Screening Quick Reference Tables (SQUIRTs) (Buchman 2008)
^S = Simpson et al. 2021 (Simpson, Stuart L. et al. 2021)
 NG = no guideline available
 NR = not relevant for a guideline; NA = not analysed

Kurnell

The results for Kurnell show that no chemicals were detected at levels above the high sediment quality guideline value and almost all were also below the low sediment quality guideline value.

The only chemical that was detected slightly above the low sediment quality guideline value was mercury at 0.2 mg/kg. There are a number of matters that are important to consider in relation to this value:

- Laboratories only report results for mercury to 1 significant figure – i.e. the method is not sensitive enough to report 2 significant figures (i.e. 0.15 mg/kg, for example). This means a result of 0.1 or 0.2 mg/kg could actually be 0.15 mg/kg depending on the rounding undertaken and the resolution of the result compared to the noise in the equipment.
- Alternatively, rounding of the low sediment quality guideline value to allow appropriate comparison with the results gives a value of 0.2 mg/kg.
- Results at around the limit of reporting have a larger measurement error than results that are well above the limit of reporting. This means results such as 0.1 mg/kg and 0.2 mg/kg are essentially the same as the limit of reporting (within the measurement error).

These considerations mean that the results in the deeper samples at SED03 and SED04 (i.e. 1 m) are in compliance with the relevant low sediment quality guideline value for mercury as well as the high sediment quality guideline value. It is also noted that the deeper sediments (analysed during the development of the EIS) also showed no results were above the limit or reporting for mercury.

The results for monobutyltin are all below the low and high sediment quality guideline that is normally applied to tributyltin. It is conservative to apply this guideline to monobutyltin.

None of the organochlorine pesticides or PCBs were detected in any of the samples. This is as expected, given that these chemicals were banned from use in the 1980s and 1990s. Other types of analysis of environmental samples no longer report detectable levels of these chemicals (e.g. sewage analysis etc).

La Perouse

The results for La Perouse are similar to those for Kurnell. Mercury was not detected above the low sediment quality guideline value. All metals that were detected were in compliance with both the low and high sediment quality guideline values.

A number of additional chemicals were detected in one location in this area including a number of PAHs and PFOS (the most commonly detected PFAS). All of these chemicals were below relevant sediment quality guideline values.

The results for monobutyltin are all below the low and high sediment quality guideline that is normally applied to tributyltin. It is conservative to apply this guideline to monobutyltin.

None of the organochlorine pesticides or PCBs were detected in any of the samples. This is as expected, given that these chemicals were banned from use in the 1980s and 1990s. Other types of analysis of environmental samples no longer report detectable levels of these chemicals (e.g. sewage analysis etc).

6.2.3 Elutriates

Elutriate testing is designed to simulate the release of chemicals from the sediments when they are disposed as dredged material (i.e. dropped from a barge to the seafloor at a disposal location) (NAGD 2009). This can also be used to estimate what might move from the sediments into the water during disturbance of sediments during works such as those proposed for this project although it is noted that this test is likely to overestimate what might move into the water column when small amounts of sediments are briefly disturbed during works compared to dumping of large amounts into deep water where sediment particles are in full contact with water for an extended period (NAGD 2009).

The test involves shaking a sediment sample with seawater (1:4 ratio) for 30 minutes, then allowing the sediment to settle for 1 hour. The seawater is then centrifuged or filtered to ensure appropriate removal of any remaining suspended sediments. The seawater is then analysed in the same way as the surface water samples discussed below. A sample of the seawater for the test should also be analysed to ensure an understanding of background concentrations (NAGD 2009).

The NAGD notes that the 1:4 ratio used in the test is likely to greatly overestimate water column concentrations relevant to a situation after the initial disposal of material at a dredge spoil dumping location. The document notes that dilution is likely to be of the order of >100 fold after an initial 4 hour period (NAGD 2009).

No chemicals were detected above the limits of reporting in any of the elutriate samples. The table of data is provided in **Appendix B**.

It is noted that the limits of reporting used for these samples were in line with those normally provided for elutriate samples. Testing of elutriate samples often has higher limits of reporting for some chemicals than freshwater or marine water samples due to the nature of the elutriate sample. The limits provided for this assessment were as follows:

- PFAS – around 0.01-0.05 µg/L
- Metals – ranging from 1 to 50 µg/L depending on the metal
- PAHs – around 0.001 µg/L
- BTEX – around 10 µg/L
- Butyltins – around 5 µg/L
- Pesticides – 0.2-2 µg/L.

A lower limit of reporting for the butyltins would have been helpful but most laboratories are limited in the limits they can achieve for this group of chemicals.

6.2.4 Surface water

Almost all of the chemicals analysed in the water samples were reported as not detected above the laboratory reporting limit. This included the petroleum hydrocarbons, antifouling compounds, all of the PFAS and all of the pesticides. Only some of the metals were measured at levels above limits of reporting. Metals are naturally occurring in rocks and soil, so it is not unexpected that these chemicals were detected in surface water.

It is noted that the limits of reporting used for these samples were in line with those normally used for such assessments for most chemicals as follows:

- PFAS – around 0.01 µg/L
- Metals – ranging from 0.1/0.2 to 5 µg/L depending on the metal
- PAHs – around 0.001 µg/L
- BTEX – around 1 µg/L
- Butyltins – around 5 µg/L
- Pesticides – 0.2-2 µg/L.

A lower limit of reporting for the butyltins would have been helpful but most laboratories are limited in the limits they can achieve for this group of chemicals.

Table 6.5 shows the measured concentrations for metals that were reported in at least one surface water sample for both sites.

The complete dataset is included in **Appendix B**.

Table 6.5: Results for surface water samples

Chemical	Concentration (mg/L)		Water quality guideline (mg/L)
	Kurnell	La Perouse	
Arsenic	0.002	0.002	0.013 ^a
Lead	0.001	<0.001	0.0044 ^a
Manganese	0.006	<0.005	0.08 ^a
Zinc	0.005	<0.005	0.008 ^a

Notes:

^a = Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018)

All of the chemicals measured above the limit of reporting were present at concentrations below the relevant water quality guideline value (i.e. 95% species protection value).

6.3 Summary

Data relevant to the characterisation of contaminants that may be present in sediments within the footprint of the proposed ferry wharves has been collected by ERM (ERM 2021, 2023).

An assessment of data quality assurance and quality control was undertaken and presented in those reports. This evaluation identified that the data were of suitable quality for interpretation. Given the site history, the data collected provide sufficient data to determine if contamination exists in the area.

Analysis of sediments, elutriate and seawater has shown that the sediments in the footprint of the 2 wharf locations does not contain chemicals at concentrations above relevant national guideline values.

Regardless, further consideration of the potential for the important species indicated in the RFI has been undertaken.

7 Ecology of listed species

7.1 General

The RFI specifically mentions a range of species to be addressed in this response. These species include:

- *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion
- White's Seahorse (*Hippocampus whitei*)
- Cauliflower Soft Coral (*Dendronephthya australis*)
- Black Rockcod (*Epinephelus daemeli*).

To address the issues flagged in the RFI, some basic information about the ecology of these species is required to understand their potential to be living in a location relevant to the project and their potential to interact with sediments in those locations especially if those sediments may be moved around either during construction of the wharves or during operation of the ferries.

ARUP prepared a technical note on the ecology of these species which is in **Appendix C** (ARUP 2022). A short summary is provided here in relation to the aspects most relevant for this assessment.

7.2 Black Rockcod

This is a fish species that has been listed as vulnerable and is known to be present within Botany Bay. **Figure 7.1** shows a Black Rockcod¹. This species prefers rock/rubble/reef habitats close to shore/intertidal. They are known to be territorial (aggressively so in some locations). They are unlikely to travel far from their preferred home location and so have small home ranges. They prefer caves, gutters and crevices. Surveys undertaken during the development of the EIS did not report any observations of this species (ARUP 2022).

¹ <https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/vulnerable-species2/black-rockcod>

As noted in ARUP (2022), there are no areas within the project footprint (for either wharf site) that have the characteristics preferred by this species. There are locations close to the project footprint that may be relevant for this species. It is noted (see **Section 9.1.3**) that the EIS flagged that there were rocky areas within the footprint of the wharves while ERM sampling identified that the sediments were sandy coarse material with shell inclusions. It is not clear whether this species could have relevant habitat within the ferry footprint. The potential for sediments to be disturbed during construction and operation has been assessed regardless, as noted below.



Figure 7.1: Black Rockcod (<https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/vulnerable-species2/black-rockcod>)

NSW DPI² notes that Black Rockcod populations have been significantly reduced over time due to a number of factors including:

- Past overharvesting by line, net and spearfishers
- Hooking and handling injuries as a result of accidental hookings
- Loss or degradation of estuarine and intertidal nursery habitats
- Overfishing of larger males before species protection was put in place in 1983 may have impaired subsequent recruitment and recovery.

Consideration of potential for loss/degradation of habitats due to the movement of sediments or for sediments containing contaminants to move toward such habitats is relevant for discussion in relation to this species.

7.3 Seagrass Meadows of the Manning-Hawkesbury Ecoregion

Seagrass meadows of this sort are listed as a threatened ecological community which is considered endangered. This means the listing does not refer to a single species but to a group of species that are normally found together. This community includes *Posidonia australis* (considered to be a key component of the community as it is slow growing which means it takes longer to recover if disturbed), *Halophila* sp. and *Zostera* sp. (ARUP 2022).

² <https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/vulnerable-species2/black-rockcod>

Figure 7.2 shows some examples of such meadows³.

Such seagrass meadows occur in sheltered areas within permanently open estuaries from Wallis Lake to Port Hacking (i.e. including Botany Bay) in NSW. They are present in areas close to the shoreline but in areas without high wave energy (i.e. sheltered) (ARUP 2022).

Such species are present within the project footprint. The species primarily present within the footprint are *Halophilia* and *Zostera* species. *Posidonia* is present covering a large area (>6 ha) adjacent to the footprint of the Kurnell wharf but is limited to a few small areas in and around the La Perouse part of the project. This area of *Posidonia* is present close to the shoreline near the Kurnell township and close to the existing wharf that was used for the Caltex refinery (ARUP 2022).

NSW DPI⁴ notes that this species is extremely slow to regenerate, taking up to 50 years to regrow a 1 m² area. The information available from NSW DPI also notes that the sorts of issues that have impacted on this species leading to the endangered classification for the whole community include:

- Construction of foreshore structures such as jetties, pontoons and berthing areas which cause shading and loss of seagrass
- Dredging
- Damage from anchors, boat propellers, moorings and other boating related activities
- Increased sediment entering waterways which can smother seagrass and block light
- Trampling of seagrass beds due to wading by humans and domestic animals
- Extreme storm events can dislodge large areas of *Posidonia*. Stormwater discharges can also change water quality and salinity levels
- Climate change.

Consideration of potential for loss/degradation of habitats due to the movement of sediments or for sediments containing contaminants to move toward such habitats is relevant for discussion in relation to this species.

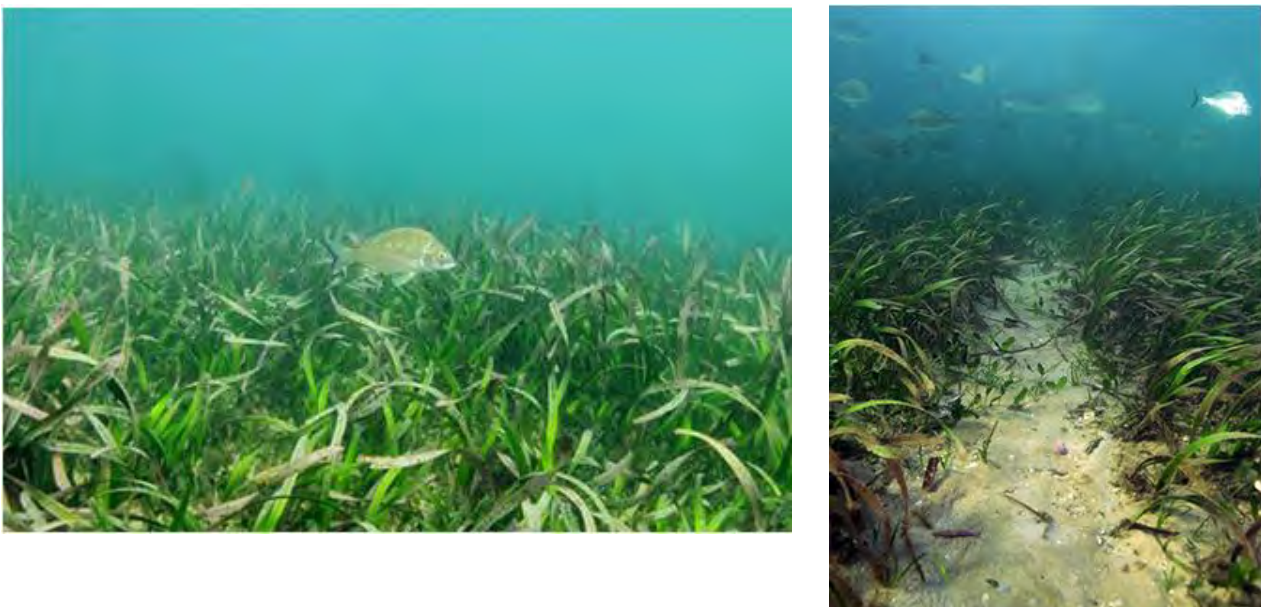


Figure 7.2: Seagrass meadows (<https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/endangered-populations2/posidonia-australis>)

³ <https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/endangered-populations2/posidonia-australis>

⁴ <https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/endangered-populations2/posidonia-australis>

7.4 White's Seahorse

This species of seahorse occurs along the east coast of Australia. They prefer locations where sponge gardens, seagrass meadows or soft coral are present. They can also use artificial habitats like jetty pylons (ARUP 2022).

Figure 7.3 shows a seahorse interacting with seagrass and soft coral⁵. They remain within areas with these types of habitats (i.e. small home range potentially).



Figure 7.3: (<https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/endangered-species2/whites-seahorse>)

As noted by NSW DPI, loss of such habitats has been the major contributor to this species being classified as endangered⁶. This species has been observed within Botany Bay. Surveys undertaken during the preparation of the EIS did not find this species present in the project footprint. There were observations of the seahorse in areas adjacent to the project footprint (ARUP 2022).

The potential for impacts on this species due to this project are, therefore, primarily related to the potential for habitat loss. The EIS provided consideration of this issue and noted that there were areas adjacent to the project footprint that would provide suitable habitat should such habitat changes occur (ARUP 2022).

Potential for disturbance of sediments that could be contaminated during construction or operation of the wharves (i.e. the focus of this RFI) is discussed in **Sections 7.3** and **7.5** in relation to seagrass and soft coral. Any changes in these species due to effects from contaminated sediment would have potential to impact on this seahorse (ARUP 2022).

Consideration of potential for loss/degradation of habitats used for shelter by this species due to the movement of sediments would be the main issue relevant for discussion in relation to this species.

7.5 Cauliflower Soft Coral

This species of soft coral is listed as endangered⁷. This species of soft coral is found in abundance only in areas in Port Stephens and Brisbane Waters (i.e. Hawkesbury River). Sporadic observations have been made in other estuaries including Botany Bay. It is found in sandy areas with high current flow (ARUP 2022).

⁵ <https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/endangered-species2/whites-seahorse>

⁶ <https://www.dpi.nsw.gov.au/fishing/threatened-species/what-current/endangered-species2/whites-seahorse>

⁷ <https://www.dpi.nsw.gov.au/fishing/species-protection/what-current/endangered-species2/cauliflower-soft-coral>

Figure 7.4 shows this species.



Figure 7.4: (<https://www.dpi.nsw.gov.au/fishing/species-protection/what-current/endangered-species2/cauliflower-soft-coral>)

NSW DPI⁸ notes that this species has become endangered due to the following matters:

- Changes to sediment fluctuation and movement due to coastal development can smother existing habitat
- Habitat damage from boat anchors and moorings
- Predation from the heterobranch seaslug
- Extreme weather events such as large storms

ARUP (2022) notes that observations of this soft coral have been made in areas somewhat adjacent to the project footprint but in areas where higher current flows would be expected – i.e. not in areas protected from high wave energy as required by the seagrass species. It is, therefore, likely (and is observed) that the locations where seagrass meadows occur do not overlap with locations where this soft coral occurs.

For the Kurnell area, the observed location of the soft coral is around 800 m from the proposed wharf location. For the La Perouse area, the observed location of the soft coral is around 500-600 m from the proposed wharf location. Both areas where this species has been observed are also not in the area between the 2 wharves where the ferry will operate (see **Figure 3.1**). In comparison, the areas where seagrass are present are much closer to and within the project footprint (ARUP 2022).

Consideration of potential for loss/degradation of habitats due to the movement of sediments or for sediments containing contaminants to move toward such habitats is relevant for discussion in relation to this species.

8 Conceptual site model

Sediments within Botany Bay are always being moved around. As for any embayment, sediments will be moved by natural actions as well as boat movements or construction.

⁸ <https://www.dpi.nsw.gov.au/fishing/species-protection/what-current/endangered-species2/cauliflower-soft-coral>

Actions including:

- winds
- ocean waves
- storms
- ship movements
- tides/currents
- stormwater discharges from all areas around the Bay
- freshwater discharges from Georges River

have the potential to disturb sediments from the seabed and move sediments from one location to another within the Bay.

Most of these actions already have the potential to impact on the sediments of interest for this project (in addition to the works due to the project) except perhaps ocean waves as they are not likely to have a significant impact on the areas of interest as the project areas are in more protected locations. The EIS notes that ocean waves may occasionally reach the project areas, but this would only be during unusual wind patterns.

The RFI being addressed in this assessment is focused on understanding if disturbance of sediments from the project footprint due only to the works to construct or operate the project could be sufficient to be of concern to a range of organisms (plants and animals), particularly if those sediments were contaminated.

This requires evaluation of the following aspects:

- can the sediments be disturbed by the actions related to this project (i.e. construction of the wharves, operation of the ferries (or other craft))
- if the sediments can be disturbed, can sufficient amounts of sediment move into areas where organisms of importance could be present
- do the sediments contain contaminants that may be of concern based on the amount of sediment that could move into locations where species of importance are located.

Organisms can be impacted by increased sediment levels or sediment containing contaminants in a number of ways:

- physical effects from smothering
- release of chemical contaminants from disturbed sediments into the water column to which organisms may then be exposed
- exposure of organisms to chemical contaminants during direct contact with the sediments.

Smothering could occur if sufficient sediments are disturbed during the project (construction or operation). A discussion of the potential for sufficient sediments to be disturbed is provided in **Section 9**.

Potential for organisms to be impacted by contaminants in disturbed sediments (or released into the water column) is discussed in **Section 10**.

Suspended sediment concentrations in Botany Bay are around 5 mg/L most of the time. Naturally occurring events like storms and high winds as well as shipping movements will increase those concentrations. Suspended sediments in such circumstances may reach 25 mg/L. Total suspended solids concentrations less than 20 mg/L are not easily visible especially if present only at depth in the water column – i.e. close to seabed (taken from Port Botany Expansion EIS, prepared by URS⁹).

⁹ <https://www.nswports.com.au/port-botany-expansion-environmental-impact-statement>

9 Potential for sediment to be disturbed due to project works

9.1 Construction methodology

9.1.1 General

The aspects of project construction relevant to consideration of potential disturbance of sediments are those related to the construction of the 2 wharves. The wharves are to be constructed as shown in **Figures 3.2** and **3.3**. The wharves are constructed from piles with an above water platform connecting the piles and allowing people to have access to the boats.

The methodology for construction includes a number of different approaches:

- La Perouse
 - Installation of piles for the wharf using land based equipment near the shoreline
 - Installation of piles for the middle part of the wharf from a temporary crane platform
 - Installation of piles for the deeper part of the wharf using plant located on barges
 - Construction of the actual wharf platform.
- Kurnell
 - Installation of piles for the wharf near the shoreline using land based equipment and a temporary causeway
 - Installation of piles for most of the wharf using plant located on barges
 - Construction of the actual wharf platform.

Based on Figures 5-4 and 5-5 in Chapter 5 of the EIS, the wharves will each have around 50 piles.

There are a number of ways piles can be installed including:

- boring/drilling a hole into which the pile is placed
- screwing the piles into the seabed
- vibrating/hammering the pile into place.

Each pile is installed separately one at a time.

This activity, therefore, occurs in only a small area at any particular moment in time.

It is likely that vibratory or drilling approaches will be used based on information in Chapter 5 of the EIS. The vibratory approach requires vibration for around 5 minutes to get the pile started into the seabed and then hammering for around 1 hour to embed the pile sufficiently deep into the seabed. Drilling approaches require drilling for up to 2 hours for each pile.

Given the time taken for each pile to be installed, it is likely that only 1 or 2 piles will be installed on any single day. The piles are around 0.6 m in diameter, so the area where sediments might be disturbed specifically during installation of a pile is around 1-2 m². For some locations where piles are to be installed, sediments may be disturbed over a slightly larger area due to the movement or fixing of heavy equipment.

During installation of piles closest to the shoreline, the equipment is used from landside, which means heavy equipment required to undertake piling will not impact on the movement of sediments as it will be located on the land. The only way sediments would be disturbed during these works would be due to the actual installation of the piles.

During installation of piles in the middle part of the wharves, a temporary crane platform or causeway will need to be installed. The heavy piling equipment would then be installed on these platforms.

There would be potential for disturbance of sediments during the installation of each pile as well as during the installation of the platforms (crane or causeway) at the initial setup stage. There is also potential for sediment disturbance during the movement of heavy equipment on the platforms assuming the equipment

gets close enough to the edges of the platform/causeway to disturb the water sufficiently to disturb the sediment or to disturb the sediment directly if shallow enough.

For the temporary causeway, it might be possible for such equipment to interact with water/sediments at the edge of the causeway depending on how the equipment can be moved around the causeway (i.e. if there is sufficient room on the causeway for the plant to move forward and back to reach the desired location without touching the water's edge). It is unlikely that this aspect will be an issue for the crane platform once installed as the platform will presumably be above the water surface.

During installation of piles in the deeper part of the wharves, marine barges, on which the heavy piling equipment is placed, need to be brought to the relevant location for each pile. Once in the correct place, the barges need to be sufficiently fixed to the seabed to allow piling to occur. The barges would need to be moved as required to allow each pile to be installed – depending on the equipment it might be necessary to move the barge for every new pile, but it might also be possible to install several piles from one barge location. There would be potential for disturbance of sediments during the installation of each pile as well as during each movement of the marine barge holding the piling equipment. The movement of these boats would be similar to existing movement of water craft in those locations.

9.1.2 Controls

It is a normal requirement during works that could disturb sediments (e.g. dredging or piling) for a sediment/silt curtain to be installed to limit the potential movement of sediments during such works. It is assumed that this will occur for this project where possible – this would be outlined in detail in the Erosion and Sediment Control Plan which would be developed by the successful contractor once the project is fully approved and being licenced by NSW EPA.

It is noted that the use of silt curtains in shallow waters can be difficult and can cause more disturbance of sediments than not using the curtains.

Land based construction projects are also required to manage the potential for disturbance of soils using silt curtains or hay bales (or other silt control equipment). Such controls are placed at locations where stormwater may run off a site into regional stormwater management systems. Such controls limit the movement of soil/sediment into such systems during times where the site is bare earth after the removal of all structures and vegetation and prior to the commencement of construction and during construction¹⁰.

Managing the potential for sediments to be disturbed is a common requirement for all dredging projects and wharf construction projects (or wharf removal projects). It is expected that controls to ensure effective management are included in all such projects. The following Australian guidance documents include requirements for the use of silt curtains (where operable and/or where fine materials are present).

- WA Environmental Protection Authority, Technical Guidance Environmental Impact Assessment of Marine Dredging Proposals (WA EPA 2016)
- EPA Victoria, Best Practice Environmental Management, Guidelines for Dredging (EPA Victoria 2001).

9.1.3 Natural conditions

Chapter 10 of the EIS notes the following:

- intertidal area at La Perouse is predominantly rocky with sand toward the shoreline of Frenchmans Bay (i.e. further from the project footprint)
- subtidal area at La Perouse is rocky reef with soft sandy sediments in the deeper areas
- intertidal area at Kurnell is predominantly rocky from Silver Beach to Inscription Point
- subtidal area at Kurnell is also rocky reef among sandy sediments.

¹⁰ <https://www.environment.nsw.gov.au/research-and-publications/publications-search/managing-urban-stormwater-soils-and-construction-volume-1-4th-edition>

The most recent sampling exercise (ERM 2023) provides additional confirmatory information about the nature of the project footprint.

- Kurnell – shallow sediments were primarily coarse sand and shell fragments
- La Perouse – shallow sediments were primarily coarse sand and shell fragments (up to 50% shell fragments)
- Sediment sampling location 5 for both the Kurnell and La Perouse area showed refusal at around 0.75 m depth where rock was encountered.

These observations confirm that the sediments of interest are primarily coarse materials (sand and shell) with rock encountered within the top 1 m in some parts of the footprint.

These findings about the nature of the seabed in the areas where the wharves will be constructed add to understanding about the potential for sediment disturbance during construction. They indicate that the seabed is likely to be mostly rock which doesn't easily get disturbed (but may hold small amounts of material that could be disturbed by activities) or sand which can get disturbed but the majority of which rapidly settles due to the size and weight of the particles.

9.1.4 Suspended sediment modelling

Appendix T of the EIS provided discussion and modelling of how sediments might move away from the project areas if disturbed during works (Cardno 2021).

The modelling undertaken assumed:

- a pile is pushed/vibrated/hammered 5 m into the seabed over a 2 hour period. This means a cylinder of sediment of 0.6 m diameter and 5 m long (i.e. a volume of 1.4 m³) needs to be moved from the pile location and replaced by the concrete pile. The modelling assumed all of this sediment got disturbed and moved into the water column over this time period. In reality, much of this sediment would be compacted under the bottom of the concrete pile.
- piling occurred into sand, however, at least some areas where piles will be installed are rock so less sediment will be disturbed during piling in those locations than has been estimated in this modelling.
- 10% of the sand disturbed during piling was sufficiently fine to stay suspended in the water column where it might be moved away from the piling location to areas nearby. The remaining 90% would be sufficiently heavy and large that it would rapidly settle out immediately around the piling location.
- Current speeds relevant to the 2 locations (i.e. 0.25 m/s at Kurnell and 0.05 m/s at La Perouse). The current speed is relevant to the calculations as it determines how quickly and how far any disturbed sediments might travel.

These are all considered to be conservative assumptions – i.e. will result in an overestimate of how much sediment may move during construction.

In addition to calculating potential movement of suspended sediments during piling, modelling of such movement during the construction of the temporary causeway at Kurnell was also undertaken. It is noted that changes have occurred in the procedures to be used at Kurnell since the EIS was prepared and the temporary causeway to be created at Kurnell will now be much smaller than originally envisaged. This means the modelling calculations are an overestimate of what is actually likely to occur.

Piling works are proposed to take 7-11 months and are the major part of the works to construct the wharves.

As noted above, the background suspended solids concentration in Botany Bay is around 5 mg/L on average and up to 25 mg/L under extreme conditions.

Piling

The modelling results for piling at Kurnell indicate that it is possible for increased suspended sediment levels to be present in the water column (for the centre line of any plume) as follows:

- 20 m from the piling – increased suspended solids concentrations of 0.5-4 mg/L are estimated.
- 40 m from the piling – increased suspended solids concentrations of 0.1-0.9 mg/L are estimated close to the seafloor only.
- 60 m from the piling – increased suspended solids concentrations of 0.1-0.3 mg/L are estimated close to the seafloor only.
- 80 m from the piling – increased suspended solids concentrations of 0.1 mg/L are estimated close to the seafloor only.

For La Perouse, the modelling used a slower current speed as the location is more protected and found that suspended solids concentrations were even less impacted by the project. The modelling results indicate that at La Perouse it is possible for increased suspended sediment levels to be present in the water column as follows:

- 20 m from the piling (this would be located within the project footprint and barges/equipment may be present) – increased suspended solids concentrations of 0.2-1 mg/L are estimated.
- 40 m from the piling – increased suspended solids concentrations of 0.1-0.2 mg/L are estimated close to the seafloor only.

Both these sets of results indicate that, during the piling works:

- very small amounts of suspended sediment could be present in the water column moving away from the piling location and only close to the seabed due to the process of installing a pile
- estimated levels of suspended solids would not be sufficient to be visible in the water column even at 20 m from the piling location or if the plume was to be present at the water surface
- modelled concentrations are not significantly different from the normal range in Botany Bay even at only 20 m from the piling location.

In both locations (Kurnell and La Perouse), such changes will only be seen within the already designated project areas (see **Figure 3.1**).

A change of 1-4 mg/L (i.e. worst case) is not going to result in a significant change in exposure to the sediments for any organisms in the area than they are normally exposed too. This also means should there be contamination present in these sediments, there is not going to be a noticeable change in the amount of a contaminant that such organisms could be exposed too.

The plume shown by the modelling was assumed to be around 20 m wide moving away from the piling location. The concentrations calculated were those at the midline of the plume. Concentrations around the midline will all be lower than the concentrations listed.

9.1.5 Refined assessment of sediment disturbance

Background conditions

Considering a box of water of 20 m long (distance from pile to point 20 m down current) and 20 m wide (as indicated in modelling) and a height of 1 m above the seabed, then the average amount of suspended sediment normally present in that box of water is 2 kg (i.e. 5 mg/L in 400,000 L of water). For the same box, the amount of suspended sediment during high energy events would range up to 10 kg (i.e. 25 mg/L in 400,000 L). This higher amount is likely to occur for shorter periods during high winds, storms etc.

If this amount of suspended sediment settles out to the seabed over the same area (i.e. 20x20x1 m; 400 m²), then that would result in 5 – 25 g per m² (2-10 kg/400 m²). This could happen all day every day. This is a high

end version of the calculation as not all of the material suspended in the water column will settle onto the seabed in this location – some will continue to move with the current or tide or wind.

The organisms present in the project area (and the rest of Botany Bay) do not appear to be impacted by the movement of such amounts of suspended sediments. The EIS noted the presence of the species of importance in relevant areas (related to their preferred habitats) across the project area and surrounds.

It is acknowledged that organisms, such as the species of importance for this assessment, can be impacted by large amounts of suspended sediments, especially where plumes are sufficient to stop light penetration or show visible coverage of the seabed. This calculation has been undertaken to provide a picture of the normal amounts of sediment that might move around Bay that these organisms normally see.

Conditions during piling

Undertaking the same calculation using information from the modelling indicates that there would be around 1.6 kg of sediment in the same box of water down current of the installation of a pile. This is based on assuming that any plume from the piling occupies the box of water (i.e. 20 m long x 20 m wide x 1 m high from seabed) at the worst case concentration (4 mg/L) throughout the entire box.

This assumption is an overestimate of the amount of sediment moving from the piling with the current. The modelling just identified the worst case concentration along the centre line. The concentration to either side of the centre line will be decreasing significantly in both directions over the assumed 20 m width. It is, however, possible that the concentration 1-2 m from the piling location will be higher than the assumed worst case concentration so assuming 4 mg/L is present through the entire box may not be too much of an overestimate.

At least some of the material that is disturbed during the piling will be the same material that would have been disturbed even if piling did not occur so adding the average suspended sediment concentration and the worst case modelled suspended sediment concentration together is likely to be an overestimate of the concentration during the piling. It is also noted that the piling occurs over a few hours not continuously. This means this additional sediment is only present for a short period.

So during the piling it is possible that the amount of sediment that could deposit onto the seabed will be around double the normal average conditions and about 2 times less than under high end conditions such as high wind or high waves.

This means the additional movement of sediment due to the piling will not be discernible compared to both the average conditions and especially when compared to the more extreme conditions that are known to occur in Botany Bay during high winds or wave action during storm conditions.

Causeway

During the early works, a temporary causeway will be constructed at Kurnell.

It is noted that, since the modelling was undertaken, the size and nature of this causeway has changed. It will now be much smaller as more of the piling will be undertaken using equipment on barges or similar. This modelling is, therefore, a significant overestimate of sediment movement during this part of the works.

The modelling for sediment disturbance during these works – which will only occur for a short time period (likely a few days to a few weeks as to be established during early works) – shows that there is potential for a more significant increase in suspended solids concentrations based on the original design compared to that discussed above for the piling works.

The modelling estimated increases as follows:

- 20 m from the piling – increased suspended solids concentrations of 2-22 mg/L are estimated.
- 100 m from the piling – increased suspended solids concentrations of 0.2-9 mg/L are estimated.
- 160 m from the piling – increased suspended solids concentrations of 0.4-5 mg/L are estimated.

- 200 m from the piling – increased suspended solids concentrations of 0.1-3 mg/L are estimated.

Again, if the maximum suspended solids concentration (22 mg/L) is used along with the same calculation as above, under the worst case, results in around 9 kg of sediment in a box of water of 400 m³.

This level remains within the range normally expected for Botany Bay discussed above.

Summary

This means the potential for smothering of organisms of importance due to excess movement of sediment due to the construction of these wharves is extremely low/negligible.

9.2 Ferry/wharf operations

9.2.1 General

Once the wharves are constructed, the ferries will commence operation. The ferries will move back and forth between the 2 wharves in line with the schedule that will be established based on demand.

Current shipping movements result in movement of sediments in Botany Bay generally– especially around the operational Brotherton dock in the north west corner of the Bay and around the wharf servicing the former refinery at Kurnell. As is normal for boat movements at wharves, there is expected to be some scouring of sediments immediately underneath the area where the boat pulls into the wharf.

Appendix T from the EIS also briefly addresses this matter (Cardno 2021).

Based on experience from other wharves (discussed in Appendix T), it is possible that up to around 1 m of sediment may be disturbed from each berth area over the first year of operation. This will depend on whether sediments are present to that depth in those areas – it is possible that rock will be exposed at shallower depths so not the entire amount of sediment discussed below will be relevant.

9.2.2 Modelling

Information provided in Appendix T suggests that a boat around 30 m in length may be used for this service. Such a boat is around 8 m wide. As noted in Figure B3 in this Appendix, the area where scour could occur based on the Manly Wharf East is about twice the size of the boat. This means an area around 400-500 m² could be subject to scour.

Assuming that around 400-500 m³ of sediments (i.e. 400-500 m² x 1 m) would be disturbed over a 1 year period as the boats commence operation, it means that around 1.1-1.4 m³ could be disturbed per day. If it is assumed that 10% of this is fines that could move further than a few metres, it means that around 0.14 m³ moves into surrounding areas each day. Where that material ends up would depend on the tide, currents and winds as well as the actions due to shipping movements in and out of the Bay and the movement of these ferries as they travel further from the wharves (i.e. their movement other than while at berth).

Using this information and assuming that these sediments would settle out all around the berth area over time, the following calculation is possible.

- Area onto which such disturbed sediments could settle – 20 m wide strip around the berth (i.e. (20 x 30) + (20 x 8) + (20 x 8) + (20 x 8) + (20 x 8) m = 600 + 160 + 160 + 160 + 160 = 1,240 m²)
- Amount of sediment that could settle onto this area is 0.14 m³ per day or 200 kg per day (assuming a bulk density of 1,625 kg/m³)
- This gives 0.2 kg of sediment settling out onto each m² of seabed (i.e. 200 kg /1,240 m²) or 200 g approximately
- This is equivalent to 20 mg per square centimetre which is negligible.

This calculation does not include consideration of currents or winds in the movement of these sediments and just assumes all the fine material would move away from the berth into the immediately surrounding area and settle to the seabed and move no further.

In reality, that material will be driven to move around Botany Bay due to the tide, winds, currents and freshwater flows from rivers and stormwater systems such that it does not settle in the immediate vicinity of the berth. Even if some settles into a particular area near the berth, it is likely to be moved around during the next tidal cycle or the next time wind speed picks up etc.

This means the potential for smothering of organisms of importance in the area around the project to occur due to the operation of these ferries is extremely low/negligible.

10 Refined assessment – chemicals in sediments

10.1 General

While the concentrations that were measured in sediments, elutriate or surface water are all in compliance with relevant national guidelines, additional calculations can be undertaken to add further lines of evidence to support the view that there will be negligible levels of contaminants relevant to these works.

The elutriate data from the recent investigation indicate that the potential for chemicals to move from the sediments into the water column when sediments are disturbed is negligible as no detections for any contaminants was reported. No further assessment of this potential exposure pathway is, therefore, required.

The sediment data included detections above the limits of reporting for some chemicals but all results were the same or lower than the relevant sediment quality guideline values. Given that the results were all at or below the sediment quality guideline values, no further assessment is required. However, some additional calculations have been undertaken to provide additional support to the conclusion of negligible risk.

10.2 Example calculation (pre 2022 data – chromium – metal at highest concentration in samples at depth)

If 20 mg of sediment settles onto a square centimetre of seabed (as per worst case from consideration of disturbance during construction or operations) and remains in place mixing with say the top 1 cm of sediment, then the concentration of chromium (for the worst case location listed in **Table 6.1** – pre 2022 data) could be calculated as follows:

- Worst case chromium concentration = 63 mg/kg or 0.063 mg/g
- Amount of chromium in 20 mg of sediment (i.e. 0.02 g of sediment) = 0.00126 mg of chromium (0.063*0.02)
- Mass of sediment (1 cm² x 1 cm – 1 cm³) depends on bulk density = 1.625 g/cm³ – common value for sand
- Concentration of added chromium in sediment at this location after disturbed sediment settles and mixes with top 1 cm of the existing sediments assuming negligible background levels = 0.00126 mg per 1.625 g or around 0.8 mg/kg.

The following is noted about these calculations:

- Concentrations in sediments are reported as mg/kg dry weight but the sediments that will settle out in this situation are not dried. These calculations have assumed mg/kg dry weight are the same as mg/kg in situ which is not the case. This is conservative as the amount in mg/kg dw will be larger than the mg/kg wet weight as that includes the weight of the water etc.
- Chromium is likely to already be present in these sediments at levels higher than 0.8 mg/kg.
- Sediment quality guideline value for chromium is 80 mg/kg.

- An added concentration of 0.8 mg/kg in sediments close to the works due to the movement of sediment to an adjacent location is below the routine limit of reporting and such an extra amount of chromium added to the seabed would not be discernible.

These calculations add to the evidence that these sediments, if disturbed, will not impact on any organisms in the project area, even the specific species of importance.

10.3 Example calculation (2022 data – mercury)

If 20 mg of sediment settles onto a square centimetre of seabed (as per worst case from consideration of disturbance during construction or operations) and remains in place mixing with say the top 1 cm of sediment, then the concentration of mercury (for the worst case location listed in **Table 6.3** – 2022 data) could be calculated as follows:

- Worst case mercury concentration = 0.2 mg/kg or 0.0002 mg/g
- Amount of mercury in 20 mg of sediment (i.e. 0.02 g of sediment) = 0.000004 mg of mercury (0.0002*0.02)
- Mass of sediment (1 cm² x 1 cm – 1 cm³) depends on bulk density = 1.625 g/cm³ – common value for sand
- Concentration of added mercury in sediment at the worst case location after disturbed sediment settles and mixes with top 1 cm of the existing sediments assuming negligible background levels = 0.000004 mg per 1.625 g or around 0.002 mg/kg.

The following is noted about these calculations:

- Concentrations in sediments are reported as mg/kg dry weight but the sediments that will settle out in this situation are not dried. These calculations have assumed mg/kg dry weight are the same as mg/kg in situ which is not the case. This is conservative as the amount in mg/kg dw will be larger than the mg/kg wet weight as that includes the weight of the water etc.
- Mercury may already be present in these sediments at levels around the limit of reporting (0.1 mg/kg).
- Sediment quality guideline value for mercury is 0.15 mg/kg.
- An added concentration of 0.002 mg/kg in sediments close to the works due to the movement of sediment to an adjacent location is below the routine limit of reporting and such an extra amount of mercury added to the seabed would not be discernible.

These calculations add to the evidence that these sediments, if disturbed, will not impact on any organisms in the project area, even the specific species of importance.

11 Uncertainties

The ASC NEPM requires risk assessments to include consideration of the uncertainties present in any such assessment. Uncertainties are present because not every aspect of interest can be measured in an investigation or because the state of knowledge is limited (NEPC 1999 amended 2013c).

Uncertainty in any assessment refers to a lack of knowledge (that could be better refined through the collection of additional data or conduct of additional studies) and is an important aspect of the risk assessment process.

An assessment of uncertainty is usually a qualitative process relating to the selection and rejection of specific data, estimates or scenarios within the risk assessment. In general, to compensate for uncertainty, conservative assumptions are often made that result in an overestimate rather than an underestimate of risk.

For sophisticated risk assessments which include detailed exposure assessment modelling, the ASC NEPM notes that quantitative sensitivity analysis may be an important aspect of evaluating the uncertainties. Such

an assessment includes checking whether conclusions change if assumptions included in the modelling are varied in ways that are reasonable but unlikely. For this assessment, such detailed exposure assessment modelling has not been undertaken, so a quantitative sensitivity analysis is not relevant.

The values adopted for the purpose of quantifying exposure are point values that are derived from a wide range of physiological or behavioural values that are better defined using a distribution. It is overly complex to present the assessment based on distributions hence the point values identified provide an approximation of RME. The overall approach, however, is expected to result in an overestimate of actual exposure.

12 Conclusions

Environmental Risk Sciences Pty Ltd (enRiskS) has been engaged by Arup (on behalf of Transport for NSW) to provide a response to the request for information provided by the Commonwealth in relation to potential sediment contamination for materials that might be disturbed during construction of public ferry wharves to allow a ferry service to operate between La Perouse and Kurnell in Botany Bay (<https://www.planningportal.nsw.gov.au/major-projects/projects/kamay-ferry-wharves>).

This assessment has made use of a range of information including:

- Analysis of various contaminants in sediments at depth collected in 2021
- Analysis of various contaminants in shallow sediments (up to 1 m below seabed), elutriates and surface water collected in 2022
- Ecological information about the species of importance identified by DCCEEW
- Suspended sediment modelling from the EIS
- Development of a conceptual site model relevant to the RFI
- Site specific calculations of the amount of sediments that might deposit on the seabed in areas adjacent to the works
- Site specific calculations of the amount of relevant contaminants that might deposit on the seabed in areas adjacent to the works when disturbed sediments deposit in these areas.

This assessment has found that:

- the potential for sediment to be disturbed by these works is low and in line with naturally occurring sediment movement already occurring in Botany Bay
- the potential for contaminants to move from the sediment into the water column during disturbance is negligible (no detections for elutriate samples)
- the added levels of example contaminants that could move into areas adjacent to the project areas is negligible (calculations indicate added levels will be below the limit of reporting for the chemical).

As a result, the potential for levels of contaminants in shallow sediments that might be disturbed during these works to impact on species of importance is low/negligible.

13 Limitations

Environmental Risk Sciences Pty Ltd has prepared this report for the use of ARUP and Transport for NSW in accordance with the usual care and thoroughness of the consulting profession. It is based on generally accepted practices and standards at the time it was prepared. No other warranty, expressed or implied, is made as to the professional advice included in this report.

It is prepared in accordance with the scope of work and for the purpose outlined in this report.

The methodology adopted and sources of information used are outlined in this report. Environmental Risk Sciences has made no independent verification of this information beyond the agreed scope of works and assumes no responsibility for any inaccuracies or omissions. No indications were found that information contained in information provided for use in this assessment was false.

This report was prepared in December 2022/January 2023 and finalised after auditor comments in April 2023 and is based on the information provided and reviewed at that time. Environmental Risk Sciences disclaims responsibility for any changes that may have occurred after this time.

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This report should be read in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties. This report does not purport to give legal advice. Legal advice can only be given by qualified legal practitioners.

14 References

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- WA EPA 2016, *Technical Guidance, Environmental Impact Assessment of Marine Dredging Proposals*, WA Environmental Protection Authority.



15 Closure

If you require any additional information or if you wish to discuss any aspect of this proposal, please do not hesitate to contact the undersigned on (02) 9614 0297.

Yours sincerely,

Therese Manning (Fellow ACTRA)
Principal
Environmental Risk Sciences Pty Ltd

Dr Jackie Wright (Fellow ACTRA)
Principal/Director
Environmental Risk Sciences Pty Ltd



Appendix A Letter from DCCEEW (RFI)



EPBC ref: 2020/8825

Andrew Dooley
Senior Project Manager
Transport for NSW
33 James Craig Road
ROZELLE NSW 2039

Request for additional information for Kamay Ferry Wharves Project, NSW

Dear Mr Dooley

I refer to the proposed action listed above which is currently being assessed under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Under section 132 of the EPBC Act, the Minister may request further information for the purposes of making a decision on whether or not to approve a controlled action. As a delegate of the Minister, I am writing to request you provide the following further information in regards to potential contamination:

- Undertake surficial sediment characterisation at both sites (including chemical, physical and biological) within the upper 1 metre of the marine deposit profile using detection limits in Table 1 of the *National Assessment Guidelines for Dredging, Commonwealth of Australia, Canberra, 2009*. The department notes that dredging does not form a component of the proposed action, however, these guidelines provide relevant limits for typical sediment contaminants and other analytical parameters.
- Provide an analyses of the sampling include, at a minimum:
 - the common metals and metalloids such as copper, lead, zinc, chromium, nickel, arsenic and selenium, cadmium and mercury;
 - total petroleum hydrocarbons (TPH), volatile hydrocarbons benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN), and polycyclic aromatic hydrocarbons (PAHs) present in petroleum hydrocarbons;
 - organotins from antifouling paints (TBT);
 - organochlorines and polychlorinated biphenyls (PCBs);
 - grainsize analysis and Total Organic Carbon (TOC); and
 - any other contaminants of potential concern determined from a detailed review of known and likely pollution sources to the water and sediments of Botany Bay.

OFFICIAL

- Determine whether the sediment, soil, groundwater or pore water is contaminated based on the following guidelines:
 - *Toxicant default guideline values for water quality in aquatic ecosystems, Australian and New Zealand Guidelines for Fresh & Marine Water Quality (2020)* available at: <https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/water-quality-toxicants>; and
 - *Toxicant default guideline values for sediment quality, Australian and New Zealand Guidelines for Fresh & Marine Water Quality (2019)* available at <https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/sediment-quality-toxicants>.
- If contamination exceeds the above guidelines:
 - Describe the likely dispersal pathways during construction and operation for contaminants identified in the sediment analysis.
 - Discuss the potential impacts of contamination on protected matters during construction and operation, including *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion, White's Seahorse (*Hippocampus whitei*), Cauliflower Soft Coral (*Dendronephthya australis*), and Black Rockcod (*Epinephelus daemeli*).
 - Demonstrate how contamination will be managed to ensure construction and operation do not impact protected matters.

Please note, under subsection 5.19(1) of the *Environment Protection and Biodiversity Conservation Regulations 2000*, this request for information is subject to cost recovery. A Statement of Charges for the fee of \$1,701 has been sent to you separately.

Please note that the timing for the Minister to make a decision on whether or not to approve the proposed action stops on the date of this letter, and restarts once we have received satisfactory information and the fee has been paid.

If you have any questions about this request, please contact the project manager, Lucinda Bilstoft, by email to lucinda.bilstoft@dcceew.gov.au, or telephone 02 6274 1981 and quote the EPBC reference number shown at the beginning of this letter.

Yours sincerely



Terri-Ann English
A/g Director
Canberra Sydney Assessments
Environment Assessments NSW and ACT Branch
22 November 2022



Appendix B Data summary

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	bisture Conte		OCs		OPs										PFAS														
								Moisture Content (%)	Moisture Content (dried @ 103°C) (%)	Toxaphene (mg/kg)	Mevinphos (Phosdrin) (mg/kg)	Naled (Dibrom) (mg/kg)	Tokuthion (mg/kg)	Trichloronate (mg/kg)	Vic EPA IWRG 621 OCP (Total)* (mg/kg)	Vic EPA IWRG 621 Other OCP (Total)* (mg/kg)	10:2 Fluorotelomer sulfonic acid (10:2 FTS) (µg/kg)	2-N-EtFOSE (UG/KG)	2-N-MeFOSE (UG/KG)	4:2 Fluorotelomer sulfonic acid (4:2 FTS) (µg/kg)	6:2 Fluorotelomer sulfonic acid (6:2 FTS) (µg/kg)	8:2 Fluorotelomer sulfonic acid (8:2 FTS) (µg/kg)	N-EtFOSEA (UG/KG)	N-EtFOSEA (UG/KG)	N-MeFOSEA (UG/KG)	N-methylperfluoro-1-octane sulfonamide (N-MeFOSEA) (µg/kg)	Perfluorobutanesulfonic acid (PFBS) (µg/kg)	Perfluorobutanoic acid (PFBA) (µg/kg)	Perfluorodecanesulfonic acid (PFDS) (µg/kg)	Perfluorodecanoic acid (PFDA) (µg/kg)						
EQL								2	1	0.1	0.2	0.2	0.2	0.2	0.2	0.01	0.01	0.5	5	5	0.5	0.5	0.5	0.5	5	10	10	0.5	0.2	1	0.2	0.2				
99% Species Protection - Sediment																																				
ANZG (2018) DGV - Sediment Quality																																				
ANZG (2018) GV-High - Sediment Quality																																				
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	952366	S22-De0050115	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010243	-	-	-	-	-	-	28	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	RN1379931	N23/000765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		K_SED05_0.4	0.4	16/12/2022	Normal	952366	S22-De0050116	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010244	-	-	-	-	-	-	27	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	RN1379931	N23/000766	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		K_SED05_0.75	0.8	16/12/2022	Normal	952366	S22-De0050117	<2	<0.2	<0.2	<0.2	<0.2	-	27	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010245	-	-	-	-	-	-	27	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	<2	<0.2	<0.2	<0.2	<0.2	-	28	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010246	-	-	-	-	-	-	28	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000768	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED06_0.5	0.5	16/12/2022	Normal	952366	S22-De0050107	<2	<0.2	<0.2	<0.2	<0.2	-	27	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010247	-	-	-	-	-	-	26	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000769	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED06_1.0	1.0	16/12/2022	Normal	952366	S22-De0050108	<2	<0.2	<0.2	<0.2	<0.2	-	25	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010248	-	-	-	-	-	-	25	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	-	-	-	-	-	22.8	-	-	-	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.2	<1	<0.2	<0.2	
		LP-SED01-0.0	0.0	22/12/2022	Normal	953157	S22-De0056924	<2	<0.2	<0.2	<0.2	<0.2	-	19	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	RN1379937	N23/000820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<2	<0.2	<0.2	<0.2	<0.2	-	17	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	RN1379937	N23/000821	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	<2	<0.2	<0.2	<0.2	<0.2	-	20	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	RN1379937	N23/000822	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<2	<0.2	<0.2	<0.2	<0.2	-	24	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Field_D	RN1379937	N23/000832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010249	-	-	-	-	-	-	28	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000771	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<2	<0.2	<0.2	<0.2	<0.2	-	27	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010250	-	-	-	-	-	-	30	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000772	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP_SED02_1.0	1.0	15/12/2022	Normal	952366	S22-De0050111	<2	<0.2	<0.2	<0.2	<0.2	-	20	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010251	-	-	-	-	-	-	17	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	<2	<0.2	<0.2	<0.2	<0.2	-	23	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010252	-	-	-	-	-	-	23	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000774	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	<2	<0.2	<0.2	<0.2	<0.2	-	22	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	
					Normal	955181	M23-Ja0010253	-	-	-	-	-	-	23	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000775																													

		bisture Conte		OCs		OPs																								
		Omethoate	Pyrimiphos-methyl	Pyrazophos	Terbufos	Tetrachlorvinphos	Moisture Content	Moisture Content (dried @ 103°C)	Toxaphene	Mevinphos (Phosdrin)	Naled (Dibrom)	Tokuthion	Trichloronate	Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	2-N-EtFOSE	2-N-MeFOSE	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-EtFOSA	N-EtFOAAA	N-MeFOAAA	N-methylperfluoro-1-octane sulfonamide (N-MeFOASA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	UG/KG	UG/KG	µg/kg	µg/kg	µg/kg	UG/KG	UG/KG	UG/KG	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
EQL		2	0.2	0.2	0.2	0.2		1	0.1	0.2	0.2	0.2	0.2	0.01	0.01	0.5	5	5	0.5	0.5	0.5	5	10	10	0.5	0.2	1	0.2	0.2	
99% Species Protection - Sediment																														
ANZG (2018) DGV - Sediment Quality																														
ANZG (2018) GV-High - Sediment Quality																														

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																											
		LP-SED04-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000823	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	953157	S22-De0056928	<2	<0.2	<0.2	<0.2	<0.2	-	23	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5
		LP-SED04-1	1.0	22/12/2022	Normal	RN1379937	N23/000824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	953157	S22-De0056929	<2	<0.2	<0.2	<0.2	<0.2	-	12	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5
LP-SED-DO3-221222		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<2	<0.2	<0.2	<0.2	<0.2	-	27	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	
					Field_D	RN1379937	N23/000834	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<2	<0.2	<0.2	<0.2	<0.2	-	26	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5
					Normal	RN1379937	N23/000826	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<2	<0.2	<0.2	<0.2	<0.2	-	26	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5		
			Normal	RN1379937	N23/000827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<2	<0.2	<0.2	<0.2	<0.2	-	25	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5		
			Normal	RN1379937	N23/000828	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LP-SED06	La Perouse	LP-SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<2	<0.2	<0.2	<0.2	<0.2	-	18	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	
		LP-SED06-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	953157	S22-De0056934	<2	<0.2	<0.2	<0.2	<0.2	-	21	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5
		LP-SED06-1	1.0	22/12/2022	Normal	RN1379937	N23/000830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	953157	S22-De0056935	<2	<0.2	<0.2	<0.2	<0.2	-	18	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5
LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<2	<0.2	<0.2	<0.2	<0.2	-	20	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5			
Field_D	RN1379937	N23/000833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

Statistical Summary																																	
Number of Results		84	84	84	84	84	48	111	111	84	84	84	84	111	111	90	84	84	90	90	90	84	84	84	90	90	90	90	90	90	90	90	
Number of Detects		42	42	42	42	42	48	111	111	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
Minimum Concentration		<2	<0.2	<0.2	<0.2	<0.2	19.9	12	<0.1	<0.2	<0.2	<0.2	<0.2	<0.01	<0.01	<0.5	<5	<5	<0.5	<0.5	<0.5	<5	<10	<10	<0.5	<0.2	<1	<0.2	<0.2	<0.2			
Minimum Detect		ND	ND	ND	ND	ND	19.9	12	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Maximum Concentration		<2	<0.2	<0.2	<0.2	<0.2	30.5	35	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5			
Maximum Detect		ND	ND	ND	ND	ND	30.5	35	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Average Concentration		1	0.1	0.1	0.1	0.1	26	26	0.17	0.1	0.1	0.1	0.1	0.032	0.032	2.2	2.5	2.5	2.2	4.4	2.2	2.5	5	5	2.2	2.2	2.3	2.2	2.2				
Median Concentration		1	0.1	0.1	0.1	0.1	26.2	27	0.25	0.1	0.1	0.1	0.1	0.05	0.05	2.5	2.5	2.5	2.5	5	2.5	2.5	5	5	2.5	2.5	2.5	2.5	2.5				
Standard Deviation		0	0	0	0	0	4.8	4.2	0.098	0	0	0	0	0.022	0.022	0.75	0	0	0.75	1.6	0.75	0	0	0	0.75	0.8	0.67	0.8	0.8				
Number of Guideline Exceedances		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Number of Guideline Exceedances(Detects Only)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

Env Stds Comments
 #1:From Simpson et al. (2021). Normalised to 1% organic carbon.
 #2:Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
 #3:Primarily adapted from the ERL/ERM values of Long et al. (1995).
 #4:Normalised to 1% organic carbon within the limits of 0.2 to 10%.



Table 1. Laboratory Analytical Results - Sediment
Kamay Ferry Wharf
Arup

								PFAS																	PSD																
								Perfluorohexanesulfonic acid (PFHxS)	Perfluorododecanedioic acid (PFDoA)	Perfluorooctanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluoroheptanesulfonic acid (PFHpS)	Perfluorononanesulfonic acid (PFNS)	Perfluorooctanoic acid (PFNA)	Perfluorooctane sulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentanoic acid (PFPeA)	Perfluorooctanoic acid (PFOA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Sum of PFAS (WA DER List)	Sum of PFASs (n=30)*	Sum of PFHxS and PFOS	Sum of US EPA PFAS (PFOS + PFOA)*	<63 Micron	>2000 Micron	1000-2000 Micron	125-250 Micron	250-500 Micron	500-1000 Micron	63-125 Micron	Demeton-O					
								µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	%W/W	%W/W	%W/W	%W/W	%W/W	%W/W	%W/W	mg/kg						
EQL								0.2	0.2	0.2	0.2	0.2	5	0.2	0.2	0.2	0.2	0.2	0.2	5	0.5	0.2	0.2	5	0.2	0.2	0.2	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2					
99% Species Protection - Sediment																																									
ANZG (2018) DGV - Sediment Quality																																									
ANZG (2018) GV-High - Sediment Quality																																									
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																																		
		LP-SED04-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000823	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-									
					Normal	953157	S22-De0056928	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5									
					Normal	RN1379937	N23/000824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5								
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5									
					Normal	RN1379937	N23/000826	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5								
					Normal	RN1379937	N23/000827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
LP_SED06	La Perouse	LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5								
					Normal	RN1379937	N23/000828	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
		LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2								
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5							
LP_SED06	La Perouse				Normal	RN1379937	N23/000829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5								
					Normal	RN1379937	N23/000830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5							
					Normal	RN1379937	N23/000831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
		LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5							
			Field_D	RN1379937	N23/000833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-								
Statistical Summary								90	90	90	90	90	84	90	90	90	90	90	90	90	90	84	90	90	90	84	90	90	90	84	57	57	57	57	57	57	57	84			
Number of Results								42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42			
Number of Detects								42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42		
Minimum Concentration								<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2			
Minimum Detect								ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration								<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
Maximum Detect								ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration								2.2	2.2	2.2	2.2	2.2	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.5	2.2	2.2	2.2	2.2	2.5	2.2	2.2	2.2	2.5	4.4	22	2.2	2.5	4.4	48	8.5	16		
Median Concentration								2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
Standard Deviation								0.8	0.8	0.8	0.8	0.8	0	0.8	0.79	0.8	0.8	0.8	0.8	0.8	0.8	0	0.75	0.8	0.8	0	1.6	8.3	0.79	0	4.6	23	4.7	16	7.7	5.2	2.4	0			
Number of Guideline Exceedances								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Number of Guideline Exceedances(Detects Only)								0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Env Stds Comments																																									
#1:From Simpson et al. (2021). Normalised to 1% organic carbon.																																									
#2:Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.																																									
#3:Primarily adapted from the ERL/ERM values of Long et al. (1995).																																									
#4:Normalised to 1% organic carbon within the limits of 0.2 to 10%.																																									

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	SVOC			TOC	TRH										BTEX														
								Demeton-S	EPN	Fensufothion	TOC	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	TRH C15-C28	TRH C29-C36	TRH C6-C10	TRH C6-C10 less BTEX (F1)	TRH C10-C14	TRH C10-C36 (Total)	TRH C6-C9	TRH >C10-C16 less Naphthalene (F2)	TRH >C10-C40 (total)*	Toluene	Benzene	Ethylbenzene	m&p-Xylenes	o-Xylene	Sum of BTEX	Xylenes	Arsenic	Cadmium	Chromium	Cobalt		
								mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL								0.2	0.2	0.2	0.02	50	100	100	50	50	10	10	20	50	10	50	50	0.1	0.1	0.1	0.2	0.1		0.3	2	0.4	2	2		
99% Species Protection - Sediment																																				
ANZG (2018) DGV - Sediment Quality																																				
ANZG (2018) GV-High - Sediment Quality																																				
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<0.2	<0.2	<0.2	0.8	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.6	<0.4	8.2	<5		
					Normal	955181	M23-Ja0010228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<0.2	<0.2	<0.2	1.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.9	<0.4	8.6	<5		
					Normal	955181	M23-Ja0010229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	<0.2	<0.2	<0.2	1	<50	<100	<100	<50	<50	<20	<20	23	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.6	<0.4	7	<5		
					Normal	955181	M23-Ja0010230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	<0.2	<0.2	<0.2	1.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	4	<0.4	7.1	<5		
					Field_D	955181	M23-Ja0010231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Field_D	RN1379931	N23/000753	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED_T01_221216	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	-	-	-	1	<50	<100	<100	<100	<100	<10	<10	<50	<50	<10	<50	<50	<0.5	<0.2	<0.5	<0.5	<0.5	<0.2	<0.5	<5	<1	9	<2		
		K_SED02_0.0	0.0	16/12/2022	Normal	952366	S22-De0050118	<0.2	<0.2	<0.2	1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.6	<0.4	5.2	<5		
					Normal	955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED02_0.5	0.5	16/12/2022	Normal	952366	S22-De0050119	<0.2	<0.2	<0.2	1.3	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.8	<0.4	7.4	<5		
					Normal	955181	M23-Ja0010233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000755	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED02_1.0	1.0	16/12/2022	Normal	952366	S22-De0050120	<0.2	<0.2	<0.2	1.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	6.4	<5		
					Normal	955181	M23-Ja0010234	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
K_SED03	Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	<0.2	<0.2	<0.2	0.7	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3	<0.4	8.1	<5		
					Field_D	955181	M23-Ja0010239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Field_D	RN1379931	N23/000761	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED_T03_221216	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	-	-	-	0.6	<50	<100	<100	<100	<100	<10	<10	<50	<50	<10	<50	<50	<0.5	<0.2	<0.5	<0.5	<0.5	<0.2	<0.5	<5	<1	11	<2		
		K_SED03_0.0	0.0	16/12/2022	Normal	952366	S22-De0050124	<0.2	<0.2	<0.2	0.5	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.5	<0.4	5.3	<5		
					Normal	955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000757	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED03_0.5	0.5	16/12/2022	Normal	952366	S22-De0050125	<0.2	<0.2	<0.2	0.7	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.5	<0.4	5	<5		
					Normal	955181	M23-Ja0010236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000758	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED03_1.0	1.0	16/12/2022	Normal	952366	S22-De0050126	<0.2	<0.2	<0.2	1.3	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.3	<0.4	10	<5		
					Normal	955181	M23-Ja0010237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000759	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	<0.2	<0.2	<0.2	1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	4.2	<0.4	6.6	<5		
					Field_D	955181	M23-Ja0010238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Field_D	RN1379931	N23/000760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED_T02_221216	0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	-	-	-	0.73	<50	<100	<100	<100	<100	<10	<10	<50	<50	<10	<50	<50	<0.5	<0.2	<0.5	<0.5	<0.5	<0.2	<0.5	<5	<1	6	<2		
		K_SED04_0.0	0.0	16/12/2022	Normal	952366	S22-De0050121	<0.2	<0.2	<0.2	1.7	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.6	<0.4	5.1	<5		
					Normal	955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000762	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED04_0.5	0.5	16/12/2022	Normal	952366	S22-De0050122	<0.2	<0.2	<0.2	0.8	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2									

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	SVOC			TOC	TRH										BTEX															
								Demeton-S	EPN	Fensufothion	TOC	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	TRH C15-C28	TRH C29-C36	TRH C6-C10	TRH C6-C10 less BTEX (F1)	TRH C10-C14	TRH C10-C36 (Total)	TRH C6-C9	TRH >C10-C16 less Naphthalene (F2)	TRH >C10-C40 (total)*	Toluene	Benzene	Ethylbenzene	m&p-Xylenes	o-Xylene	Sum of BTEX	Xylenes	Arsenic	Cadmium	Chromium	Cobalt			
								mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL								0.2	0.2	0.2	0.02	50	100	100	50	50	10	10	20	50	10	50	50	0.1	0.1	0.1	0.2	0.1	-	0.3	2	0.4	2	2			
99% Species Protection - Sediment																																					
ANZG (2018) DGV - Sediment Quality																																					
ANZG (2018) GV-High - Sediment Quality																																					
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	952366	S22-De0050115	<0.2	<0.2	<0.2	0.4	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.2	<0.4	<5	<5			
					Normal	955181	M23-Ja0010243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED05_0.4	0.4	16/12/2022	Normal	952366	S22-De0050116	<0.2	<0.2	<0.2	1.3	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.6	<0.4	6.7	<5			
					Normal	955181	M23-Ja0010244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000766	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED05_0.75	0.8	16/12/2022	Normal	952366	S22-De0050117	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	6.4	<5			
					Normal	955181	M23-Ja0010245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	<0.2	<0.2	<0.2	1.4	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	<5	<5			
					Normal	955181	M23-Ja0010246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000768	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED06_0.5	0.5	16/12/2022	Normal	952366	S22-De0050107	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2	<0.4	5.4	<5			
					Normal	955181	M23-Ja0010247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000769	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED06_1.0	1.0	16/12/2022	Normal	952366	S22-De0050108	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.6	<0.4	<5	<5			
					Normal	955181	M23-Ja0010248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	-	-	-	0.14	<50	<100	<100	<100	<100	<10	<10	<50	<50	<10	<50	<50	<0.5	<0.2	<0.5	<0.5	<0.5	<0.2	<0.5	<5	<1	3	<2			
		LP-SED01-0.0	0.0	22/12/2022	Normal	953157	S22-De0056924	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	<5	-			
					Normal	RN1379937	N23/000820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		LP-SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.5	<0.4	<5	-			
					Normal	RN1379937	N23/000821	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		LP-SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.7	<0.4	<5	-			
					Normal	RN1379937	N23/000822	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		LP-SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<0.2	<0.2	<0.2	0.8	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	<5	-			
					Field_D	RN1379937	N23/000832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<0.2	<0.2	<0.2	1.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.9	<0.4	<5	<5			
					Normal	955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000771	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<0.2	<0.2	<0.2	3.7	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	4.3	<0.4	<5	<5			
					Normal	955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000772	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		LP_SED02_1.0	1.0	15/12/2022	Normal	952366	S22-De0050111	<0.2	<0.2	<0.2	1.8	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	6.8	<0.4	<5	7.7			
					Normal	955181	M23-Ja0010251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	<5	<5			
					Normal	955181	M23-Ja0010252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000774	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.8	<0.4	<5	<5			
					Normal	955181	M23-Ja0010253	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000775	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		LP_SED03_1.0	1.0	15/12/2022	Normal	95236																															

								Metals													Organotins														
								Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC		
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL								5	5	0.1	2	5	10	1	10	1	5	5	2	5	1	0.001	0.75	0.001	0.0005	1.25	1.25	0.005	0.005	0.005	0.005	0.05	0.005		
99% Species Protection - Sediment																																			
ANZG (2018) DGV - Sediment Quality								65 ^{#3}	50 ^{#3}	0.15 ^{#3}	21 ^{#3}	200 ^{#3}															0.009 ^{#4}			0.0014 ^{#2}					
ANZG (2018) GV-High - Sediment Quality								270 ^{#3}	220 ^{#3}	1 ^{#3}	52 ^{#3}	410 ^{#3}															0.07 ^{#4}			0.007 ^{#2}					
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC		
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<5	7.5	<0.1	<5	17	<10	<2	27	<1	8.2	39	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
					Normal	955181	M23-Ja0010228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.2
		K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<5	8.6	<0.1	<5	18	<10	<2	32	<1	8.6	46	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
					Normal	955181	M23-Ja0010229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.2	<0.005
		K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	5.1	9.2	<0.1	<5	18	<10	<2	25	<1	7	42	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
					Normal	955181	M23-Ja0010230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.2	<0.005
K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	<5	8.4	0.1	<5	21	<10	<2	19	<1	7.1	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
					Field_D	955181	M23-Ja0010231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005
		K_SED_T01_221216	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	<5	11	0.1	<2	22	<10	<1	<50	-	-	42	<5	8	-	<0.005	-	0.0018	<0.005	-	-	<0.01	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	952366	S22-De0050118	<5	6	<0.1	<5	12	<10	<2	18	<1	5.2	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
		K_SED02_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	
					Normal	952366	S22-De0050119	<5	8.9	0.1	<5	19	<10	<2	16	<1	7.4	29	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
K_SED03	Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	<5	7.8	0.2	<5	20	<10	<2	19	<1	8.1	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
					Field_D	955181	M23-Ja0010239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005
		K_SED_T03_221216	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	5	11	0.2	<2	24	<10	<1	<50	-	-	44	<5	8	-	<0.005	-	0.0018	<0.005	-	-	<0.01	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	952366	S22-De0050124	<5	5.6	<0.1	<5	11	<10	<2	23	<1	5.3	33	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
		K_SED03_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	
					Normal	952366	S22-De0050125	<5	5.5	<0.1	<5	12	<10	<2	17	<1	5	33	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	<5	7	<0.1	<5	16	<10	2.3	24	<1	6.6	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
					Field_D	955181	M23-Ja0010238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005
		K_SED_T02_221216	0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	<5	7	<0.1	<2	16	<10	<1	<50	-	-	42	<5	7	-	<0.005	-	0.00078	<0.005	-	-	<0.01	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	952366	S22-De0050121	<5	6.7	<0.1	<5	13	<10	<2	32	<1	5.1	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
		K_SED04_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	
					Normal	952366	S22-De0050122	<5	7.5	<0.1	<5	17	<10	<2	26	<1	6.5	34	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05		
K_SED04_1.0	1.0	16/12/2022	Normal	955181	M23-Ja0010241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005			
			Normal	952366	S22-De0050123	5.9	12	0.2	<5	30	<10	<2	29	<1	10	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05				
			Normal	955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005		
			Normal	952366	S22-De0050124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005		

										Metals													Organotins																		
										Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC						
										mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				
EQL										5	5	0.1	2	5	10	1	10	1	5	5	2	5	1	0.001	0.75	0.001	0.0005	1.25	1.25	0.005	0.005	0.005	0.005	0.05	0.005						
99% Species Protection - Sediment																																									
ANZG (2018) DGV - Sediment Quality										65 ^{#3}	50 ^{#3}	0.15 ^{#3}	21 ^{#3}	200 ^{#3}														0.009 ^{#4}													
ANZG (2018) GV-High - Sediment Quality										270 ^{#3}	220 ^{#3}	1 ^{#3}	52 ^{#3}	410 ^{#3}														0.07 ^{#4}													
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																																		
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	952366	S22-De0050115	<5	7.4	<0.1	<5	13	<10	<2	24	<1	<5	29	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
					Normal	955181	M23-Ja0010243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005					
		K_SED05_0.4	0.4	16/12/2022	Normal	952366	S22-De0050116	<5	9.8	<0.1	<5	25	<10	<2	27	<1	6.7	31	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
					Normal	955181	M23-Ja0010244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005						
		K_SED05_0.75	0.8	16/12/2022	Normal	952366	S22-De0050117	6.3	9.5	0.1	<5	21	<10	<2	19	<1	6.4	23	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
					Normal	955181	M23-Ja0010245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005						
	K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	<5	<5	<0.1	<5	8.3	<10	<2	13	<1	<5	24	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							
						Normal	955181	M23-Ja0010246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005					
			Normal	955181	M23-Ja0010247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005							
		K_SED06_0.5	0.5	16/12/2022	Normal	952366	S22-De0050107	<5	9.1	<0.1	<5	18	<10	<2	36	<1	5.4	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
					Normal	955181	M23-Ja0010247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005						
		K_SED06_1.0	1.0	16/12/2022	Normal	952366	S22-De0050108	<5	5.8	<0.1	<5	13	<10	<2	12	<1	<5	45	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
Normal	955181				M23-Ja0010248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005								
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	<5	6	<0.1	<2	47	<10	<1	<50	-	-	10	<5	6	-	<0.001	-	<0.001	<0.0005	-	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
					Normal	953157	S22-De0056924	<5	<5	<0.1	<5	8	<10	<2	<10	-	-	8.4	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
		LP-SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<5	<5	<0.1	<5	6.5	<10	<2	16	-	12	2.2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05									
					Normal	953157	S22-De0056926	<5	<5	<0.1	<5	6.5	<10	<2	16	-	12	2.2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05									
		LP-SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<5	5.1	<0.1	<5	6	<10	<2	27	-	10	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05									
					Field_D	953157	S22-De0056936	<5	5.1	<0.1	<5	6	<10	<2	27	-	10	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05									
	LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<5	7.4	<0.1	<5	8	<10	<2	11	<1	<5	15	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05							
						Normal	955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005					
			Normal	955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005								
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<5	6.8	<0.1	<5	10	<10	<2	13	<1	<5	17	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
					Normal	955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005						
		LP_SED02_1.0	1.0	15/12/2022	Normal	952366	S22-De0050111	<5	5.5	<0.1	<5	5.8	<10	<2	14	<1	<5	<5	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
Normal	955181				M23-Ja0010251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005								
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	<5	<5	<0.1	<5	<5	<10	<2	<10	<1	<5	7.3	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
					Normal	955181	M23-Ja0010252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005						
		Normal	955181	M23-Ja0010253	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005									
	LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	<5	6.9	<0.1	<5	12	<10	<2	26	<1	<5	12	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05									
				Normal	955181	M23-Ja0010253	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005							
	LP_SED03_1.0	1.0	15/12/2022	Normal	952366	S22-De0050114	<5	5.9	<0.1	<5	8.1	<10	<2	17	<1	<5	8.5	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05									
Normal				955181	M23-Ja0010254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005								
LP_SED04	La Perouse	LP_SED_T03_221222	1.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	<5	5	<0.1	<2	7	<10	<1	<50	-	-	10	<5	<5	-	<0.001	-	<0.001	<0.0005	-	-	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								
		LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	<5	8.1	<0.1	<5	19	<10	<2	18	-	-	15	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05								

	Metals													Organotins												
	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	5	5	0.1	2	5	10	1	10	1	5	5	2	5	1	0.001	0.75	0.001	0.0005	1.25	1.25	0.005	0.005	0.005	0.005	0.05	0.005
99% Species Protection - Sediment																										
ANZG (2018) DGV - Sediment Quality	65 ^{#3}	50 ^{#3}	0.15 ^{#3}	21 ^{#3}	200 ^{#3}													0.009 ^{#4}			0.0014 ^{#2}					
ANZG (2018) GV-High - Sediment Quality	270 ^{#3}	220 ^{#3}	1 ^{#3}	52 ^{#3}	410 ^{#3}													0.07 ^{#4}			0.007 ^{#2}					

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC
		LP-SED04-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000823	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.00076	<0.0005	-	-	<0.001	-	-	-	-	-
					Normal	953157	S22-De0056928	<5	9.5	0.1	<5	15	<10	2.5	18	-	-	17	3.4	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	RN1379937	N23/000824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0012	<0.0005	-	-	<0.001	-	-	-	-	-
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<5	<5	<0.1	<5	6.3	<10	<2	14	-	-	9.1	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	RN1379937	N23/000825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0015	<0.0005	-	-	<0.001	-	-	-	-	-
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<5	<5	<0.1	<5	7.4	<10	<2	27	-	-	11	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Field_D	RN1379937	N23/000834	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0011	0.00078	-	-	<0.001	-	-	-	-	-
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<5	6.5	<0.1	<5	23	<10	<2	15	-	-	13	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	RN1379937	N23/000826	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.00061	<0.0005	-	-	<0.001	-	-	-	-	-
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<5	7.8	<0.1	<5	13	<10	<2	17	-	-	14	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	RN1379937	N23/000827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0012	0.00055	-	-	<0.001	-	-	-	-	-
		LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<5	17	<0.1	<5	13	<10	<2	14	-	-	8.3	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	RN1379937	N23/000828	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0016	<0.0005	-	-	<0.001	-	-	-	-	-
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<5	<5	<0.1	<2	<5	<10	<1	<50	-	-	7	<5	<5	-	<0.001	-	<0.001	<0.0005	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<5	6.9	<0.1	<5	8.8	<10	<2	18	-	-	14	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	RN1379937	N23/000829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0014	<0.0005	-	-	<0.001	-	-	-	-	-
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<5	<5	<0.1	<5	5.8	<10	<2	22	-	-	12	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	RN1379937	N23/000830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0011	<0.0005	-	-	<0.001	-	-	-	-	-
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<5	<5	<0.1	<5	<5	<10	<2	<10	-	-	<5	<2	20	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Normal	RN1379937	N23/000831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.00096	<0.0005	-	-	<0.001	-	-	-	-	-
		LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<5	<5	<0.1	<5	7.1	<10	<2	38	-	-	15	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
					Field_D	RN1379937	N23/000833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0012	<0.0005	-	-	<0.001	-	-	-	-	-

Statistical Summary	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC
Number of Results	90	90	90	90	90	90	90	90	69	69	90	63	90	84	90	84	90	90	84	84	117	117	117	117	90	117
Number of Detects	46	78	51	42	86	42	44	80	42	60	87	44	47	42	0	42	34	2	42	42	0	42	42	42	42	42
Minimum Concentration	<5	<5	<0.1	<2	<5	<10	<1	<10	<1	<5	<5	<2	<5	<1	<0.0005	<0.75	<0.0005	<0.0005	<1.25	<1.25	<0.001	<0.005	<0.005	<0.005	<0.05	<0.005
Minimum Detect	5	5	0.1	ND	5.8	ND	2.3	11	ND	5	7	2.2	6	ND	ND	ND	0.00061	0.00055	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration	6.3	17	0.2	<5	47	<10	2.5	<50	<1	10	46	<5	20	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05
Maximum Detect	6.3	17	0.2	ND	47	ND	2.5	38	ND	10	46	3.4	20	ND	ND	ND	0.0024	0.00078	ND	ND	ND	ND	ND	ND	ND	
Average Concentration	2.8	6.6	0.068	2.3	14	5	1	20	0.5	5.5	23	1.6	5.4	0.5	0.12	0.38	0.12	0.12	0.63	0.63	0.011	0.017	0.017	0.017	0.091	0.017
Median Concentration	2.5	6.85	0.05	2.5	13	5	1	19	0.5	5.4	20	1	5	0.5	0.0005	0.375	0.0018	0.00025	0.625	0.625	0.0025	0.025	0.025	0.025	0.1	0.025
Standard Deviation	0.87	3.2	0.043	0.5	8.5	0	0.34	7.8	0	2.5	14	0.81	2.3	0	0.13	0	0.12	0.13	0	0	0.012	0.011	0.011	0.011	0.025	0.011
Number of Guideline Exceedances	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	75	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1: From Simpson et al. (2021). Normalised to 1% organic carbon.
- #2: Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #3: Primarily adapted from the ERL/ERM values of Long et al. (1995).
- #4: Normalised to 1% organic carbon within the limits of 0.2 to 10%.

Pesticides																									
Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate			
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg			
EQL		0.01			0.05	0.05	0.05	2	0.005	0.005	0.005	0.005		0.05	0.05	0.005	0.05	0.2		0.005	0.005	0.005			
99% Species Protection - Sediment																									
ANZG (2018) DGV - Sediment Quality		0.0045 ^{#2}								0.0014 ^{#2}	0.0035 ^{#2}	0.0012 ^{#2}				0.0028 ^{#2}									
ANZG (2018) GV-High - Sediment Quality		0.009 ^{#2}								0.007 ^{#2}	0.009 ^{#2}	0.005 ^{#2}				0.007 ^{#2}									

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate		
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	952366	S22-De0050115	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05		
					Normal	955181	M23-Ja0010243	-	-	<0.01	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	<0.005	<0.005	<0.005	
		K_SED05_0.4	0.4	16/12/2022	Normal	952366	S22-De0050116	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	
					Normal	955181	M23-Ja0010244	-	-	<0.01	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	<0.005	<0.005	<0.005	
		K_SED05_0.75	0.8	16/12/2022	Normal	952366	S22-De0050117	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
					Normal	955181	M23-Ja0010245	-	-	<0.01	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	<0.005	<0.005	<0.005
	K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	
						Normal	955181	M23-Ja0010246	-	-	<0.01	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	<0.005	<0.005	<0.005
			K_SED06_0.5	0.5	16/12/2022	Normal	952366	S22-De0050107	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
						Normal	955181	M23-Ja0010247	-	-	<0.01	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	<0.005	<0.005	<0.005
			K_SED06_1.0	1.0	16/12/2022	Normal	952366	S22-De0050108	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
						Normal	955181	M23-Ja0010248	-	-	<0.01	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	<0.005	<0.005
LP_SED01		La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
						Normal	953157	S22-De0056924	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05
			LP_SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
						Normal	955181	M23-Ja0010249	-	-	<0.01	-	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	<0.001	-	-
			LP_SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
						Normal	955181	M23-Ja0010250	-	-	<0.01	-	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	<0.001	-	-
	LP_SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05		
				Field_D	955181	M23-Ja0010251	-	-	<0.01	-	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	<0.001	-	-	<0.001	-
	LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	
						Normal	955181	M23-Ja0010249	-	-	<0.01	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	<0.005	<0.005	<0.005
			LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
						Normal	955181	M23-Ja0010250	-	-	<0.01	-	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	<0.001	-	-
LP_SED02_1.0			1.0	15/12/2022	Normal	952366	S22-De0050111	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	
					Normal	955181	M23-Ja0010251	-	-	<0.01	-	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	<0.001	-	-	<0.001
LP_SED03		La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	
						Normal	955181	M23-Ja0010252	-	-	<0.01	-	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	<0.001	-	-
			LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
						Normal	955181	M23-Ja0010253	-	-	<0.01	-	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	<0.001	-	-
			LP_SED03_1.0	1.0	15/12/2022	Normal	952366	S22-De0050114	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
						Normal	955181	M23-Ja0010254	-	-	<0.01	-	-	<0.001	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	<0.001	-	-
	LP_SED04	La Perouse	LP_SED_T03_221222	1.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
			LP_SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	

		Pesticides																							
		Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	
		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL				0.01			0.05	0.05	0.05	2	0.005														
99% Species Protection - Sediment																									
ANZG (2018) DGV - Sediment Quality				0.0045 ^{#2}								0.0014 ^{#2}	0.0035 ^{#2}	0.0012 ^{#2}					0.0028 ^{#2}						
ANZG (2018) GV-High - Sediment Quality				0.009 ^{#2}								0.007 ^{#2}	0.009 ^{#2}	0.005 ^{#2}					0.007 ^{#2}						

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate				
		LP-SED04-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000823	-	-	-	<0.001	<0.001	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-			
					Normal	953157	S22-De0056928	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
					Normal	RN1379937	N23/000824	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
					Normal	RN1379937	N23/000825	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	
					Field_D	953157	S22-De0056938	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	
					Normal	RN1379937	N23/000826	-	-	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	
					Normal	953157	S22-De0056931	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
		LP-SED05-0.4	0.4	22/12/2022	Normal	RN1379937	N23/000827	-	-	<0.001	<0.001	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	
					Normal	953157	S22-De0056932	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
					Normal	RN1379937	N23/000828	-	-	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
					Normal	953157	S22-De0056933	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
		LP-SED06-0	0.0	22/12/2022	Normal	RN1379937	N23/000829	-	-	<0.001	<0.001	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	-	
					Normal	953157	S22-De0056934	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
					Normal	RN1379937	N23/000830	-	-	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-	
					Normal	953157	S22-De0056935	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05
LP-SED06-1	1.0	22/12/2022	Normal	RN1379937	N23/000831	-	-	<0.001	<0.001	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-	-				
			Normal	953157	S22-De0056937	-	-	<0.1	-	-	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05		
LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05			
			Field_D	RN1379937	N23/000833	-	-	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	-	-				

Statistical Summary

Number of Results	48	48	117	48	48	90	90	90	84	117	117	117	117	117	48	90	90	117	90	84	48	117	117	117
Number of Detects	42	42	42	0	0	42	42	42	42	42	0	0	42	42	42	42	42	0	42	42	42	42	42	42
Minimum Concentration	<0.05	<0.05	<0.01	<0.001	<0.001	<0.05	<0.05	<0.05	<2	<0.005	<0.001	<0.001	<0.005	<0.05	<0.05	<0.05	<0.05	<0.001	<0.05	<0.2	<0.05	<0.005	<0.005	<0.005
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.05	<0.05	<0.1	<0.05	<0.05	<0.2	<0.2	<0.2	<2	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.025	0.025	0.032	0.0036	0.0036	0.091	0.091	0.091	1	0.017	0.011	0.015	0.017	0.025	0.091	0.091	0.011	0.091	0.1	0.025	0.017	0.017	0.017	
Median Concentration	0.025	0.025	0.05	0.0005	0.0005	0.1	0.1	0.1	1	0.025	0.0025	0.0025	0.025	0.1	0.1	0.0025	0.1	0.1	0.025	0.1	0.025	0.025	0.025	
Standard Deviation	0	0	0.021	0.0082	0.0082	0.025	0.025	0.025	0	0.011	0.012	0.0082	0.011	0	0.025	0.025	0.012	0.025	0	0	0.011	0.011	0.011	
Number of Guideline Exceedances	0	0	75	0	0	0	0	0	0	0	75	75	0	0	0	0	75	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

- #1: From Simpson et al. (2021). Normalised to 1% organic carbon.
- #2: Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #3: Primarily adapted from the ERL/ERM values of Long et al. (1995).
- #4: Normalised to 1% organic carbon within the limits of 0.2 to 10%.

								Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos	Fenitrothion	Fenthion	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos	PCB # 8	PCB # 18		
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg
EQL								0.005	0.005	0.005	0.05	0.2					0.005	0.005	0.005	0.005	0.05	0.005	0.2	0.2	0.2	0.2			0.2	0.2	0.2	2	2	
99% Species Protection - Sediment																																		
ANZG (2018) DGV - Sediment Quality								0.002 ^{#2}								0.0009 ^{#2}																		
ANZG (2018) GV-High - Sediment Quality								0.06 ^{#2}								0.0014 ^{#2}																		
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																											
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	952366	S22-De0050115	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-		
					Normal	955181	M23-Ja0010243	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
		Normal	RN1379931	N23/000765	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2		
		Normal	952366	S22-De0050116	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-		
		Normal	955181	M23-Ja0010244	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-		
		Normal	RN1379931	N23/000766	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2			
	Normal	952366	S22-De0050117	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-			
	Normal	955181	M23-Ja0010245	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-			
	Normal	RN1379931	N23/000767	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2			
	K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
						Normal	955181	M23-Ja0010246	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-
			Normal	RN1379931	N23/000768	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2		
Normal			952366	S22-De0050107	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-		
Normal			955181	M23-Ja0010247	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-		
Normal			RN1379931	N23/000769	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2			
Normal		952366	S22-De0050108	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-			
Normal		955181	M23-Ja0010248	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-			
Normal		RN1379931	N23/000770	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2				
LP_SED01		La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	
						Normal	953157	S22-De0056924	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2
			Normal	RN1379937	N23/000820	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2		
	Normal		953157	S22-De0056925	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-		
	Normal		RN1379937	N23/000821	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2			
	Normal		953157	S22-De0056926	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-		
	Normal	RN1379937	N23/000822	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2				
	Field_D	953157	S22-De0056936	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-			
	Field_D	RN1379937	N23/000832	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2				
	LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
						Normal	955181	M23-Ja0010249	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-
			Normal	RN1379931	N23/000771	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2		
Normal			952366	S22-De0050110	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-		
Normal			955181	M23-Ja0010250	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-		
Normal			RN1379931	N23/000772	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2			
Normal		952366	S22-De0050111	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-			
Normal		955181	M23-Ja0010251	<0.005	<0.005	<0.005	-	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	-	-	-	-	-	-	-			
Normal		RN1379931	N23/000773	<0.001	<0.001	<0.001	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2				
LP_SED03		La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05																

	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos	Fenitrothion	Fenthion	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos	PCB # 8	PCB # 18	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	
EQL	0.005	0.005	0.005	0.05	0.2		0.2	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.2	0.2	0.2	0.2				0.2	0.2	0.2	2	2
99% Species Protection - Sediment																										
ANZG (2018) DGV - Sediment Quality	0.0027 ^{#2}								0.0009 ^{#2}																	
ANZG (2018) GV-High - Sediment Quality	0.06 ^{#2}								0.0014 ^{#2}																	

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos	Fenitrothion	Fenthion	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos	PCB # 8	PCB # 18	
		LP-SED04-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000823	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
					Normal	953157	S22-De0056928	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Normal	RN1379937	N23/000824	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Normal	RN1379937	N23/000825	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Field_D	RN1379937	N23/000834	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Normal	RN1379937	N23/000826	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Normal	RN1379937	N23/000827	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
		LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Normal	RN1379937	N23/000828	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.05	<0.05	<0.05	<0.05	-	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Normal	RN1379937	N23/000829	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Normal	RN1379937	N23/000830	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Normal	RN1379937	N23/000831	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2
		LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<0.05	<0.05	<0.05	<0.2	<0.2	-	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	
					Field_D	RN1379937	N23/000833	<0.001	<0.001	<0.001	-	-	-	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2

Statistical Summary	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos	Fenitrothion	Fenthion	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos	PCB # 8	PCB # 18	
Number of Results	117	117	117	90	84	48	84	90	117	117	117	117	90	117	90	90	90	84	48	48	84	84	84	84	42	42
Number of Detects	0	0	0	42	42	42	42	42	0	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	0	0
Minimum Concentration	<0.001	<0.001	<0.001	<0.05	<0.2	<0.05	<0.2	<0.05	<0.0009	<0.005	<0.005	<0.005	<0.05	<0.005	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.2	<2	<2	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<2	<2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.2	<2	<2	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.011	0.011	0.011	0.091	0.1	0.025	0.1	0.091	0.011	0.017	0.017	0.017	0.091	0.023	0.1	0.89	0.1	0.1	0.025	0.025	0.1	0.1	0.1	1	1	
Median Concentration	0.0025	0.0025	0.0025	0.1	0.1	0.025	0.1	0.1	0.0025	0.025	0.025	0.025	0.1	0.025	0.1	1	0.1	0.1	0.025	0.025	0.1	0.1	0.1	1	1	
Standard Deviation	0.012	0.012	0.012	0.025	0	0	0	0.025	0.012	0.011	0.011	0.011	0.025	0.025	0	0.3	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	75	0	0	0	0	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

- #1:From Simpson et al. (2021). Normalised to 1% organic carbon.
- #2:Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #3:Primarily adapted from the ERL/ERM values of Long et al. (1995).
- #4:Normalised to 1% organic carbon within the limits of 0.2 to 10%.

								PCBs																							
								PCB # 28	PCB # 44	PCB # 52	PCB # 66	PCB # 77	PCB # 101	PCB # 105	PCB # 118	PCB # 126	PCB # 128	PCB # 138	PCB # 153	PCB # 169	PCB # 170	PCB # 180	PCB # 187	PCB # 195	PCB # 206	PCB # 209	Total PCB				
								ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		
EQL								2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
99% Species Protection - Sediment																															
ANZG (2018) DGV - Sediment Quality																														34	
ANZG (2018) GV-High - Sediment Quality																															280
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																								
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
					Normal	955181	M23-Ja0010228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
					Normal	955181	M23-Ja0010229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
					Normal	955181	M23-Ja0010230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						Field_D	955181	M23-Ja0010231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
			K_SED_T01_221216	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
						Normal	952366	S22-De0050118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			K_SED02_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
						Normal	952366	S22-De0050119	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
K_SED03		Kurnell	K_SED02_0.5	0.5	16/12/2022	Normal	955181	M23-Ja0010233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
						Normal	952366	S22-De0050120	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
			K_SED02_1.0	1.0	16/12/2022	Normal	955181	M23-Ja0010234	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						Normal	952366	S22-De0050121	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
			K_SED03_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
						Normal	952366	S22-De0050125	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	K_SED04	Kurnell	K_SED03_0.5	0.5	16/12/2022	Normal	955181	M23-Ja0010236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
						Normal	952366	S22-De0050126	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
			K_SED03_1.0	1.0	16/12/2022	Normal	955181	M23-Ja0010237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						Normal	952366	S22-De0050126	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
			K_SED04_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
						Normal	952366	S22-De0050122	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
K_SED04		Kurnell	K_SED04_0.5	0.5	16/12/2022	Normal	955181	M23-Ja0010241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
						Normal	952366	S22-De0050122	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
			K_SED04_1.0	1.0	16/12/2022	Normal	955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						Normal	952366	S22-De0050123	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
			K_SED04_1.0	1.0	16/12/2022	Normal	955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
						Normal	952366	S22-De0050123	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
	K_SED04_1.0	1.0	16/12/2022	Normal	955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
				Normal	952366	S22-De0050123	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		

								PCBs																							
								PCB # 28	PCB # 44	PCB # 52	PCB # 66	PCB # 77	PCB # 101	PCB # 105	PCB # 118	PCB # 126	PCB # 128	PCB # 138	PCB # 153	PCB # 169	PCB # 170	PCB # 180	PCB # 187	PCB # 195	PCB # 206	PCB # 209	Total PCB				
								ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		
EQL								2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
99% Species Protection - Sediment																															
ANZG (2018) DGV - Sediment Quality																														34	
ANZG (2018) GV-High - Sediment Quality																															280
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																								
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	952366	S22-De0050115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
					Normal	955181	M23-Ja0010243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		K_SED05_0.4	0.4	16/12/2022	Normal	RN1379931	N23/000765	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
					Normal	952366	S22-De0050116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		K_SED05_0.75	0.8	16/12/2022	Normal	955181	M23-Ja0010244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	RN1379931	N23/000766	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
	K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						Normal	955181	M23-Ja0010246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
			Normal	RN1379931	N23/000768	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		K_SED06_0.5	0.5	16/12/2022	Normal	952366	S22-De0050107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	955181	M23-Ja0010247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		K_SED06_1.0	1.0	16/12/2022	Normal	RN1379931	N23/000769	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
Normal	952366				S22-De0050108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
					Normal	953157	S22-De0056924	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		LP-SED01-0.0	0.0	22/12/2022	Normal	RN1379937	N23/000820	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
					Normal	953157	S22-De0056925	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		LP-SED01-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000821	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
					Normal	953157	S22-De0056926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	LP-SED01-1.0	1.0	22/12/2022	Normal	RN1379937	N23/000822	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
				Field_D	953157	S22-De0056936	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						Normal	955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
			Normal	RN1379931	N23/000771	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Normal					955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
LP_SED02_1.0		1.0	15/12/2022	Normal	RN1379931	N23/000772	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
	Normal			952366	S22-De0050111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	955181	M23-Ja0010252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
					Normal	RN1379931	N23/000774	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	955181	M23-Ja0010253	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		LP_SED03_1.0	1.0	15/12/2022	Normal	RN1379931	N23/000775	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
					Normal	952366	S22-De0050114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	LP_SED04	La Perouse	LP_SED_T03_221222	1.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						Normal	953157	S22-De0056927	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
			LP-SED04-0	0.0	22/12/2022	Normal	952366	S22-De0050112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		Normal				955181	M23-Ja0010251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		LP-SED04-0	0.0	22/12/2022	Normal	RN1379931	N23/000773	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
					Normal	952366	S22-De0050112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

								PCBs																							
								PCB # 28	PCB # 44	PCB # 52	PCB # 66	PCB # 77	PCB # 101	PCB # 105	PCB # 118	PCB # 126	PCB # 128	PCB # 138	PCB # 153	PCB # 169	PCB # 170	PCB # 180	PCB # 187	PCB # 195	PCB # 206	PCB # 209	Total PCB				
								ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
EQL								2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
99% Species Protection - Sediment																															
ANZG (2018) DGV - Sediment Quality																												34			
ANZG (2018) GV-High - Sediment Quality																													280		
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	PCB # 28	PCB # 44	PCB # 52	PCB # 66	PCB # 77	PCB # 101	PCB # 105	PCB # 118	PCB # 126	PCB # 128	PCB # 138	PCB # 153	PCB # 169	PCB # 170	PCB # 180	PCB # 187	PCB # 195	PCB # 206	PCB # 209	Total PCB				
		LP-SED04-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000823	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
					Normal	953157	S22-De0056928	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000824	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000825	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Field_D	RN1379937	N23/000834	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000826	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000827	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000828	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000829	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000830	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000831	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
		LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Field_D	RN1379937	N23/000833	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				

Statistical Summary																												
Number of Results	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
Number of Detects	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Minimum Concentration	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
Minimum Detect	ND	ND	ND	ND	ND	2	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.1
Maximum Concentration	<2	<2	<2	<2	<2	2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.1	
Maximum Detect	ND	ND	ND	ND	ND	2	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.1
Average Concentration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1	
Median Concentration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Standard Deviation	0	0	0	0	0	0.15	0	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.48	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments
 #1:From Simpson et al. (2021). Normalised to 1% organic carbon.
 #2:Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
 #3:Primarily adapted from the ERL/ERM values of Long et al. (1995).
 #4:Normalised to 1% organic carbon within the limits of 0.2 to 10%.

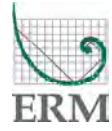


Table 2. Laboratory Analytical Results - Elutriate
Kamay Ferry Wharf
Arup

	PFAS																				SVOC								
	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorohexanesulfonic acid (PFHS)	Perfluorododecanoic acid (PFDDA)	Perfluorooheptanoic acid (PFHPA)	Perfluorooxohexanoic acid (PFHXA)	Perfluorooheptanesulfonic acid (PFHPs)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentanoic acid (PFPeA)	Perfluorooctanoic acid (PFOA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Sum of enHealth PFAS (PFHS + PFOS + PFOA)*	Sum of PFAS (WA DER List)	Sum of PFAS (n=30)*	Sum of PFHS and PFOA	Sum of US EPA PFAS (PFOS + PFOA)*	Demeton-O	Demeton-S	EPN	Fensulfothion	>C10 - C16 Fraction	>C16 - C34 Fraction
EQL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.1	0.01	0.01	2	2	2	2	0.05	0.1
99% Species Protection - Elutriate										6 ^{#1}																			
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems																													
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)										0.00023 ^{#7}				19 ^{#7}															

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	PFDS	PFDA	PFHS	PFDDA	PFHPA	PFHXA	PFHPs	PFNS	PFNA	PFOS	PFPeS	PFOSA	PFPeA	PFOA	PFPrS	PFTeDA	PFTrDA	PFUnA	Sum of enHealth PFAS	Sum of PFAS (WA DER List)	Sum of PFAS (n=30)	Sum of PFHS and PFOA	Sum of US EPA PFAS	Demeton-O	Demeton-S	EPN	Fensulfothion	>C10 - C16 Fraction	>C16 - C34 Fraction
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1
K_SED05	Kurnell	LP_EL05-0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1

Statistical Summary																																					
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.05	0.005	0.005	1	1	1	1	0.025	0.05	
Median Concentration	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.05	0.005	0.005	1	1	1	1	0.025	0.05	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments
 #1:From Simpson et al. (2021).
 #2:Apply LOSP Unknown
 #3:Apply LOSP 99
 #4:Apply LOSP 95
 #5:Apply Freshwater DGV (LOSP Unknown)
 #6:Apply Freshwater LOSP Unknown
 #7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th

	TRH										BTEX						Metals													
	>C34 - C40 Fraction	TRH C15-C28	TRH C29-C36	TRH C6-C10	TRH C6-C10 less BTEX (F1)	TRH C10-C14	TRH C10-C36 (Total)	TRH C6-C9	TRH >C10-C16 less Naphthalene (F2)	TRH >C10-C40 (total)*	Toluene	Benzene	Ethylbenzene	m&p-Xylenes	o-Xylene	Xylenes	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)
	mg/kg	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	mg/kg	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	0.1	0.1	0.2	0.2	0.05	0.1	0.2	0.05	0.1	0.001	0.001	0.001	0.002	0.001	0.003	1	0.2	1	1	1	1	0.1	1	5	0.02	0.001	50	5	5
99% Species Protection - Elutriate																														
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems																	0.7 ^{#3}	4.4 ^{#4}	2.7 ^{#4}	1 ^{#4}	1.3 ^{#4}	4.4 ^{#4}	0.1 ^{#3}	7 ^{#3}	15 ^{#4}					
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																														

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	4000	<5	<5
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3500	<5	<5	
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3500	<5	<5	
K_SED05	Kurnell	LP_EL05-0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3900	<5	<5	
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3700	<5	<5	
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3800	<5	<5	
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3800	<5	<5	

Statistical Summary	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3500	<5	<5		
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	4000	<5	<5		
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.05	0.05	0.05	0.1	0.1	0.025	0.05	0.1	0.025	0.05	0.005	0.005	0.005	0.01	0.005	0.015	5	1	25	5	5	5	5	0.5	5	25	0.1	0.025	3783	2.5	2.5							
Median Concentration	0.05	0.05	0.05	0.1	0.1	0.025	0.05	0.1	0.025	0.05	0.005	0.005	0.005	0.01	0.005	0.015	5	1	25	5	5	5	0.5	5	25	0.1	0.025	3800	2.5	2.5								
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments
 #1:From Simpson et al. (2021).
 #2:Apply LOSP Unknown
 #3:Apply LOSP 99
 #4:Apply LOSP 95
 #5:Apply Freshwater DGV (LOSP Unknown)
 #6:Apply Freshwater LOSP Unknown
 #7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th

	Organotins										PAH																		
	Manganese	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBT0)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	
EQI	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
99% Species Protection - Elutriate	5	0.005	10	5	7.5	5	5	12.5	12.5	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	80 ^{#2}	0.1 ^{#4}																											50 ^{#3}
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																													

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Manganese	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBT0)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
K_SED05	Kurnell	LP_EL05-0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2	

Statistical Summary																																				
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6			
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2		
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2		
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	25	0.025	5	2.5	3.8	2.5	2.5	6.3	6.3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.5	0.1	0.1	
Median Concentration	25	0.025	5	2.5	3.75	2.5	2.5	6.25	6.25	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.5	0.1	0.1	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments
 #1:From Simpson et al. (2021).
 #2:Apply LOSP Unknown
 #3:Apply LOSP 99
 #4:Apply LOSP 95
 #5:Apply Freshwater DGV (LOSP Unknown)
 #6:Apply Freshwater LOSP Unknown
 #7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th

	Pesticides																																
	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Chlordane	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenitrothion	Fenthion	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	
QOL	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
99% Species Protection - Elutriate																																	
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	0.003 ^{#2}		0.01 ^{#5}		0.001 ^{#2}		0.009 ^{#4}					0.0004 ^{#2}		0.01 ^{#5}		0.01 ^{#6}	0.15 ^{#5}					0.004 ^{#3}					0.001 ^{#2}		0.007 ^{#2}	0.0004 ^{#2}		0.05 ^{#3}	
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																																	

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Chlordane	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenitrothion	Fenthion	g-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene		
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2
K_SED05	Kurnell	LP-EL05-0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2	<0.2	<0.2	<0.2

Statistical Summary																																								
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6				
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
Minimum Concentration	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<0.2	<0.2	<0.2	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<0.2	<0.2	<0.2	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.1	0.1	1	0.1	1	10	1	10	0.1	0.1	0.1	0.1	1	1	10	0.1	0.1	0.1	0.1	0.1	1	1	0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.1	0.1	0.1	
Median Concentration	0.1	0.1	1	0.1	1	10	1	10	0.1	0.1	0.1	0.1	1	1	10	0.1	0.1	0.1	0.1	0.1	1	1	0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.1	0.1	0.1	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	6	0	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments
 #1:From Simpson et al. (2021).
 #2:Apply LOSP Unknown
 #3:Apply LOSP 99
 #4:Apply LOSP 95
 #5:Apply Freshwater DGV (LOSP Unknown)
 #6:Apply Freshwater LOSP Unknown
 #7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th

	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Ronnel	Bolstar (Sulprofos)	Merphos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
EQL	2	0.2	2	2	2	2	2	2	0.002
99% Species Protection - Elutriate									
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	0.05 ^{#5}	0.04 ^{#2}			0.004 ^{#5}				
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)									

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Ronnel	Bolstar (Sulprofos)	Merphos
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
K_SED05	Kurnell	LP-EL05-0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002

Statistical Summary

Number of Results	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	1	0.1	1	1	1	1	1	1	0.001
Median Concentration	1	0.1	1	1	1	1	1	1	0.001
Standard Deviation	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	6	6	0	0	6	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1:From Simpson et al. (2021).
- #2:Apply LOSP Unknown
- #3:Apply LOSP 99
- #4:Apply LOSP 95
- #5:Apply Freshwater DGV (LOSP Unknown)
- #6:Apply Freshwater LOSP Unknown
- #7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th

						OCs		OPs											
	Omethoate	Pirimiphos-methyl	Pyrazophos	Terbufos	Tetrachlorvinphos	Toxaphene	Mevinphos (Phosdrin)	Naled (Dibrom)	Tokuthion	Trichloronate	Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	2-N-EtFOSE	2-N-MeFOSE	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)		
	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/KG	MG/KG	µg/L	µg/L	µg/L	µg/L	µg/L		
EOL	20	0.02	2	2	0.002	5	2	2	2	2	0.002	0.002	0.01	0.05	0.05	0.01	0.05		
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems						0.0006 ^{#1}													
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																			

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																	
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<20	<0.02	<2	<2	<0.002	<5	<2	<2	<2	<2	<0.002	<0.002	<0.01	<0.05	<0.05	<0.1	<0.1
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<20	<0.02	<2	<2	<0.002	<5	<2	<2	<2	<2	<0.002	<0.002	<0.01	<0.05	<0.05	<0.01	<0.05

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<20	<0.02	<2	<2	<0.002	<5	<2	<2	<2	<2	<0.002	<0.002	<0.01	<0.05	<0.05	<0.01	<0.05
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<20	<0.02	<2	<2	<0.002	<5	<2	<2	<2	<2	<0.002	<0.002	<0.01	<0.05	<0.05	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																	
Median Concentration	10	0.01	1	1	0.001	2.5	1	1	1	1	0.001	0.001	0.005	0.025	0.025	0.0275	0.0375
Standard Deviation																	
Number of Guideline Exceedances	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1:Apply LOSP Unknown
- #2:Apply LOSP 99
- #3:Apply LOSP 95
- #4:Apply Freshwater DGV (LOSP Unknown)
- #5:Apply Freshwater LOSP Unknown
- #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using the nationally-agreed process.

		PFAS																													
		8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-EtFOSA	N-EtFOAAA	N-MeFOAAA	N-methylperfluoro-1-octane sulfonamide (N-MeFOASA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorohexanesulfonic acid (PFHS)	Perfluorododecanoic acid (PFDoA)	Perfluorooheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorooheptanesulfonic acid (PFHpS)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentanoic acid (PFPeA)	Perfluorooctanoic acid (PFOA)	Perfluoropropanesulfonic acid (PFPPS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Sum of enHealth PFAS (PFHS + PFOS + PFOA)*	Sum of PFAS (WA DER List)	Sum of PFAS _n (n=30)*	Sum of PFHS and PFOA	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL		0.01	0.05	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems																															
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																		0.00023 ^{#6}					19 ^{#6}								

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	<0.01	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<0.01	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<0.01	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01

Statistical Summary		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Results		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration		<0.01	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01	
Minimum Detect		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration		<0.01	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01		
Maximum Detect		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Average Concentration																																	
Median Concentration		0.005	0.025	0.025	0.025	0.025	0.0275	0.05	0.005	0.005	0.005	0.005	0.0275	0.0275	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.0275	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.005		
Standard Deviation																																	
Number of Guideline Exceedances		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments
 #1:Apply LOSP Unknown
 #2:Apply LOSP 99
 #3:Apply LOSP 95
 #4:Apply Freshwater DGV (LOSP Unknown)
 #5:Apply Freshwater LOSP Unknown
 #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values ca

	SVOC					TRH											BTEX					Heavy Metals									
	Sum of US EPA PFAS (PFOS + PFOA)*	Demeton-O	Demeton-S	EPN	Fensulfothion	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	TRH C15-C28	TRH C29-C36	TRH C6-C10	TRH C6-C10 less BTEX (F1)	TRH C10-C14	TRH C10-C36 (Total)	TRH C6-C9	TRH >C10-C16 less Naphthalene (F2)	TRH >C10-C40 (total)*	Toluene	Benzene	Ethylbenzene	m&p-Xylenes	o-Xylene	Xylenes	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	mg/kg	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
EQL	0.01	2	2	2	2	0.05	0.1	0.1	0.1	0.1	0.02	0.02	0.05	0.1	0.02	0.05	0.1	0.001	0.001	0.001	0.002	0.001	0.003	1	0.2	3	1	1	1	0.1	
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems																									0.7 ^{#2}	4.4 ^{#3}	27 ^{#3}	1 ^{#3}	1.3 ^{#3}	4.4 ^{#3}	0.1 ^{#2}
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																															

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	1	<0.1
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	1	<0.1
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	<1	<0.1

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	1	ND	1	ND	1	ND	1	ND	1	ND
Maximum Concentration	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	1	ND	1	ND	1	ND	1	ND	1	ND
Average Concentration																																							
Median Concentration	0.005	1	1	1	1	0.025	0.05	0.05	0.05	0.05	0.01	0.01	0.025	0.05	0.01	0.025	0.05	0.0005	0.0005	0.0005	0.001	0.0005	0.0015	2	0.1	1.5	0.5	0.5	0.75	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	
Standard Deviation																																							
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

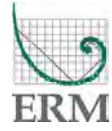
- #1:Apply LOSP Unknown
- #2:Apply LOSP 99
- #3:Apply LOSP 95
- #4:Apply Freshwater DGV (LOSP Unknown)
- #5:Apply Freshwater LOSP Unknown
- #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values are available.

	Metals										Organotins								PAH											
	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b&f)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene
	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
EQL	1	5	0.02	0.001	50	5	5	0.005	10	5	7.5	5	5	12.5	12.5	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	7 ^{#2}	15 ^{#3}					80 ^{#1}	0.1 ^{#3}																						
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																														

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b&f)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene		
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<1	5	<0.02	<0.001	4100	<5	<5	6	<0.005	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<1	<5	<0.02	<0.001	4000	<5	<5	<5	<0.005	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Statistical Summary																																					
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects	0	1	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<5	<0.02	<0.001	4000	<5	<5	<5	<0.005	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Minimum Detect	ND	5	ND	ND	4000	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	5	<0.02	<0.001	4100	<5	<5	6	<0.005	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Maximum Detect	ND	5	ND	ND	4100	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																																					
Median Concentration	0.5	3.75	0.01	0.0005	4050	2.5	2.5	4.25	0.0025	5	2.5	3.75	2.5	2.5	6.25	6.25	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Standard Deviation																																					
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments
 #1:Apply LOSP Unknown
 #2:Apply LOSP 99
 #3:Apply LOSP 95
 #4:Apply Freshwater DGV (LOSP Unknown)
 #5:Apply Freshwater LOSP Unknown
 #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values ca



							Pesticides																												
	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Chlordane	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenitrothion	Fenthion	g-BHC (Lindane)	
	MG/KG	MG/KG	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	0.001	0.001	1	0.2	0.2	0.2	0.2	2	0.2	2	20	2	2	20	0.2	0.2	0.2	0.2	2	2	0.2	2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	2	2	2	0.2
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems			50 ^{#2}			0.003 ^{#1}		0.01 ^{#4}		0.001 ^{#1}		0.009 ^{#3}					0.0004 ^{#1}		0.01 ^{#4}		0.01 ^{#5}	0.15 ^{#4}				0.004 ^{#2}						0.001 ^{#1}		0.007 ^{#1}	
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																																			

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<0.2	
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<0.2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																																				
Median Concentration	0.0005	0.0005	0.5	0.1	0.1	0.1	0.1	1	0.1	1	10	1	1	10	0.1	0.1	0.1	1	1	0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	0.1	
Standard Deviation																																				
Number of Guideline Exceedances	0	0	0	0	0	2	0	2	0	2	0	2	0	0	0	2	0	2	0	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	2	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

- #1:Apply LOSP Unknown
- #2:Apply LOSP 99
- #3:Apply LOSP 95
- #4:Apply Freshwater DGV (LOSP Unknown)
- #5:Apply Freshwater LOSP Unknown
- #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values ca

	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Ronnel	Bolstar (Sulprofos)	Merphos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
EQL	0.2	0.2	0.2	2	0.2	2	2	2	2	2	2	0.002
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	0.0004 ^{#1}		0.05 ^{#2}	0.05 ^{#4}	0.04 ^{#1}			0.004 ^{#4}				
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)												

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Ronnel	Bolstar (Sulprofos)	Merphos	
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<0.2	<0.2	<0.2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<0.002
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<0.2	<0.2	<0.2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<0.002

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<0.2	<0.2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																			
Median Concentration	0.1	0.1	0.1	1	0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.001
Standard Deviation																			
Number of Guideline Exceedances	2	0	2	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1:Apply LOSP Unknown
- #2:Apply LOSP 99
- #3:Apply LOSP 95
- #4:Apply Freshwater DGV (LOSP Unknown)
- #5:Apply Freshwater LOSP Unknown
- #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values are available.



Appendix C ERM DSI Report



Transport
for NSW

Kamay Wharf Project

Sediment Investigation

5 May 2023

Project No.: 0564417

Document details	
Document title	Kamay Wharf Project
Document subtitle	Sediment Investigation
Project No.	0564417
Date	5 May 2023
Version	4.0
Author	Indiana Strachan, Joe Ferring
Client Name	Arup Australia Pty Ltd

Document history

Version	Revision	Author	Reviewed by	ERM approval to issue		Comments
				Name	Date	
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Draft Rev2	01	Indiana Strachan	Joe Ferring	Ian Batterley	24.01.2023	Draft
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Final	03	Joe Ferring	Peter Lavelle CEnvP SC	Ian Batterley	05.05.2023	Addressing Auditor comments

Signature Page

5 May 2023

Kamay Wharf Project

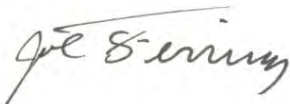
Sediment Investigation



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Acronyms and Abbreviations

Name	Description
ACM	Asbestos Containing Material
AHD	Australian Height Datum
AMP	Asbestos Management Plan
AMG	Australian Map Grid
ASC NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013
ASS	Acid Sulfate Soils
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
CEMP	Construction Environmental Management Plan
CLM Act	Contaminated Land Management Act 1997
CoPC	Contaminant of Potential Concern
CSM	Conceptual Site Model
DP	Deposited Plan
DPI	Department of Primary Industries
DQI	Data Quality Indicator
DSI	Detailed Site Investigation
EP&A Act	Environmental Planning and Assessment Act 1979
EPL	Environment Protection License
ESA	Environmental Site Assessment
GPS	Geographic Positioning System
GSW	General Solid Waste
GSW-A	General Solid Waste, Special Waste (Asbestos)
HEPA	Heads of EPA Australia and New Zealand
LOR	Limit of Reporting
m	Metre
MBT	Monobutyltin
m AHD	Metres Above Australian Height Datum
m bgl	Metres Below Ground Level
NATA	National Association of Testing Authorities
NEMP	National Environmental Management Plan
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NSW EPA	New South Wales Environment Protection Authority
OCP	Organochlorine Pesticides
OPP	Organophosphorus Pesticides
PAH	Polycyclic Aromatic Hydrocarbons
PFAS	Per and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane Sulfonate

Name	Description
POEO Act	Protection of the Environment Operations Act 1997
PSI	Preliminary Site Investigation
QA	Quality Assurance
QC	Quality Control
RAP	Remedial Action Plan
SAQP	Sampling and Analysis Quality Plan
SMP	Site Management Plan
SOP	Standard Operating Procedure
SWMS	Safe Work Method Statement
TBT	Tributyltin
TRH	Total Recoverable Hydrocarbons
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd (ERM) was engaged by Arup Australia Pty Ltd (Arup) on behalf of Transport for New South Wales (TfNSW) to undertake an assessment of potential contamination within sediments located at the proposed Kamay Wharf Project, located in Kurnell and La Perouse, NSW (collectively referred to herein as 'the Site'). ERM understands TfNSW is seeking approval to reinstate the ferry wharves at La Perouse and Kurnell in Botany Bay (the project) under Division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act) as State Significant Infrastructure.

Previous investigations undertaken within the Site by ERM identified sediments ranging from 1.2 m to 11.2 m in thickness within the Kurnell and La Perouse sites, respectively. Following completion of these previous investigations, the Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) requested in November 2022 that further sediment sampling be undertaken to meet the requirements of the Australian Government (2009) *National Assessment Guidelines for Dredging*.

Following the request from DCCEEW, ERM prepared a Sampling and Analysis Quality Plan (SAQP) to outline the Data Quality Objectives (DQOs) and requirements for the collection of sediment samples as required by DCCEEW. The objective of the sediment investigation was to collect data which will allow for the refinement of the Conceptual Site Model (CSM) and for the identification of contamination risks in off-shore sediments that may require management to facilitate construction of the Kamay Wharf Project. This investigation included the following scope:

- Completion of six sediment cores to a maximum depth of between 0.75 and 1 metre below sea level from the Kurnell and the La Perouse sites;
- Collection and analysis of three primary sediment samples from each of the completed sediment cores;
- collection of one surface / sea water sample each from the Kurnell and the La Perouse sites;
- analysis of sediment, surface water and elutriate samples at laboratories accredited by the National Association of Testing Authorities (NATA) for the following Contaminants of Potential Concern (CoPC):
 - Total recoverable hydrocarbons (TRH) in the C6-C40 fractions;
 - Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN);
 - Heavy metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg, B, Ba, Be, Co, Mn, Se, V);
 - Polycyclic aromatic hydrocarbons (PAHs);
 - Organochlorine and organophosphorus (OC/OP) pesticides;
 - Polychlorinated biphenyl (PCBs);
 - Organotins: tributyltin (TBT), dibutyltin (DBT) and monobutyltin (MBT);
 - Total Organic Carbon and Grain Size Analysis;
 - Per- and polyfluoroalkyl substances (PFAS) (30 analytes); and
- preparation of this factual investigation report.

The investigation was completed in accordance with the SAQP (ERM, 2022d) except where described within Section 5.2 of this report. The data collected during the field program and reported by the laboratories was considered to be acceptable to achieve the objectives of the investigation.

The detailed evaluation of risk from potential impacts of contamination on the protected matters as listed in the DCCEEW correspondence will be assessed within the subsequent risk assessment to be conducted by Environmental Risk Sciences Pty Ltd (EnRiskS).

1. INTRODUCTION AND OBJECTIVES

1.1 Introduction

Environmental Resources Management Australia Pty Ltd (ERM) was engaged by Arup Australia Pty Ltd (Arup) on behalf of Transport for New South Wales (TfNSW) to undertake an assessment of potential contamination within sediments located at the proposed Kamay Wharf Project, located in Kurnell and La Perouse, NSW (collectively referred to herein as 'the Site').

The Project Area location is illustrated on **Figure 1a and Figure 1b** of Appendix A and the current layout is presented on **Figure 2a and Figure 2b** of Appendix A.

1.2 Background Information

ERM understands TfNSW is seeking approval to reinstate the ferry wharves at La Perouse and Kurnell in Botany Bay (the project) under Division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act) as State Significant Infrastructure.

The project would allow for an alternative transport connection between La Perouse and Kurnell rather than by road. The primary purpose of this infrastructure would be to operate a public ferry service for visitors to the area and for the local community for cultural and recreational purposes. It would also provide supplementary temporary mooring for tourism-related commercial vessels and recreational boating.

The project provides opportunities for significant cultural and economic benefits to the local Aboriginal community by providing improved access to culturally significant sites.

It is also expected to deliver benefits and opportunities to wider communities on either side of Botany Bay such as investment opportunities in a ferry service and other new visitor/tourist experiences.

A concept design has been developed for the proposed redevelopment which includes the following key features:

- Two new wharves, one at La Perouse and one at Kurnell, that would include:
 - Berth for ferries (to accommodate vessels up to 40 m long);
 - Berth for recreational and commercial vessels (to accommodate vessels up to 20 m long);
 - Sheltered waiting areas and associated furniture;
 - Additional space within waiting areas to accommodate other users such as fishers and those using recreational vessels;
 - Signage and lighting;
- Landside paving, access ramps, seating and landscaping at the entrance to the wharves;
- Reconfiguration of existing car parking areas at La Perouse to increase the number of spaces (including provision of accessible parking and kiss-and-ride bays);
- Reconfiguration of footpaths around the new car parking area;
- Provision for bicycle racks at La Perouse; and
- Installation of utilities to service the wharves.

Previous investigations undertaken within the Site by ERM (summarised in Section 3) identified sediments ranging from 1.2 m to 11.2 m in thickness within the Kurnell and La Perouse sites, respectively.

Following completion of previous investigation works within the Site, the Australia Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) requested in November 2022 that further sediment sampling be undertaken to meet the requirements of the Australian Government (2009) *National Assessment Guidelines for Dredging*.

Following the request from DCCEEW, ERM prepared a Sampling and Analysis Quality Plan (SAQP) to outline the Data Quality Objectives (DQOs) and requirements for the collection of sediment samples as required by DCCEEW.

This investigation was undertaken in general accordance with the requirements outlined within the SAQP (ERM, 2022d) with the exception of minor non-conformances detailed within Section 5.2.

ERM notes that the detailed evaluation of risk from potential impacts of contamination on the protected matters as listed in the letter from DCCEEW will be assessed within the subsequent risk assessment to be prepared by Environmental Risk Sciences Pty Ltd (EnRiskS).

1.3 Project Objectives

The objective of the sediment investigation was to collect data which will allow for the refinement of the Conceptual Site Model (CSM) and for the identification of contamination risks in off-shore sediments that may require management to facilitate construction of the Kamay Wharf Project.

As outlined above, the detailed evaluation of risk from potential impacts of contamination on the protected matters as listed in the letter from DCCEEW will be assessed within the subsequent risk assessment to be prepared by EnRiskS.

1.4 Scope of Works

To achieve the objectives outlined above, ERM completed the following scope of works in general accordance with the requirements detailed within the SAQP (ERM, 2022):

- project preliminaries including preparation of a site-specific Health and Safety Plan and project planning requirements;
- sediment investigation works including:
 - the completion of six sediment cores to a maximum depth of 1.0 m below the sea floor at the Kurnell site;
 - the completion of six sediment cores to a maximum depth of 1.0 m below the sea floor at the La Perouse site;
- the collection of representative sediment samples from the completed cores;
- the collection of one sea water sample each from the Kurnell and the La Perouse sites for subsequent elutriate analysis;
- submission of collected sediment samples to laboratories accredited by the National Association of Testing Authorities (NATA) for the required sediment and elutriate analyses; and
- preparation of this factual investigation report.

ERM notes that all sediment coring works were undertaken by McLennans Diving Services who were engaged directly by Arup.

1.5 Regulatory Requirements

The investigation was undertaken in accordance with the following guidelines and standards.

- AS 4482.1 - Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil, Part 2: Non-volatile and Semi-volatile compounds, Australian Standard (2005);
- AS 4482.2 - Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 2: Volatile Substances, Australian Standard (1999);
- Australian Government (2009) National Assessment Guidelines for Dredging;
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Guidelines for Assessing and Managing Water Quality in Temporary Waters, Smith, REW, Boulton, AJ, Baldwin, DS, Humphrey, CL, Butler, B & Halse, (October 2020). This is hereafter referred to as ‘the Temporary Water Guidelines’;
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Australian and New Zealand Environment Conservation Council (ANZECC) (2000);
- Australian and New Zealand Guidelines for Fresh & Marine Water Quality (2019). Toxicant default guideline values for sediment quality;
- Australian and New Zealand Guidelines for Fresh & Marine Water Quality (2020) Toxicant default guideline values for water quality in aquatic ecosystems;
- Australian Drinking Water Guidelines (ADWG), National Health and Medical Research Council (NHMRC) (2011);
- ANZG 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Governments and Australian state and territory governments, Canberra ACT, Australia;
- Heads of Environment Protection Authority (HEPA)PFAS National Environmental Management Plan, Version 2.0 (January 2020). This is hereafter referred to as ‘the NEMP’;
- National Environment Protection (Assessment of Site Contamination) Measure 1999, National Environmental Protection Council (NEPC) (April 2013). This is hereafter referred to as ‘the ASC NEPM, 2013’;
- NSW Environment Protection Authority Consultants Reporting on Contaminated Land, Contaminated Sites Guidelines, (2020);
- NSW Environment Protection Authority Sampling Design Part 1 Application and Part 2 Interpretation (2022); and
- NSW Environment Protection Authority Guidelines for the NSW Site Auditor Scheme (3rd edition), (2017).

1.6 Limitations

This report was prepared in accordance with the scope of work outlined within this report and subject to the applicable cost, time and other constraints. ERM performed the services in a manner consistent with the normal level of care and expertise exercised by members of the environmental profession. ERM makes no warranty concerning the suitability of the Site for any purpose or the permissibility of any use, development or re-development of the Site.

Except as otherwise stated, ERM's assessment is limited strictly to identifying specified environmental conditions associated with the subject Site and does not evaluate structural conditions of any buildings on the subject Site. Lack of identification in the report of any hazardous or toxic materials on the subject Site should not be interpreted as a guarantee that such materials do not exist on the Site.

This assessment is based on Site inspection conducted by ERM personnel, sampling and analyses described in the report, and information provided by Arup or other people with knowledge of the Site conditions. All conclusions and recommendations made in the report are the professional opinions of the ERM personnel involved with the project and, while normal checking of the accuracy of data has been conducted, ERM assumes no responsibility or liability for errors in data obtained from such sources, regulatory agencies or any other external sources, nor from occurrences outside the scope of this project.

ERM is not engaged in environmental consulting and reporting for the purpose of advertising, sales promoting, or endorsement of any client interests, including raising investment capital, recommending investment decisions, or other publicity or investment purposes.

ERM PREPARED THIS REPORT FOR THE SOLE AND EXCLUSIVE BENEFIT AND USE OF ARUP. NOTWITHSTANDING DELIVERY OF THIS REPORT BY ERM OR ARUP TO ANY THIRD PARTY, UNLESS OTHERWISE EXPRESSLY AGREED, ANY COPY OF THIS REPORT PROVIDED TO A THIRD PARTY IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY, WITHOUT THE RIGHT TO RELY AND ERM DISCLAIMS ALL LIABILITY TO SUCH THIRD PARTY TO THE EXTENT PERMITTED BY LAW. ANY USE OF THIS REPORT BY A THIRD PARTY IS DEEMED TO CONSTITUTE ACCEPTANCE OF THIS LIMITATION.

2. SITE IDENTIFICATION AND SETTING

The Kamay Wharf Project comprises two sites located in Kurnell and La Perouse, NSW. Site-specific information relating to site identification and site setting is presented within the following sections.

2.1 Site Identification

Site identification information is presented within Table 2-1 below:

Table 2-1. Site Identification Details

Site	Item	Description
Kurnell	Legal Description	<ul style="list-style-type: none"> ■ Part Lot 71 DP 908; and ■ Part Lot 3 DP 1165618
	Local Government Area	<ul style="list-style-type: none"> ■ Sutherland Shire Council
	Current Zoning	<ul style="list-style-type: none"> ■ E1 – National Parks and Nature Reserves ■ E2 – Environmental Conservation ■ W1 – Natural Waterways ■ B1 – neighbourhood Centres
	Geographical Co-Ordinates	<ul style="list-style-type: none"> ■ 34°00'22"S 151°33'00" E (approximate centre of the Site)
	Site Location and Site Layout	<ul style="list-style-type: none"> ■ Refer to Figure 1a and Figure 2a of Appendix A
La Perouse	Legal Description	<ul style="list-style-type: none"> ■ Lot 5113 DP 752015 ■ Lot 1 DP 934156 ■ Lot 1057 DP 752015 ■ Lot 285 DP752015 ■ Part Lot 2 DP 776343 ■ Part Lot 1 DP 776343 ■ Part Lot 5086 DP 752015 ■ Part Lot 1 DP 862586 ■ Lot 5257 DP 824002 ■ Lot 5253 DP 824002 ■ Lot 5254 DP 824002 ■ Lot 5256 DP 824002 ■ Lot 5255 DP 824002 ■ Lot 1081 DP 752015 ■ Lot 7045 DP 1026891 ■ Lot 7043 DP 1026891 ■ Lot 1 DP 915424 ■ Lot 3 DP 1165618
	Local Government Area	<ul style="list-style-type: none"> ■ Randwick Council
	Current Zoning	<ul style="list-style-type: none"> ■ E1 – National Parks and Nature Reserves ■ RE1 – Public Recreation ■ SP2 - Infrastructure
	Geographical Co-Ordinates	<ul style="list-style-type: none"> ■ 33°59'19"S 151°13'59" E (approximate centre of the Site)
	Site Location and Site Layout	<ul style="list-style-type: none"> ■ Refer to Figure 1b and Figure 2b of Appendix A

2.2 Site Setting

Site setting information is presented within Table 2-2 below:

Table 2-2. Site Setting Details

Site Identifier	Item	Description
Kurnell	Site area	Approximately 28.5 ha (including land and water portions of the Site)
	Current land-use	The Site is currently comprised of undeveloped recreational land (beach, open grass parkland and vegetated bushland), open water (Botany Bay) and public roadways,
	Proposed Future Use	Re-instatement of public ferry wharves and associated infrastructure
	Surrounding Land Use	The land uses surrounding the Site include: <ul style="list-style-type: none"> ■ North: Botany Bay; ■ South: Low density residential dwellings, then the Ampol Kurnell fuel terminal (former Caltex Kurnell refinery); ■ East: Undeveloped recreational bushland, then Botany Bay / Pacific Ocean; and ■ West: Low density residential dwellings (suburb of Kurnell), followed by undeveloped bushland / wetlands and then Botany Bay.
	Site Elevation	<ul style="list-style-type: none"> ■ Approximately 0 – 4 m Australian Height Datum (AHD)
	Topography	<ul style="list-style-type: none"> ■ Regional topography is generally flat with a slight slope to the north / north-east. The portion of the Site located on land slopes to the north in the direction of Botany Bay.
	Hydrology	<ul style="list-style-type: none"> ■ The portion of the Site located on land was observed to be comprised of a public road way in the south-western portion of the Site, a public beach within the northern portion and undeveloped recreational land in the eastern portion. ■ During periods of rainfall, it is anticipated that surface waters would either flow into stormwater infrastructure located within Captain Cook Drive to the south-west of the Site, infiltrate the Site surface in unsealed portions or flow offsite to the adjacent Botany Bay.
	Geology, Soils and Acid Sulfate Soils	<ul style="list-style-type: none"> ■ Geology mapping provided by NSW Planning and Environment – resources and energy indicates the Site is underlain by an unnamed Quaternary formation comprising coarse quartz sands, varying amounts of shell fragments and clean to muddy, shelly, mostly marine sand overlying the Triassic Hawksbury Sandstone Formation comprising medium to coarse-grained quartz sandstone with minor shale and laminite lenses. ■ Soils within the Site are described as deep podzols of dunes within swales and organic peats within swamp areas. ■ Mapping indicates that the western portion of the Site was comprised of class 1, class 3 and class 5 Acid Sulfate Soils (ASS), with a high probability of ASS occurring within subtidal marine sediments.
La Perouse	Hydrogeology	Information from NSW Department of Primary Industries (DPI) and the Bureau of Meteorology indicated the following: <ul style="list-style-type: none"> ■ A search of registered groundwater bores identified 11 bores within 2 km of the Site. Standing water levels were measured between 0 m below ground level (bgl) and 3.0 m bgl. Registered bores were utilised for a range of purposes including water supply, domestic, household, monitoring and water supply bores. ■ Drillers logs indicated that groundwater was identified within unconsolidated sand and clayey sand. ■ Groundwater flow direction will be influenced by tidal activity but was generally inferred to be flowing towards Botany Bay
	Site area	Approximately 11.5 ha (including land and water portions of the Site)
	Current land-use	The Site is currently comprised of undeveloped recreational land (open grass parkland), open water (Frenchmans Bay) and public roadways (Anzac Parade).

Site Identifier	Item	Description
	Proposed Future Use	<ul style="list-style-type: none"> ■ Re-instatement of public ferry wharves and associated infrastructure.
	Surrounding Land use	<p>The land uses surrounding the Site include:</p> <ul style="list-style-type: none"> ■ North: Frenchmans Bay, low density residential dwellings and recreational parkland; ■ South: Botany Bay; ■ East: Undeveloped recreational bushland, then Botany Bay / Pacific Ocean; and ■ West: Botany Bay followed by industrial land comprising fuel / chemical storage located approximately 1.5 km to the west of the Site.
	Site Elevation	<ul style="list-style-type: none"> ■ Approximately 0 – 15 m AHD
	Topography	<ul style="list-style-type: none"> ■ Regional topography is generally flat with a slight slope to the south / south-east in the direction of the Pacific Ocean. ■ The central portion of the Site is located at an elevation of approximately 15 m AHD and slopes to the south, east and west in the direction of Botany Bay.
	Hydrology	<ul style="list-style-type: none"> ■ The portion of the Site located on land was observed to contain a centralised ring road (Anzac Parade). During periods of rainfall, it is anticipated that surface water would either flow into stormwater infrastructure located within Anzac Parade, infiltrate the site surface in unsealed portions of the Site or flow offsite to the adjacent Botany Bay.
	Geology, Soils and Acid Sulfate Soils	<ul style="list-style-type: none"> ■ Geology mapping provided by NSW Planning and Environment – resources and energy indicates the Site is underlain by an unnamed Mesozoic formation comprising medium to coarse grained quartz and sandstone, very minor shale and laminitic lenses and an unnamed Quaternary formation comprising coarse quartz sands and varying amounts of shell fragment. ■ Soils within the Site are described as shallow discontinuous earthy sands and yellow earths on crests and insides of benches, shallow siliceous sands on leading edges, shallow to deep leached sands, grey sands and gleyed podzolic soils in poorly drained areas and localised yellow podzolic soils associated with shale lenses. ■ Mapping indicates that the western portion of the Site was comprised of class 4 and class 5 ASS, with a potential probability of ASS occurring within subtidal marine sediments.
	Hydrogeology	<p>Information from NSW Department of Primary Industries and the Bureau of Meteorology indicated the following:</p> <ul style="list-style-type: none"> ■ A search of registered groundwater bores identified 37 bores within the 2 km search radius. Standing water levels were measured between 0 m below ground level (bgl) to 143.0 m bgl. The majority of bores identified groundwater at depths of between 3 m and 8 m bgl. Registered bores were utilised for a range of purposes including water supply, domestic, household, monitoring and water supply bores. ERM notes that the bore drilled to a depth of 143m is likely to be used for extraction of groundwater from deep aquifers. ■ The Site is located immediately adjacent to the NSW Office of Water Groundwater Extraction Exclusion Area (GEEA) - Area 2. Mapping indicates the exclusion zone extends from the northern boundary of the Site at the intersection of Anzac Parade and Endeavour Avenue. ■ Drillers' logs indicated that groundwater was identified within unconsolidated sand, clays and sandstone bedrock. ■ Groundwater flow direction is expected to be influenced by tidal activity but was generally inferred to be flowing towards Botany Bay

2.3 Site History and Background Information

A detailed description of history and background information for the Site is presented within *Kamay Wharf Project, Preliminary Site Investigation – Kurnell Site* (ERM, 2022a) and *Kamay Wharf Project, Preliminary Site Investigation – La Perouse Site* (ERM, 2022b). A summary of the key information reported within ERM (2022a) and ERM (2022b) is presented within Section 3.

3. PREVIOUS INVESTIGATIONS AND CONCEPTUAL SITE MODEL

3.1 Previous Investigations

ERM undertook this sediment assessment in consideration of information presented within the following previous reports:

- ERM (2022a) *Kamay Wharf Project, Preliminary Site Investigation – Kurnell Site*, 6 December 2022;
- ERM (2022b) *Kamay Wharf Project, Preliminary Site Investigation – La Perouse Site*, 6 December 2022;
- ERM (2020) *Kamay Wharf Project, Sampling and Analysis Quality Plan*, 4 September 2020;
- ERM (2022c) *Kamay Wharf Project, Targeted Site Investigation*, 21 December 2022;
- DCCEEW (2022), *Request for Additional Information for Kamay Ferry Wharves Project, NSW*, 22 November (2022) ref No 2020/8825; and
- ERM (2022d) *Kamay Wharf Project, Sediment Investigation Sampling and Analysis Quality Plan*, 9 December 2022.

The ERM Preliminary Site Investigation (PSI) reports and the Targeted Site Investigation (TSI) report were initially completed in 2020 and were updated in 2022 following receipt of Site Auditor comments in November 2022.

A summary of previous investigations and relevant DCCEEW correspondence is presented in Table 3-1 below.

Table 3-1. Summary of Previous Investigations and Relevant DCCEEW Correspondence

Report ID	Summary Information
<p>PSI – Kurnell (ERM, 2022a)</p>	<p>ERM was engaged by Arup to undertake a PSI at the site identified as the Kamay Ferry Wharf Project located in Kurnell, NSW. The results of the PSI indicated the following:</p> <ul style="list-style-type: none"> ■ The Site is located in predominantly public open space comprising beach area, parkland and undeveloped bushland associated with Botany Bay National Park, with the northern portion of the Site extending into Botany Bay. ■ The Site is underlain by a quaternary formation comprising coarse quartz sands, varying amounts of shell fragments and clean to muddy, shelly, mostly marine sand overlying the Triassic Hawksbury Sandstone Formation comprising medium to coarse-grained quartz sandstone with minor shale and laminate lenses. ■ Groundwater within the surrounding area was identified at depths between 0 m bgl to 3.0 m bgl, with registered bores utilised for a range of purposes including domestic use, household use, monitoring and water supply. ■ Historical records indicate the Site has largely been vacant since the 1950s with minor construction works of a small jetty / pier in the 1970s. The surrounding area has comprised low density residential land use to the west, open space / bushland to the east and the Ampol Kurnell fuel terminal (former Caltex Kurnell refinery) to the south since the 1950s to present time. <p>Based on information reviewed as part of the PSI, ERM considered there to be a potential risk to human health / ecological receptors due to the following potentially complete pollutant linkages identified at the Site:</p> <ul style="list-style-type: none"> ■ Potential uncontrolled fill materials associated with construction of the existing roadways or levelling / site filling purposes; ■ Potential per- and polyfluoroalkyl substances (PFAS) contamination associated with Botany Bay and the adjacent Ampol Kurnell fuel terminal which are identified as NSW EPA PFAS investigation sites; ■ Potential ASS associated with sediments located within Botany Bay and adjacent areas; ■ Historical onsite and surrounding land uses including (but not limited to) the adjacent Ampol Kurnell fuel terminal which is currently regulated by the NSW EPA; and ■ Potential impacted surface materials resulting from illegal dumping of waste materials. <p>ERM further noted that based on the proposed construction method, the potential release of contamination within subsurface soils and sediments would require consideration during the design of construction environmental controls.</p> <p>It was the opinion of ERM that based on the results of the PSI, an intrusive investigation of soil, sediment, surface water and groundwater should be undertaken to more accurately assess the contamination status of the Site.</p>

Report ID	Summary Information
<p>PSI – La Perouse (ERM, 2022b)</p>	<p>ERM was engaged by Arup to undertake a PSI at the Site identified as the Kamay Ferry Wharf Project located in La Perouse, NSW. The results of the PSI indicated the following:</p> <ul style="list-style-type: none"> ■ The Site is located in predominantly public open space comprising beach area, parkland and undeveloped bushland associated with Botany Bay National Park with the northern portion of the Site extending into Botany Bay. ■ The Site is underlain by an unnamed Mesozoic formation comprising medium to coarse grained quartz and sandstone, very minor shale and laminite lenses and an unnamed Quaternary formation comprising coarse quartz sands and varying amounts of shell fragment. ■ Groundwater within the surrounding area was identified at depths between 0 m bgl to 143.0 m bgl. The majority of bores identified groundwater at depths of between 3 m and 8 m bgl. Registered bores were utilised for a range of purposes including water supply, domestic, household, monitoring and water supply bores. The Site is located immediately adjacent to the NSW Office of Water Groundwater Extraction Exclusion Area (GEEA) - Area 2. Mapping indicates the exclusion zone extends from the northern boundary of the Site at the intersection of Anzac Parade and Endeavour Avenue. ■ Historical records indicate the Site has largely been vacant since the 1930s with limited use of the Site for Defence purposes in the 1940s. Records from this time indicate the potential for mortar firing to have been undertaken in an easterly direction towards Congwong Bay. A small pier was observed in aerial photographs from the 1930s and may be associated with the adjacent historical sand mining in Frenchmans Bay. Following closure / demotion of Defence buildings, the Site has been used for recreational parkland and the La Perouse Museum. <p>Based on information reviewed as part of the PSI, ERM considered there to be a potential risk to human health / ecological receptors due to the following potentially complete pollutant linkages identified at the Site:</p> <ul style="list-style-type: none"> ■ Potential uncontrolled fill materials associated with construction of the existing roadways or levelling / site filling for construction of onsite building structures; ■ Potential PFAS contamination associated with Botany Bay which is identified as NSW EPA PFAS investigation sites; ■ Potential ASS associated with sediments located within Botany Bay and adjacent areas; ■ Potential use of hazardous materials within onsite historical and current building structures; ■ Historical onsite and surrounding land uses including (but not limited to) former Defence land uses, sand mining etc.; and ■ Potential Unexploded Ordnance located within a former Mortar Firing area located to the East of the Site. <p>ERM further noted that based on the proposed construction method, the potential release of contamination within subsurface soils and sediment would require consideration during the design of construction environmental controls.</p> <p>It was the opinion of ERM that based on the results of the PSI, an intrusive investigation of soil, sediment, surface water and groundwater should be undertaken to more accurately assess the contamination status of the Site.</p>
<p>SAQP – Targeted Site Investigation (ERM, 2020)</p>	<p>ERM was engaged by Arup to prepare a SAQP for a Targeted Site Investigation to be undertaken within the Site identified as the Kamay Wharf Project, located in Kurnell and La Perouse, NSW. The objectives of this SAQP were to summarise:</p> <ul style="list-style-type: none"> ■ The DQOs for the proposed Targeted Site Investigation; and ■ The methodology for the proposed works, including sampling, analytical and reporting requirements.

Report ID	Summary Information
TSI Report – (ERM, 2022c)	<p>The Targeted Site Investigation Report was completed to present the outcomes of the intrusive investigation at the Kurnell and La Perouse sites and to provide recommendations based on analytical results and relevant guidelines.</p> <p>A further objective was to refine the CSM to identify contamination risk in both on shore soils and off shore sediments in order to fulfil the requirements of Section 9 of the Secretary’s Environmental Assessment Requirements (SEARs) and to allow for preliminary waste classification information.</p> <p>Based on field observations made during site investigation works, laboratory analytical results reported for collected soil and sediment samples and with reference to the updated CSM, ERM concluded the following:</p> <ul style="list-style-type: none">■ Sediments were identified during offshore drilling works to range from 1.2 m to 11.2 m in thickness within the Kurnell and La Perouse sites respectively.■ Laboratory analysis of collected samples reported concentrations of Contaminants of Potential Concern (CoPCs) below the adopted screening criteria with the exception of nickel within one sample. It is considered that identified nickel concentrations were likely to be indicative of natural / background concentrations.■ Laboratory analysis of sediment samples returned concentrations of Monobutyltin (MBT) higher than LOR in all collected samples ranging from 0.75 mg/kg – 3.8 mg/kg. ERM notes that while there is no screening criteria for MBT, further consideration may be required to waste classification / disposal and dredging purposes.■ As works were undertaken concurrently with geotechnical works, limited sample volumes were obtained resulting in a reduced analytical suite being analysed.■ While reported concentrations of CoPCs within collected sediment samples were less than the adopted screening criteria, due to the limited number of samples collected and reduced sample volumes, additional information was recommended for waste classification purposes.■ Fill materials within the onshore test pits located at the Kurnell and La Perouse sites were identified to contain Asbestos Containing Materials (ACM) within several locations.■ Laboratory analysis of collected samples returned concentrations of all other CoPCs less than the adopted screening criteria. Concentrations of Total Recoverable Hydrocarbons (TRH) (within both the Kurnell and La Perouse Sites) and Per and Polyfluoroalkyl Substances (PFAS) (La Perouse only) were reported to exceed the laboratory Limit of Reporting (LOR) but were less than the screening criteria within several collected soil samples.■ ERM notes that while these minor elevated concentrations are unlikely to be indicative of significant or widespread anthropogenic contamination or pose a potential risk to identified receptors, further consideration may be required prior to construction for waste classification purposes.■ Whilst the completed sampling density during investigation works is insufficient to support waste classification of the Site, based on laboratory analytical results reported for collected soil samples it is the opinion of ERM that fill materials within the Site may be classified as General Solid Waste (GSW) and General Solid Waste – Special Waste Asbestos (GSW-A).■ Concentrations of benzo(a)pyrene were identified to exceed the hazardous waste classification criteria, however based on field notes this isolated exceedance is considered likely to be associated with historical road infrastructure (bitumen) and not indicative of significant anthropogenic contamination.■ ERM notes that prior to construction, further assessment of the Site is required to facilitate waste classification requirements.

Report ID	Summary Information
	<ul style="list-style-type: none"> ■ Assessment of Unexploded Ordnance (UXO) was not undertaken as part of this Targeted Site Investigation, however this may require further consideration should construction activities be required within areas mapped to contain potential UXO. <p>Based on the results of the investigation, ERM recommended the following additional works be undertaken prior to the commencement of construction works.</p> <ul style="list-style-type: none"> ■ Where groundwater is to be encountered or extracted during future development works, an assessment of groundwater should be completed to further inform the management of potential groundwater issues during construction and subsequent operation of the Site. ■ Additional sampling and analysis of soils, sediments and (where necessary) groundwater should be undertaken to aid in the assessment of potential offsite disposal requirements. ■ A Construction Environmental Management Plan (CEMP) detailing the required processes / procedures for the excavation, handling, storage and transport of sediments will be required. ■ Prior to the commencement of construction works, an Asbestos Management Plan (AMP) and / or Site Management Plan (SMP) will be required to outline the required processes / procedures to be adopted for the remediation and / or management of asbestos within the Site. The AMP should also be developed in consideration of occupational safety / hygiene requirements during remediation and / or subsequent site operations. ■ ERM notes that all site management plans / CEMPs, etc. should be developed in accordance with relevant NSW EPA made or endorsed guidance at the time of works.
<p>Correspondence DCCEEW 2022</p>	<p>As part of the review of the Kamay Wharf Project, DCCEEW wrote to TfNSW requesting the following further information for the purposes of making a decision on whether or not to approve a controlled action:</p> <ul style="list-style-type: none"> ■ Undertake surficial sediment characterisation at both sites (including chemical, physical and biological) within the upper 1 metre of the marine deposit profile using detection limits in Table 1 of the National Assessment Guidelines for Dredging, Commonwealth of Australia, Canberra, 2009. ■ It was noted that while dredging does not form a component of the proposed action, however, these guidelines provide relevant limits for typical sediment contaminants and other analytical parameters. ■ Undertake analysis of collected sediments for representative CoPCs; ■ Assess whether sediment was contaminated based on the Toxicant default guideline values for water quality in aquatic ecosystems, Australian and New Zealand Guidelines for Fresh & Marine Water Quality (2020) and Toxicant default guideline values for sediment quality, Australian and New Zealand Guidelines for Fresh & Marine Water Quality (2019) available at https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/sediment-quality-toxicants. ■ Where contamination is identified, DCCEEW required that the assessment should describe the likely dispersal pathways during construction and operation for contaminants identified in the sediment analysis, discuss the potential impacts of contamination on protected matters during construction and operation and demonstrate how contamination will be managed to ensure construction and operation do not impact protected matters.
<p>SAQP – Sediment Investigation (ERM, 2022d)</p>	<p>ERM was engaged by Arup to prepare a SAQP for the investigation of sediments to meet the above DCCEEW requirements within the Site identified as the Kamay Wharf Project, located in Kurnell and La Perouse, NSW.</p> <p>The objectives of this SAQP were to summarise the:</p>

Report ID	Summary Information
	<ul style="list-style-type: none">■ DQOs for the proposed sediment investigation; and■ The methodology for the proposed works, including sampling, analytical and reporting requirements. <p>Prior to the commencement of works, the Site Auditor (Ms. Melissa Porter of Senversa) reviewed the SAQP and provided comments. ERM provided a response to all Site Auditor comments and incorporated the amendments into the scope of works for investigation, data analysis and reporting associated with this sediment investigation.</p>

3.2 Conceptual Site Model

The CSMs developed during the TSI (ERM, 2022c) are presented as Table 3-2 for the Kurnell site and Table 3-3 for the La Perouse site. We note that sediments are included within these CSMs for Kurnell and La Perouse; however a sediment-specific CSM was outside the scope of this factual report.

Table 3-2. Conceptual Site Model - Kurnell

Potential Sources	Pathways	Potential Receptors	Risk of Potentially Complete Pollutant Linkage	Comment
Uncontrolled fill	Dermal contact and / or incidental ingestion with contaminated surface waters / soils.	<ul style="list-style-type: none"> ■ Current and future site users; and ■ Workers carrying out development, installation or maintenance works within the Project Area. 	Low	<ul style="list-style-type: none"> ■ Concentrations of CoPCs were less than the adopted assessment criteria within all collected soil and sediment samples with the exception of asbestos which was identified in fill materials. ■ Asbestos identified within test pits TP04, TP05 and TP06 located within the Kurnell Site adjacent to Captain Cook Drive. ■ ERM notes that while the risk to potential receptors is likely to be low, further consideration of concentrations of CoPCs in soils / sediments (TRH, etc.) may be required for waste classification purposes during construction works. ■ ERM notes that where the proposed construction methodology requires groundwater to be intersected or dewatering to be undertaken, further assessment of groundwater should be undertaken. Where groundwater sampling is undertaken at a later stage, an update to the Conceptual Site Model, will be provided as an addenda to this report.
	Transport of contamination through surface water flows.	<ul style="list-style-type: none"> ■ Adjacent sensitive receptors; ■ Current and future site users; and ■ Workers carrying out development, installation or maintenance works within the Project Area. 	Low	
	Transport of contamination to underlying groundwater aquifers	<ul style="list-style-type: none"> ■ Adjacent sensitive receptors; and ■ Future potential on-site users of groundwater. 	Low - Moderate	
	Transport of contaminants through mechanical transport	<ul style="list-style-type: none"> ■ Workers carrying out development, installation or maintenance works within the Project Area. ■ Ecological receptors resulting from disturbance of marine sediments during construction works 	Moderate - High	
	Dermal contact and / or incidental ingestion with	<ul style="list-style-type: none"> ■ Current and future site users; and 	Low	

Potential Sources	Pathways	Potential Receptors	Risk of Potentially Complete Pollutant Linkage	Comment
Historical onsite and surrounding land uses	contaminated surface waters / soils.	<ul style="list-style-type: none"> Workers carrying out development, installation or maintenance works within the Project Area. 		<ul style="list-style-type: none"> Concentrations of CoPCs were less than the adopted assessment criteria within all collected soil and sediment samples with the exception of asbestos which was identified in fill materials. Asbestos identified within test pits TP04, TP05 and TP06 located within the Kurnell Site adjacent to Captain Cook Drive. ERM notes that while the risk to potential receptors is likely to be low, further consideration of concentrations of CoPCs in soils / sediments (TRH, PFAS etc.) may be required for waste classification purposes during construction works. Sediment samples returned concentrations of MBT higher than LOR. ERM notes that while there is no screening criteria for MBT further consideration may be required for waste classification / disposal requirements. ERM notes that while concentrations of CoPCs in overlying soil material indicate a low – moderate risk of harm to underlying groundwater aquifers, the assessment of groundwater had not been undertaken at the time of this report and will be included as an addenda (including an update to this CSM).
	Transport of contamination through surface water flows.	<ul style="list-style-type: none"> Adjacent sensitive receptors; Current and future site users; and Workers carrying out development, installation or maintenance works within the Project Area. 	Low	
	Transport of contamination to underlying groundwater aquifers	<ul style="list-style-type: none"> Adjacent sensitive receptors; and Future potential on-site users of groundwater. 	Low - Moderate	
	Transport of contaminants through mechanical transport (during excavation of sediments etc.)	<ul style="list-style-type: none"> Workers carrying out development, installation or maintenance works within the Project Area. Ecological receptors resulting from disturbance of marine sediments during construction works 	Moderate - High	

Potential Sources	Pathways	Potential Receptors	Risk of Potentially Complete Pollutant Linkage	Comment
Hazardous building materials	Inhalation of contaminated dust / fibres.	<ul style="list-style-type: none"> ■ Current and future site users; and ■ Workers carrying out development, installation or maintenance works within the Project Area 	Moderate - High	<ul style="list-style-type: none"> ■ Asbestos identified within test pits TP04, TP05 and TP06 located within the Kurnell Site adjacent to Captain Cook Drive. ■ While this is likely to pose a limited risk to the proposed development, it is the opinion of ERM that a site management plan and / or remediation action plan will be required to outline the required processes and procedures to be implemented to remediate and / or management identified asbestos within the Ste, ■ ERM notes further consideration on the potential nature and extent of asbestos may be required for waste classification purposes during construction works.
	Transport of contaminants through mechanical transport	<ul style="list-style-type: none"> ■ Current and future site users; and ■ Workers carrying out development, installation or maintenance works within the Project Area. 	Moderate - High	

Table 3-3. Conceptual Site Model - La Perouse

Potential Sources	Pathways	Potential Receptors	Risk of Potentially Complete Pollutant Linkage	Comment
Uncontrolled fill	Dermal contact and / or incidental ingestion with contaminated surface waters / soils.	<ul style="list-style-type: none"> Current and future site users; and Workers carrying out development, installation or maintenance works within the Project Area. 	Low	<ul style="list-style-type: none"> Concentrations of CoPCs were less than the adopted assessment criteria within all collected soil and sediment samples with the exception of asbestos which was identified in fill materials. Asbestos identified within test pits TP04, TP07 and TP10 located within the La Perouse Site adjacent to Anzac Parade Low concentrations of PFAS (above LOR but less than screening criteria) were identified within surface soils in TPO7. ERM notes that while this is considered unlikely to be indicative of significant or widespread contamination, further consideration may be required for waste classification purposes. ERM notes that while the risk to potential receptors is likely to be low, further consideration of concentrations of CoPCs in soils / sediments (TRH etc.) may be required for waste classification purposes during construction works. ERM notes that while concentrations of CoPCs in overlying soil material indicate a low – moderate risk of harm to underlying groundwater aquifers, the assessment of groundwater had not been undertaken at the time of this report and will be included as an addenda (including an update to this CSM) should groundwater investigation be deemed necessary.
	Transport of contamination through surface water flows.	<ul style="list-style-type: none"> Adjacent sensitive receptors; Current and future site users; and Workers carrying out development, installation or maintenance works within the Project Area. 	Low	
	Transport of contamination to underlying groundwater aquifers	<ul style="list-style-type: none"> Adjacent sensitive receptors; and Future potential on-site users of groundwater. 	Low - moderate	
	Transport of contaminants through mechanical transport	<ul style="list-style-type: none"> Workers carrying out development, installation or maintenance works within the Project Area. Ecological receptors resulting from disturbance of marine sediments during construction works 	Moderate - High	
Historical onsite and surrounding land uses	Dermal contact and / or incidental ingestion with contaminated surface waters / soils.	<ul style="list-style-type: none"> Current and future site users; and Workers carrying out development, installation or 	Low	<ul style="list-style-type: none"> Concentrations of CoPCs were less than the adopted assessment criteria within all collected soil and sediment samples with

Potential Sources	Pathways	Potential Receptors	Risk of Potentially Complete Pollutant Linkage	Comment
		maintenance works within the Project Area.		the exception of asbestos which was identified in fill materials.
	Transport of contamination through surface water flows.	<ul style="list-style-type: none"> ■ Adjacent sensitive receptors; ■ Current and future site users; and ■ Workers carrying out development, installation or maintenance works within the Project Area. 	Moderate	<ul style="list-style-type: none"> ■ Asbestos identified within test pits TP04, TP07 and TP10 located within the La Perouse Site adjacent to Anzac Parade ■ ERM notes that while the risk to potential receptors is likely to be low, further consideration of concentrations of CoPCs in soils / sediments (TRH etc.) may be required for waste classification purposes during construction works.
	Transport of contamination to underlying groundwater aquifers	<ul style="list-style-type: none"> ■ Adjacent sensitive receptors; and ■ Future potential on-site users of groundwater. 	Low - Moderate	<ul style="list-style-type: none"> ■ Sediment samples returned concentrations of MBT higher than LOR. ERM notes that while there is no screening criteria for MTB further consideration may be required for waste classification / disposal requirements.
	Transport of contaminants through mechanical transport (during excavation of sediments etc.)	<ul style="list-style-type: none"> ■ Workers carrying out development, installation or maintenance works within the Project Area. ■ Ecological receptors resulting from disturbance of marine sediments during construction works 	High	<ul style="list-style-type: none"> ■ ERM notes that where the proposed construction methodology requires groundwater to be intersected or dewatering to be undertaken, further assessment of groundwater should be undertaken. Where groundwater sampling is undertaken at a later stage, an update to the Conceptual Site Model, will be provided as an addenda to this report. ■ ERM notes that while concentrations of CoPCs in overlying soil material indicate a low – moderate risk of harm to underlying groundwater aquifers, the assessment of groundwater had not been undertaken at the time of this report and will be included as an addenda (including an update to this CSM) should groundwater investigation be deemed necessary.

Potential Sources	Pathways	Potential Receptors	Risk of Potentially Complete Pollutant Linkage	Comment
Hazardous building materials	Inhalation of contaminated dust / fibres.	<ul style="list-style-type: none"> ■ Current and future site users; and ■ Workers carrying out development, installation or maintenance works within the Project Area 	Low - Moderate	<ul style="list-style-type: none"> ■ Asbestos identified within test pits TP04, TP07 and TP10 located within the La Perouse Site adjacent to Anzac Parade areas) should be considered. ■ While this is likely to pose a limited risk to the proposed development, it is the opinion of ERM that a site management plan and / or remediation action plan will be required to outline the required processes and procedures to be implemented to remediate and / or management identified asbestos within the Ste, ■ ERM notes further consideration on the potential nature and extent of asbestos may be required for waste classification purposes during construction works.
	Transport of contaminants through mechanical transport	<ul style="list-style-type: none"> ■ Current and future site users; and ■ Workers carrying out development, installation or maintenance works within the Project Area. 	Low - Moderate	
Unexploded Ordnance	Disturbance during future construction works	<ul style="list-style-type: none"> ■ Workers / site users ■ Ecological receptors 	Low - Moderate	<ul style="list-style-type: none"> ■ ERM notes that UXO mapping indicated the area to the east of the Project Area (outside the Project Area boundary) was utilised for Mortar firing. ■ ERM notes that an assessment of UXO was not undertaken as part of this Targeted Site Investigation, however may require further consideration should construction activities be required within areas mapped to contain potential UXO.

4. DATA QUALITY OBJECTIVES

Based on the results of previous investigations summarised in Section 3, and with reference to the CSM presented within the Targeted Site Investigation (ERM, 2020) and sediment investigation SAQP (ERM, 2022d), ERM developed the following DQOs for this investigation.

The DQOs were developed in accordance with the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013 (ASC NEPM) and the Australian Standard AS4482 Guide to the Sampling and Investigation of Potentially Contaminated Soil.

ERM notes that AS4482 has now been withdrawn, however as no guidance has been developed to replace this standard, it is considered appropriate for use as a reference document for the purposes of this assessment.

4.1 Step 1 – State the Problem

As summarised within Section 3, following completion of previous investigation works within the Site, the DCCEEW requested further sediment sampling be undertaken to meet the requirements of the Australian Government (2009) *National Assessment Guideline for Dredging* and the ANZG (2020) toxicant default guidelines values.

The sediment investigation is therefore being undertaken to collect data which will allow for the refinement of the CSM and for the identification of contamination risks in off-shore sediments that may require management to facilitate construction of the Kamay Wharf Project.

4.2 Step 2 – Identify the Decisions

The decisions required to meet the investigation objectives are:

- Are there (or will the proposed development create) any potential unacceptable risks to human health and / or ecological receptors from contaminants within offshore sediments?
- Is there sufficient information on the distribution and characteristics of contaminated sediments to evaluate risk of harm to human health and/or the environment?
- Is management or remediation of contaminated sediments, if identified, required?
- Is there sufficient information on the distribution and characteristics of contaminated sediments across the Site to develop a Remediation Action Plan or Site Management Plan to (where necessary) remediate and / or manage contaminated sediments?

4.3 Step 3 – Identify Information Inputs

The inputs to make the above decisions include:

- Information relating to the history and environmental setting of the Site and surrounding area obtained during preparation of the PSIs (ERM, 2022a and 2022b) and the TSI (ERM 2022c);
- Field observations made during intrusive investigation works;
- Laboratory analytical data reported for collected sediment samples;
- Field measurements collected during sediment investigation works;
- Screening-level assessment criteria sourced from guidelines made by the Australian Government and made / endorsed by the NSW EPA detailed within Section 6; and
- Confirmation of acceptable data quality by assessment of data quality assurance / quality control by comparison against Data Quality Indicators (DQI).

4.4 Step 4 – Define the Study Boundaries

The boundaries of the investigation are identified as follows:

- **Spatial boundaries** – the investigation is limited to the site boundaries as illustrated within Figure 1a and Figure 1b of Appendix A and the maximum depth of investigation at each location is 1 m below the sea floor;
- **Temporal boundaries** – the temporal boundary is limited to the data collected during these investigation works. As such, seasonality will not be assessed at this stage of the investigation; and
- **Constraints within the study boundaries** – the following are potential limitations that require consideration as part of the development of the sampling strategy:
 - Restrictions associated with sediment sample collection under water such as rock outcropping, vegetation, etc.;
 - Access restrictions associated with weather / tides, etc. that have the potential to impact anchor locations;
 - Restrictions associated with recreational and commercial boats and members of the general public utilising the surrounding waters; and
 - Possible presence of underground utilities within the sea floor.

Proposed sample locations were selected taking into consideration the above factors. Where minor non-conformances to the ERM (2022) SAQP occurred during sampling works due to constraints within the Site, these are detailed within Section 5.2.

4.5 Step 5 – Develop the Decision Rules

The decision rules adopted for this investigation are included in Table 4-1 below:

Table 4-1. Decision Rules

Decision Required to be Made	Decision Rule
Are the data sufficient to address the objectives of the investigation?	<ul style="list-style-type: none"> ■ Do the collected data indicate the potential for significant and widespread contamination within offshore sediments that requires management / remediation to enable construction works ■ Do field observations (including visual, olfactory, presence of anthropogenic materials in fill) indicate potential significant contamination at the investigation locations? ■ Do analytical data exceed adopted screening-level assessment criteria? ■ Have any additional areas of potential environmental concern been identified within investigations works?
Are the data generated by sampling and analysis of an acceptable quality?	<ul style="list-style-type: none"> ■ Have the data collected been subjected to an assessment of quality assurance/quality control and found to be suitable for use in this assessment?
Does the Site contain sediment impacted by contamination resulting from historical land uses?	<ul style="list-style-type: none"> ■ Collected sediment samples are to be analysed for CoPCs associated with current and historical land uses practices and results compared to relevant Australian Government dredging guidelines and NSW EPA made / endorsed regulatory guideline criteria.
Is there evidence of significant widespread contamination?	<ul style="list-style-type: none"> ■ Collected sediment samples are to be analysed for CoPCs associated with current and historical land uses practices and results compared to relevant Australian Government dredging guidelines and NSW EPA made / endorsed regulatory guideline criteria.

Decision Required to be Made	Decision Rule
Is additional information required to determine the potential liabilities/constraints associated with the proposed development?	<ul style="list-style-type: none"> ■ If it is determined that additional information is required to further reduce the uncertainties associated with the distribution and characterisation of sediment contamination, then appropriate recommendations for further assessment and/or investigation (including for assessment of potential risks) will be provided.
Is there sufficient information to develop a remedial / site management strategy	<ul style="list-style-type: none"> ■ Do the results of the investigation provide sufficient information of the nature, distribution and potential risks to identified receptors of contamination within sediments? If no, additional investigation may be required,

4.6 Step 6 – Specify Limits of Decision Errors

This step establishes the decision maker’s tolerable limits on decision errors, which provide performance goals for limiting uncertainty in the data. Data generated during this project must be appropriate to allow decisions to be made with confidence.

Specific limits for this project have been adopted in accordance with the appropriate guidance from the HEPA (2020) NEMP and the ASC NEPM appropriate DQIs used to assess data quality assurance / quality control (QA / QC) and standard ERM procedures for field sampling and sample handling.

To assess the usability of the data prior to making decisions, the data will be assessed against pre-determined DQIs for precision, accuracy, representativeness, comparability and completeness.

The pre-determined DQIs established for the project are discussed below in relation to precision, accuracy, representativeness, comparability, completeness and sensitivity:

- **Precision** – measures the reproducibility of measurements under a given set of conditions. The precision of the laboratory data and sampling techniques is assessed by calculating the Relative Percent Difference (RPD) of duplicate samples;
- **Accuracy** – measures the bias in a measurement system. The accuracy of the laboratory data that are generated during this project is a measure of the closeness of the analytical results obtained by a method to the ‘true’ value. Accuracy is assessed by reference to the analytical results of laboratory control samples, laboratory spikes and analyses against reference standards;
- **Representativeness** – expresses the degree with which sample data accurately and precisely represent a characteristic of a population or an environmental condition. Representativeness is achieved by collecting samples on a representative basis across the Site, and by using an adequate number of sample locations to characterise the Site to the required accuracy;
- **Comparability** – expresses the confidence with which one data set can be compared with another. This is achieved through maintaining a level of consistency in sampling techniques, analytical techniques and reporting methods;
- **Completeness** – is defined as the percentage of measurements made which are judged to be valid measurements. The completeness goal is set at there being sufficient valid data generated during the study; and
- **Sensitivity** – expresses the appropriateness of the chosen laboratory methods, including the limits of reporting, in producing reliable data in relation to the adopted assessment criteria.

If any of the DQIs are not met, further assessment will be necessary to decide whether the non-conformance will significantly affect the usefulness of the data. Corrective actions may include requesting further information from samplers and/or analytical laboratories, downgrading of the quality of the data or alternatively, re-collection of the data. DQIs are provided in Table 4-2 below.

Table 4-2. Data Quality Objectives and data Quality Indicators

Data Quality Objectives	Frequency	Data Quality Indicator
Precision		
Blind duplicates (intra laboratory)	■ 1/20 samples (or 1/10 for PFAS)	■ <30% RPD where result is >10 times LOR
Blind duplicates (inter laboratory)	■ 1/20 samples (or 1/10 for PFAS)	■ <30% RPD where result is >10 times LOR
Accuracy		
Surrogate spikes	■ All organic samples	■ 70-130%
Laboratory control samples	■ 1 per lab batch	■ 70-130%
Matrix spikes	■ 1 per lab batch	■ 70-130%
Representativeness		
Sampling appropriate for media and analytes	■ NA	■ NA
Samples extracted and analysed within holding times.	■ NA	■ organics (14 days), inorganics (6 months)
Rinsate blank	■ 1 per day where non-dedicated equipment is used. ■ Samples are to be analysed for all CoPCs other than asbestos.	■ Laboratory results are reported <LOR
Trip spike	■ 1 per lab batch (BTEX only)	■ 70-130%
Method blank / field blank	■ 1 per lab batch	■ Laboratory results are reported <LOR
Comparability		
ERM standard operating procedures for sample collection & handling	■ All samples	■ All samples
National Association of Testing Authorities (NATA) accredited analytical methods used for all analyses	■ All samples	■ All samples
Consistent field conditions, sampling staff and laboratory analysis	■ All samples	■ All samples
Completeness		
Sample description and Chain of Custodies completed and appropriate	■ All samples	■ All samples
Appropriate documentation	■ All samples	■ All samples
Satisfactory frequency and result for QC samples	■ All QA / QC samples	■ -
Data from critical samples is considered valid	■ NA	■ Critical samples valid
Sensitivity		
Limits of reporting appropriate and consistent	■ All samples	■ All samples

4.7 Step 7 – Optimise the Design for Obtaining Data

Historic uses of the Site and surrounding areas indicate the potential for contamination to be present within sediments that may have the potential to pose a risk to identified sensitive human health / ecological receptors. The potentially contaminating sources and activities undertaken at the Site are detailed above and within the PSI reports (ERM, 2022a and 2022b).

Based on the nature of identified potential contamination and the information required to inform potential design / construction procedures for the management of offshore sediments, a targeted assessment of sediments will be undertaken within the Site along the proposed offshore construction alignment.

Sampling locations are presented on **Figure 3a** and **3b** of Appendix A.

5. INVESTIGATION METHODOLOGY

5.1 Fieldwork Methodology

Table 5-1 below summarises the scope of works and methodology undertaken during this investigation. All works were undertaken in accordance with the requirements detailed within the ERM SAQP (ERM, 2022d) with the minor exceptions detailed within Section 5.2.

The fieldwork program was undertaken by a suitably qualified ERM environmental scientist on the 15th, 16th and 22nd of December 2022.

Sampling locations are illustrated on **Figure 3a** and **Figure 3b** of Appendix A.

Table 5-1. Investigation Methodology

Task	Proposed Scope
1 – Project Preliminaries	Prior to the commencement of investigation works, ERM completed preparation of a site-specific Health and Safety Plan and associated Safe Work Method Statements (SWMS).
2 – Equipment Calibration	<ul style="list-style-type: none"> ■ All equipment used in the field was operated under the appropriate technical procedures and calibrated prior to use in accordance with the manufacturer's specifications. ■ A photoionisation detector (PID) was calibrated to an isobutylene standard at the beginning of each working day in accordance with manufacturer requirements and ERM's standard operating procedures (SOPs). ■ Water quality meters were calibrated by the equipment hire company prior to use and relevant calibration certificates were retained by ERM. ■ The relevant calibration records are provided within Appendix G of this report.
3 – Sediment and Elutriate Sampling	<ul style="list-style-type: none"> ■ To enable sample collection, McLennans Diving Services undertook vibra-coring of sediments at six locations within the Kurnell site (K_SED01 – K_SED06) and six locations within the La Perouse site (LP_SED01 – LP_SED06) (refer to Figures 3a and 3b of Appendix A). A report produced by McLennans Diving Services detailing the sampling methodology is presented as Appendix H. ■ Based on the identified CoPCs, the collection of samples via vibra-coring was considered appropriate for the required sample collection and analysis. ■ All sampling locations were recorded via hand-held Geographic Positioning System (GPS). ■ Total sample numbers were based on guidance provided within the 2009 Dredging Guidelines. Sample locations were considered to be representative of overall sediment conditions within the project area and were likely to be indicative of locations with the highest potential for disturbance during construction and subsequent site operation. Where sample locations did not contain sufficient sediment for sampling, alternative locations within close proximity were selected for sampling. ■ Sediment cores were advanced to a maximum depth of approximately 1 m below the sea floor. <ul style="list-style-type: none"> ○ ERM notes that sediment thickness was less than 1 metre at coring locations K_SED05 and LP_SED05, where refusal on rock was encountered at approximately 0.75m. ■ Upon completion of coring, each sediment core tube was sealed to prevent water ingress into the sample and returned to the surface. ■ Sediment cores were stored within a chilled esky on ice and then transported to the shore for field screening and sample collection by a suitably qualified ERM environmental scientist. ■ Upon delivery of sediment cores to the shore, sediments were logged by an appropriately trained and experienced ERM environmental scientist to record the following information: sediment type, colour, grain size, sorting, angularity, inclusions, moisture condition, structure, visual signs of contamination and odour.

Task	Proposed Scope
	<ul style="list-style-type: none"> ■ Sediments were field screened with a calibrated PID for the presence of ionisable volatile organic compounds (VOCs). ■ Three sediment samples per core (36 primary samples in total) were collected from sediment cores from approximate depths of 0, 0.5 and 1 m and placed in laboratory-supplied containers for subsequent laboratory analysis. ■ Three samples for elutriate analysis were collected from the sediment surface (0 m) from Kurnell sampling locations K_EL02, K_EL04 and K_EL06. ■ Three samples for elutriate analysis were collected from the sediment surface (0 m) from La Perouse sampling locations L_EL02, L_EL03 and L_EL05. ■ ERM notes that typically elutriate analysis is completed following receipt of sediment laboratory analytical data; however due to project requirements, sediment samples were submitted for elutriate analysis prior to receipt of sediment laboratory results. Sediment samples were selected for elutriate analysis based on achieving adequate spatial coverage across the Kurnell and La Perouse sites and to target the sediment within the selected cores which had the highest potential to be contaminated and to be mobilised (i.e. the surface samples) . ■ A 20 L drum of seawater was also collected from each of the Kurnell and La Perouse sites for use in the elutriate laboratory analyses. ■ All collected samples were placed within laboratory-supplied containers, stored in a chilled cooler on ice and transported to NATA accredited laboratories for analysis under chain of custody conditions for the required analytes.
<p>4 – Laboratory Analysis</p>	<p>Collected samples were analysed at NATA accredited laboratories for the following CoPCs:</p> <p><u>Sediment</u></p> <ul style="list-style-type: none"> ■ TRH in the C₆-C₄₀ fractions; ■ Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN); ■ Heavy metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg, B, Ba, Be, Co, Mn, Se, V); ■ Polycyclic aromatic hydrocarbons (PAHs); ■ Organochlorine and organophosphorus (OC/OP) pesticides; ■ Polychlorinated biphenyl (PCBs); ■ Organotins: tributyltin (TBT), dibutyltin (DBT) and monobutyltin (MBT); ■ Total Organic Carbon and Grain Size Analysis; and ■ PFAS (30 analytes) <p><u>Surface / Sea Water and Elutriate</u></p> <ul style="list-style-type: none"> ■ TRH, BTEXN, Heavy metals and metalloids (As, Cd, Cr, Cu, Ni, Pb, Zn, Hg, B, Ba, Be, Co, Mn, Se, V), PAHs, OC/OP, TBT, DBT, MBT, PFAS
<p>5 - Equipment Decontamination</p>	<p>Non-dedicated sampling equipment was not utilised during the investigation and therefore equipment decontamination was not required. Disposable aluminium core tubes were used during vibra-coring. Clean, disposable nitrile gloves were used to collect sediment samples from core tubes and were changed between samples.</p>
<p>6 - Waste Materials</p>	<p>Waste materials generated from sampling works (i.e. excess sediment and disposable sampling equipment) were collected and stored in appropriately labelled drums for subsequent offsite disposal.</p>

5.2 SAQP Non-Conformances

The following minor non-conformances against the SAQP (ERM, 2022d) were noted during the investigation program.

Item	Reason For Non-Conformance	Comment
Trip spike and trip blank were not utilised for the 22 December 2022 sediment sampling event	<ul style="list-style-type: none"> The field program schedule was affected by high winds, resulting in postponement of a portion of the sampling program to 22 December 2022. The urgent nature of the program resulted in a trip spike and trip blank not being available from the laboratory on this date. 	<ul style="list-style-type: none"> Samples were preserved within a chilled cooler on ice and no sample container non-conformances were identified by the laboratories. This minor non-conformance is not considered to significantly affect the ability to achieve the investigation objectives.
Core target depth was not achieved on two samples	<ul style="list-style-type: none"> Sediment thickness was less than 1 metre at coring locations K_SED05 and LP_SED05, where refusal on rock was encountered at approximately 0.75m. 	<ul style="list-style-type: none"> As the investigation objective was to assess sediment within each of the proposed wharf areas, this minor non-conformance is not considered to significantly affect the ability to achieve the investigation objectives as the full extent / thickness of sediments were subject to assessment at these locations.
Minor adjustment of sampling locations	<ul style="list-style-type: none"> Due to lack of sufficient sediment thickness (i.e. shallow rock), some sampling locations were moved less than 5 metres from the proposed location. 	<ul style="list-style-type: none"> This minor non-conformance is not considered to significantly affect the ability to achieve the investigation objectives.
Laboratory LORs for TBT and OCPs within sediment were above the applicable screening levels	<ul style="list-style-type: none"> The primary laboratory (Eurofins) was not able to achieve LORs below the screening levels for TBT and OCPs within sediment. 	<ul style="list-style-type: none"> Samples were forwarded to a separate laboratory for ultra-trace analysis of TBT and OCPs by NATA accredited laboratory National Institute of Measurement (NMI).
	<ul style="list-style-type: none"> The primary laboratory (Eurofins) was not able to achieve LORs below the screening levels for PFOS and OCPs within elutriate and surface / sea water due to matrix interference (saline water). 	<ul style="list-style-type: none"> No results were reported above the laboratory LOR for these analytes within sediment and therefore this non-conformance is not considered to significantly affect the ability to achieve the investigation objectives.

6. SCREENING CRITERIA

Laboratory data reported for individual sediment samples, surface / sea water samples and elutriate samples, along with the maximum, minimum, mean, standard deviation and 95% Upper Confidence Limit (UCL) of the mean concentration (if required) were compared to the relevant assessment criteria detailed within *Table 3 and Table 4* of the Australian Government (2009) *National Assessment Guidelines for Dredging*, the Recommended toxicant default guideline values for sediment quality, including both the Default Guideline Values and the Guideline Value-High criteria, and the toxicant default guidelines values for marine water presented in the *Australian and New Zealand Guidelines for Freshwater and Marine Water Quality*.

Sediment results for PFOS were screened against the PFOS marine sediment criterion (99% species protection level) presented in *Chronic effects and thresholds for estuarine and marine benthic organism exposure to perfluorooctane sulfonic acid (PFOS)-contaminated sediments: Influence of organic carbon and exposure routes* (Simpson et al., 2021). Published screening criteria for other PFAS COPCs in sediment were not available at the time of writing.

Due to the potential for offsite disposal of sediments during subsequent construction works, analytical results were also screened against the NSW EPA (2014) Waste Classification Guidelines Part 1: Classifying Waste.

7. QUALITY ASSURANCE AND QUALITY CONTROL ASSESSMENT

A QA/QC assessment detailing field procedures, laboratory methods and an analysis of QA/QC sampling results from the investigation is provided in Appendix E.

The assessment of field and laboratory QA/QC data against the sediment investigation DQIs indicated that the data collected and reported by the laboratories during this investigation were representative of sediment conditions at the Site and were suitable to achieve the objectives of this investigation.

8. INVESTIGATION RESULTS

8.1 Field Observations - Sediment

Investigation locations are presented on **Figure 3a and Figure 3b** of Appendix A. Core logs detailing the stratigraphic conditions encountered during coring of sediment are presented in Appendix C. A photographic log illustrating conditions encountered during investigation works is presented within Appendix D.

Significant visual or olfactory indicators of contamination such as staining, odours or sheen were not observed during sampling of sediment or surface /sea water.

PID field screening results were reported between 0.0 parts per million by volume (ppmv – relative to an isobutylene standard) to 2.8 ppmv, indicating low levels of ionisable volatile compounds within the soils sampled.

Table 8-1. Summary of Observed Lithology

Site ID	Description	Depth (m BGL)
Kurnell	<ul style="list-style-type: none"> ■ Coarse sand, light to dark grey and brown, loose, small shell fragment inclusions ■ Anoxic odour noted at K_SED05 and K_SED06 	<ul style="list-style-type: none"> ■ 0.0 – 1.0 m bgl
La Perouse	<ul style="list-style-type: none"> ■ Coarse sand, Light to dark grey and brown, medium dense, largely consisting of whole shells and shell fragments (40-95%) ■ Anoxic odour noted at LP_SED01, LP_SED02, LP_SED04 and LP_SED05 	<ul style="list-style-type: none"> ■ 0.0 – 1.0 m bgl

8.2 Field Observations and Parameters - Surface / Sea Water

During surface / sea water sampling works, water was observed to be clear, with no odour or sheen.

Field parameters collected during sampling works are presented in in Table 8-2 below.

Table 8-2. Summary of Field Surface / Sea Water Parameters

Site ID	Description
Kurnell	<ul style="list-style-type: none"> ■ pH: 7.91 ■ Dissolved Oxygen (DO): 4.05 ppm ■ Specific Conductivity: 53,893 μS/cm ■ Eh (redox potential): -2.8 mV.
La Perouse	<ul style="list-style-type: none"> ■ pH: 6.56 ■ DO: 4.90 ppm ■ Specific Conductivity: 53,700 μS/cm ■ Eh (redox potential): 21.6 mV

8.3 Laboratory Analytical Results

8.3.1 Sediment - Kurnell

Tabulated laboratory analytical results for sediment samples collected from Kurnell are presented along with the adopted screening criteria in Table 1 of Appendix B. Sediment analytical results are also screened against waste classification criteria in Table 4 of Appendix B. Laboratory analytical reports are presented in Appendix F.

Laboratory analytical results reported for sediment samples collected from Kurnell were below the adopted screening criteria and/or the laboratory LOR with the exception of the following:

- K_SED03_1.0: mercury (0.2 mg/kg) exceeded the sediment DGV (0.15 mg/kg), but was below the GV-High criterion (1 mg/kg); and
- K_SED04_1.0: mercury (0.2 mg/kg) exceeded the sediment DGV (0.15 mg/kg), but was below the GV-High criterion (1 mg/kg).

8.3.2 Elutriate - Kurnell

Tabulated laboratory analytical results for elutriates from sediment samples collected at Kurnell are presented in Table 2 of Appendix B. Laboratory analytical reports are presented in Appendix F.

All laboratory analytical results reported for elutriates from sediment samples collected at Kurnell were below the adopted screening criteria and/or the laboratory LOR.

8.3.3 Surface / Sea Water - Kurnell

Tabulated laboratory analytical results for the surface / sea water sample collected from Kurnell are presented in Table 3 of Appendix B. Laboratory analytical reports are presented in Appendix F.

All laboratory analytical results reported for the surface / sea water sample collected from Kurnell were below the adopted screening criteria and/or the laboratory LOR.

8.3.4 Sediment – La Perouse

Tabulated laboratory analytical results for sediment samples collected from La Perouse are presented along with the adopted screening criteria in Table 1 of Appendix B. Sediment analytical results are also screened against waste classification criteria in Table 4 of Appendix B. Laboratory analytical reports are presented in Appendix F.

All laboratory analytical results reported for sediment samples collected from La Perouse were below the adopted screening criteria and/or the laboratory LOR.

8.3.5 Elutriate – La Perouse

Tabulated laboratory analytical results for elutriates from sediment samples collected at La Perouse are presented in Table 2 of Appendix B. Laboratory analytical reports are presented in Appendix F.

All laboratory analytical results reported for elutriates from sediment samples collected at La Perouse were below the adopted screening criteria and/or the laboratory LOR.

8.3.6 Surface / Sea Water – La Perouse

Tabulated laboratory analytical results for the surface /sea water sample collected from La Perouse are presented in Table 3 of Appendix B. Laboratory analytical reports are presented in Appendix F.

All laboratory analytical results reported for the surface / sea water sample collected from La Perouse were below the adopted screening criteria and/or the laboratory LOR.

9. CONCLUSIONS

The investigation was completed in accordance with the SAQP (ERM, 2022d) except where described in this report. The data collected during the field program and reported by the laboratories was considered to be acceptable to achieve the objectives of the investigation.

The detailed evaluation of risk from potential impacts of contamination on the protected matters as listed in the DCCEEW correspondence will be assessed within the subsequent risk assessment to be conducted by EnRiskS.

10. REFERENCES

- AS 4482.2 - Guide to the Sampling and Investigation of Potentially Contaminated Soil, Part 2: Volatile Substances, Australian Standard (1999).
- AS 4482.1 - Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil, Part 2: Non-volatile and Semi-volatile compounds, Australian Standard (2005).
- Australian Government (2009) National Assessment Guidelines for Dredging.
- Australian and New Zealand Guidelines for Fresh and Marine Water Quality – Guidelines for Assessing and Managing Water Quality in Temporary Waters, Smith, REW, Boulton, AJ, Baldwin, DS, Humphrey, CL, Butler, B & Halse, (October 2020). This is hereafter referred to as ‘the Temporary Water Guidelines’.
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APPENDIX A FIGURES



Data Source:
 Site Boundary : Client Provided
 NSW DFSI, DCDB/DTDB, 2020
 Nearmap Imagery September 2020
 Locality : Esri OpenStreetMap, 2020

Legend

- Construction Boundary
- Local Government Area
- Cadastre (Lot)
- National Park
- Nature Reserve
- Road Network



Site Location - Kurnell Wharf Site		F1a
Drawing No: 0564417s_SAQP_G001_R1.mxd	Kamay Wharf Project Sediment Investigation	
Date: 1/10/2020	Drawing Size: A4	
Drawn By: GC	Reviewed By: IB	Client: Arup Australia Pty Ltd
Coordinate System: GDA 1994 MGA Zone 56		
		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.



Data Source:
 Site Boundary : Client Provided
 NSW DFSI, DCDB/DTDB, 2020
 Nearmap Imagery September 2020
 Locality : Esri OpenStreetMap, 2020

Legend

- Construction Boundary
- Local Government Area
- Cadastre (Lot)
- National Park
- Nature Reserve
- Road Network

Site Location - La Perouse Wharf Site

F1b

Drawing No: 0564417s_SAOQ_G002_R0.mxd	Kamay Wharf Project Sediment Investigation	
Date: 1/10/2020	Drawing Size: A4	
Drawn By: GC	Reviewed By: IB	Client: Arup Australia Pty Ltd
Coordinate System: GDA 1994 MGA Zone 56		
0 250 500 750m		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>





Legend	
	Construction Boundary
	National Park
	Ferry Design (Concept)

Data Source:
 Site Layout : Client Provided
 NSW DFSI, DCDB/DTDB, 2020
 Nearmap Imagery September 2020

Site Layout - Kurnell Wharf Site

F2a

Drawing No: 0564417s_SACP_G003_R1.mxd	Kamay Wharf Project Sediment Investigation	
Date: 1/10/2020	Drawing Size: A3	
Drawn By: GC	Reviewed By: IB	Client: Arup Australia Pty Ltd
Coordinate System: GDA 1994 MGA Zone 56		
0 25 50 75m		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.





Legend

	Construction Boundary
	Cadastral (Lot)
	National Park
	Ferry Design (Concept)

Data Source:
 Site Layout : Client Provided
 NSW DFSI, DCDB/DTDB, 2020
 Nearmap Imagery September 2020

Site Layout - La Perouse Wharf Site		F2b
Drawing No: 0564417s_SACP_G004_R0.mxd	Kamay Wharf Project Sediment Investigation	
Date: 1/10/2020	Drawing Size: A3	
Drawn By: GC	Reviewed By: IB	Client: Arup Australia Pty Ltd
Coordinate System: GDA 1994 MGA Zone 56		<small>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</small>



Legend

- Construction Boundary
- National Park
- Ferry Design (Concept)
- Sediment Core Location

Sampling Locations - Kurnell Wharf Site		F3a
Drawing No: 0564417s_SACP_G007_R0.mxd	Kamay Wharf Project Sediment Investigation	
Date: 1/10/2020	Drawing Size: A3	
Drawn By: GC	Reviewed By: IB	
Coordinate System: GDA 1994 MGA Zone 56		This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.
0 25 50 75m		

Data Source:
 Site Layout : Client Provided
 NSW DFCSI, DCDB/DTDB, 2020
 Nearmap Imagery September 2020



Legend

	Construction Boundary
	Cadastral (Lot)
	National Park
	Ferry Design (Concept)
	Sediment Core Location

Sampling Locations - La Perouse Wharf Site		F3b
Drawing No: 0564417s_SACP_G008_R0.mxd	Kamay Wharf Project Sediment Investigation	
Date: 1/10/2020	Drawing Size: A3	
Drawn By: GC	Reviewed By: IB	
Coordinate System: GDA 1994 MGA Zone 56		<p>This figure may be based on third party data or data which has not been verified by ERM and it may not be to scale. Unless expressly agreed otherwise, this figure is intended as a guide only and ERM does not warrant its accuracy.</p>

Data Source:
 Site Layout : Client Provided
 NSW DFSI, DCDB/DTDB, 2020
 Nearmap Imagery September 2020

APPENDIX B TABLES

								bisture Conte		OCs		OPs																									
								Moisture Content	Moisture Content (dried @ 103°C)	Toxaphene	Mevinphos (Phosdrin)	Naled (Dibrom)	Tokuthion	Trichloronate	Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	2-N-EtFOSE	2-N-MeFOSE	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-EtFOSA	N-EtFOAA	N-MeFOAA	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)							
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	UG/KG	UG/KG	µg/kg	µg/kg	µg/kg	UG/KG	UG/KG	UG/KG	UG/KG	µg/kg	µg/kg	µg/kg	µg/kg						
EQL								2	0.2	0.2	0.2	0.2	-	1	0.1	0.2	0.2	0.2	0.2	0.01	0.01	0.5	5	5	0.5	0.5	0.5	5	10	10	0.5	0.2	1	0.2	0.2		
99% Species Protection - Sediment																																					
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵																																					
ANZG (2018) DGV - Sediment Quality																																					
ANZG (2018) GV-High - Sediment Quality																																					
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																														
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<2	<0.2	<0.2	<0.2	<0.2	-	28	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<10	<5	<5	<5	<5						
					Normal	955181	M23-Ja0010228	-	-	-	-	-	26	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		K_SED01_0.5	0.5	16/12/2022	Normal	RN1379931	N23/000750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	952366	S22-De0050128	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5			
		K_SED01_1.0	1.0	16/12/2022	Normal	955181	M23-Ja0010229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379931	N23/000751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5			
						Field_D	955181	M23-Ja0010231	-	-	-	-	-	28	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
			K_SED_T01_22126	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	-	-	-	-	-	29.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
						Normal	952366	S22-De0050118	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5		
			K_SED02_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
						Normal	RN1379931	N23/000754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K_SED02_0.5		0.5	16/12/2022	Normal	952366	S22-De0050119	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5					
				Normal	955181	M23-Ja0010233	-	-	-	-	-	-	23	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
K_SED02_1.0		1.0	16/12/2022	Normal	RN1379931	N23/000755	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				Normal	952366	S22-De0050120	<2	<0.2	<0.2	<0.2	<0.2	-	27	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5				
K_SED03		Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5			
						Field_D	955181	M23-Ja0010239	-	-	-	-	-	31	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	K_SED_T03_22126		1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	-	-	-	-	-	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	952366	S22-De0050124	<2	<0.2	<0.2	<0.2	<0.2	-	26	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5			
	K_SED03_0.0		0.0	16/12/2022	Normal	955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	RN1379931	N23/000757	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	K_SED03_0.5	0.5	16/12/2022	Normal	952366	S22-De0050125	<2	<0.2	<0.2	<0.2	<0.2	-	26	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5					
				Normal	955181	M23-Ja0010236	-	-	-	-	-	-	26	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
	K_SED03_1.0	1.0	16/12/2022	Normal	RN1379931	N23/000758	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				Normal	952366	S22-De0050126	<2	<0.2	<0.2	<0.2	<0.2	-	31	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5				
	K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	<2	<0.2	<0.2	<0.2	<0.2	-	28	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5			
						Field_D	955181	M23-Ja0010238	-	-	-	-	-	27	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
K_SED_T02_22126			0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	-	-	-	-	-	30.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	952366	S22-De0050121	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5			
K_SED04_0.0			0.0	16/12/2022	Normal	955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	RN1379931	N23/000762	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
K_SED04_0.5		0.5	16/12/2022	Normal	952366	S22-De0050122	<2	<0.2	<0.2	<0.2	<0.2	-	31	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5					
				Normal	955181	M23-Ja0010241	-	-	-	-	-	-	29	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
K_SED04_1.0		1.0	16/12/2022	Normal	RN1379931	N23/000763	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				Normal	952366	S22-De0050123	<2	<0.2	<0.2	<0.2	<0.2	-	35	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5				

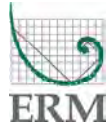


Table 1. Laboratory Analytical Results - Sediment
Kamay Ferry Wharf
Arup

								PFAS																	PSD												
								Perfluorohexanesulfonic acid (PFHxS)	Perfluorododecanoic acid (PFDoA)	Perfluorooheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorooheptanesulfonic acid (PFHpS)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentanoic acid (PFPeA)	Perfluorooctanoic acid (PFOA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Sum of PFAS (WA DER List)	Sum of PFASs (n=30)*	Sum of PFHxS and PFOs	Sum of US EPA PFAS (PFOS + PFOA)*	<63 Micron	>2000 Micron	1000-2000 Micron	125-250 Micron	250-500 Micron	500-1000 Micron	63-125 Micron	Demeton-O	
								µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	%W/W	%W/W	%W/W	%W/W	%W/W	%W/W	%W/W	mg/kg		
EQL								0.2	0.2	0.2	0.2	0.2	5	0.2	0.2	0.2	0.2	0.2	5	0.5	0.2	0.2	5	0.2	0.2	0.2	5	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2		
99% Species Protection - Sediment																																					
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵																																					
ANZG (2018) DGV - Sediment Quality																																					
ANZG (2018) GV-High - Sediment Quality																																					
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																														
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5				
					Normal	955181	M23-Ja0010228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5		
		Normal	955181				M23-Ja0010229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
		Normal	955181				M23-Ja0010230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
	K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5			
						Field_D	955181	M23-Ja0010231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					K_SED_T01_22126	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
			Normal	952366				S22-De0050118	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
					K_SED02_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Normal	952366				S22-De0050119	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
K_SED03		Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5			
						Field_D	955181	M23-Ja0010239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					K_SED_T03_22126	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
			Normal	952366				S22-De0050124	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
					K_SED03_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Normal	952366				S22-De0050125	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
	K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5			
						Field_D	955181	M23-Ja0010238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					K_SED_T02_22126	0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
			Normal	952366				S22-De0050121	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
					K_SED04_0.0	0.0	16/12/2022	Normal	955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			Normal	952366				S22-De0050122	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
K_SED04_0.5		Kurnell	K_SED04_0.5	0.5	16/12/2022	Normal	955181	M23-Ja0010241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
						Normal	952366	S22-De0050123	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
				K_SED04_1.0	1.0	16/12/2022	Normal	955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		Normal	952366				S22-De0050123	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	
							Normal	955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

								SVOC			TOC	TRH												BTEX																
								Demeton-S	EPN	Fensufothion	TOC	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	TRH C15-C28	TRH C29-C36	TRH C6-C10	TRH C6-C10 less BTEX (F1)	TRH C10-C14	TRH C10-C36 (Total)	TRH C6-C9	TRH >C10-C16 less Naphthalene (F2)	TRH >C10-C40 (total)*	Toluene	Benzene	Ethylbenzene	m&p-Xylenes	o-Xylene	Sum of BTEX	Xylenes	Arsenic	Cadmium	Chromium	Cobalt						
								mg/kg	mg/kg	mg/kg	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				
EQL								0.2	0.2	0.2	0.02	50	100	100	50	50	10	10	20	50	10	50	50			0.1	0.1	0.1	0.2	0.1										
99% Species Protection - Sediment																																								
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵																																								
ANZG (2018) DGV - Sediment Quality																																								
ANZG (2018) GV-High - Sediment Quality																																								
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																																	
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000764	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
					Normal	952366	S22-De0050115	<0.2	<0.2	<0.2	0.4	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.2	<0.4	<5	<5	-	-				
		Normal	955181	M23-Ja0010243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		Normal	RN1379931	N23/000765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		K_SED05_0.4	0.4	16/12/2022	Normal	952366	S22-De0050116	<0.2	<0.2	<0.2	1.3	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.6	<0.4	6.7	<5	-					
		Normal	955181	M23-Ja0010244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	K_SED05_0.75	0.8	16/12/2022	Normal	RN1379931	N23/000766	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	Normal	952366	S22-De0050117	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	6.4	<5	-	-	-							
	Normal	955181	M23-Ja0010245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
	Normal	RN1379931	N23/000767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
	K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	<0.2	<0.2	<0.2	1.4	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	<5	<5					
						Normal	955181	M23-Ja0010246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Normal		RN1379931	N23/000768	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
K_SED06_0.5		0.5	16/12/2022	Normal	952366	S22-De0050107	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2	<0.4	5.4	<5	-						
Normal		955181	M23-Ja0010247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Normal		RN1379931	N23/000769	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
K_SED06_1.0	1.0	16/12/2022	Normal	952366	S22-De0050108	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.6	<0.4	<5	<5	-							
Normal	955181	M23-Ja0010248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Normal	RN1379931	N23/000770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	-	-	-	0.14	<50	<100	<100	<100	<100	<10	<10	<50	<10	<50	<50	<50	<0.5	<0.2	<0.5	<0.5	<0.5	<0.2	<0.5	<5	<1	3	<2						
		LP_SED01-0.0	0.0	22/12/2022	Normal	953157	S22-De0056924	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	<5	-	-					
		Normal	RN1379937	N23/000820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		LP_SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.5	<0.4	<5	-	-					
		Normal	RN1379937	N23/000821	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		LP_SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.7	<0.4	<5	-	-					
Normal	RN1379937	N23/000822	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
LP_SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<0.2	<0.2	<0.2	0.8	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	<5	-	-							
Field_D	RN1379937	N23/000832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<0.2	<0.2	<0.2	1.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	3.9	<0.4	<5	<5						
					Normal	955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		Normal	RN1379931	N23/000771	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<0.2	<0.2	<0.2	3.7	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	4.3	<0.4	<5	<5	-					
		Normal	955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		Normal	RN1379931	N23/000772	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
LP_SED02_1.0	1.0	15/12/2022	Normal	952366	S22-De0050111	<0.2	<0.2	<0.2	1.8	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	6.8	<0.4	<5	7.7	-	-						
Normal	955181	M23-Ja0010251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Normal	RN1379931	N23/000773	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	<2	<0.4	<5	<5						
					Normal	955181	M23-Ja0010252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		Normal	RN1379931	N23/000774	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	<0.2	<0.2	<0.2	<0.1	<50	<100	<100	<50	<50	<20	<20	<20	<50	<20	<50	<100	<0.1	<0.1	<0.1	<0.2	<0.1	-	<0.3	2.8	<0.4	<5	<5	-					
		Normal	955181	M23-Ja0010253	-	-	-	-	-																															

								Metals											Organotins																	
								Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene		
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL								5	5	0.1	2	5	10	1	10	1	5	5	2	5	1	0.001	0.75	0.001	0.0005	1.25	1.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
99% Species Protection - Sediment																																				
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵								270	220	1	52	410													0.07											
ANZG (2018) DGV - Sediment Quality								65 ^{#3}	50 ^{#3}	0.15 ^{#3}	21 ^{#3}	200 ^{#3}													0.009 ^{#4}											
ANZG (2018) GV-High - Sediment Quality								270 ^{#3}	220 ^{#3}	1 ^{#3}	52 ^{#3}	410 ^{#3}													0.07 ^{#4}											
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																													
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<5	7.5	<0.1	<5	17	<10	<2	27	<1	8.2	39	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
					Normal	955181	M23-Ja0010228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Normal	RN1379931	N23/000750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.00071	<0.0005	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
	K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<5	8.6	<0.1	<5	18	<10	<2	32	<1	8.6	46	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
				Normal	955181	M23-Ja0010229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	5.1	9.2	<0.1	<5	18	<10	<2	25	<1	7	42	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
				Normal	955181	M23-Ja0010230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	<5	8.4	0.1	<5	21	<10	<2	19	<1	7.1	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
						Field_D	955181	M23-Ja0010231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Field_D			RN1379931	N23/000753	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0018	<0.0005	-	-	-	-	-	-	-			
K_SED_T01_22126		0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	<5	11	0.1	<2	22	<10	<1	<50	-	-	42	<5	8	-	<0.001	-	<0.001	<0.0005	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
K_SED02_0.0		0.0	16/12/2022	Normal	952366	S22-De0050118	<5	6	<0.1	<5	12	<10	<2	18	<1	5.2	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
				Normal	955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
K_SED02_0.5		0.5	16/12/2022	Normal	952366	S22-De0050119	<5	8.9	0.1	<5	19	<10	<2	16	<1	7.4	29	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
				Normal	955181	M23-Ja0010233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
K_SED02_1.0		1.0	16/12/2022	Normal	952366	S22-De0050120	<5	<5	<0.1	<5	10	<10	<2	19	<1	6.4	23	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
	Normal			955181	M23-Ja0010234	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
K_SED03	Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	<5	7.8	0.2	<5	20	<10	<2	19	<1	8.1	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
					Field_D	955181	M23-Ja0010239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Field_D	RN1379931	N23/000761	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0018	<0.0005	-	-	-	-	-	-	-			
	K_SED_T03_22126	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	5	11	0.2	<2	24	<10	<1	<50	-	-	44	<5	8	-	<0.001	-	<0.001	<0.0005	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
	K_SED03_0.0	0.0	16/12/2022	Normal	952366	S22-De0050124	<5	5.6	<0.1	<5	11	<10	<2	23	<1	5.3	33	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
				Normal	955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	K_SED03_0.5	0.5	16/12/2022	Normal	952366	S22-De0050125	<5	5.5	<0.1	<5	12	<10	<2	17	<1	5	33	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
				Normal	955181	M23-Ja0010236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	K_SED03_1.0	1.0	16/12/2022	Normal	952366	S22-De0050126	<5	12	0.2	<5	29	<10	<2	30	<1	10	43	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Normal				955181	M23-Ja0010237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	<5	7	<0.1	<5	16	<10	2.3	24	<1	6.6	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
					Field_D	955181	M23-Ja0010238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		Field_D	RN1379931	N23/000760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.00078	<0.0005	-	-	-	-	-	-	-			
	K_SED_T02_22126	0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	<5	7	<0.1	<2	16	<10	<1	<50	-	-	42	<5	7	-	<0.001	-	<0.001	<0.0005	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
	K_SED04_0.0	0.0	16/12/2022	Normal	952366	S22-De0050121	<5	6.7	<0.1	<5	13	<10	<2	32	<1	5.1	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
				Normal	955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	K_SED04_0.5	0.5	16/12/2022	Normal	952366	S22-De0050122	<5	7.5	<0.1	<5	17	<10	<2	26	<1	6.5	34	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
				Normal	955181	M23-Ja0010241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	K_SED04_1.0	1.0	16/12/2022	Normal	952366	S22-De0050123	5.9	12	0.2	<5	30	<10	<2	29	<1	10	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Normal				955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

	Metals													Organotins															
	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene		
EQI	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
99% Species Protection - Sediment																													
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵	270	220	1	52	410													0.07											
ANZG (2018) DGV - Sediment Quality	65 ^{#3}	50 ^{#3}	0.15 ^{#3}	21 ^{#3}	200 ^{#3}													0.009 ^{#4}											
ANZG (2018) GV-High - Sediment Quality	270 ^{#3}	220 ^{#3}	1 ^{#3}	52 ^{#3}	410 ^{#3}													0.07 ^{#4}											

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	
		LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	<5	8.1	<0.1	<5	19	<10	<2	18	-	-	15	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
					Normal	RN1379937	N23/000823	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.00076	<0.0005	-	-	-	-	-	-	-
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056928	<5	9.5	0.1	<5	15	<10	2.5	18	-	-	17	3.4	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
					Normal	RN1379937	N23/000824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0012	<0.0005	-	-	-	-	-	-	-
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<5	<5	<0.1	<5	6.3	<10	<2	14	-	-	9.1	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
					Normal	RN1379937	N23/000825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0015	<0.0005	-	-	-	-	-	-	-
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<5	<5	<0.1	<5	7.4	<10	<2	27	-	-	11	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
					Field_D	RN1379937	N23/000834	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0011	0.00078	-	-	-	-	-	-	-
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<5	6.5	<0.1	<5	23	<10	<2	15	-	-	13	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
					Normal	RN1379937	N23/000826	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.00061	<0.0005	-	-	-	-	-	-	-
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<5	7.8	<0.1	<5	13	<10	<2	17	-	-	14	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
					Normal	RN1379937	N23/000827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0012	0.00055	-	-	-	-	-	-	-
LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<5	17	<0.1	<5	13	<10	<2	14	-	-	8.3	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
			Normal	RN1379937	N23/000828	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0016	<0.0005	-	-	-	-	-	-	-	-	-
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<5	<5	<0.1	<2	<5	<10	<1	<50	-	-	7	<5	<5	-	<0.001	-	<0.001	<0.0005	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<5	6.9	<0.1	<5	8.8	<10	<2	18	-	-	14	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
					Normal	RN1379937	N23/000829	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0014	<0.0005	-	-	-	-	-	-	-
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<5	<5	<0.1	<5	5.8	<10	<2	22	-	-	12	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
					Normal	RN1379937	N23/000830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0011	<0.0005	-	-	-	-	-	-	-
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<5	<5	<0.1	<5	<5	<10	<2	<10	-	-	<5	<2	20	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Normal	RN1379937				N23/000831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.00096	<0.0005	-	-	-	-	-	-	-	-	-
LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<5	<5	<0.1	<5	7.1	<10	<2	38	-	-	15	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
			Field_D	RN1379937	N23/000833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.0005	-	0.0012	<0.0005	-	-	-	-	-	-	-	-	-

Statistical Summary	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene
Number of Results	90	90	90	90	90	90	90	90	69	69	90	63	90	84	90	84	90	90	84	84	90	90	90	90	90	90	90
Number of Detects	46	78	51	42	86	42	44	80	42	60	87	44	47	42	0	42	34	2	42	42	44	42	42	42	42	42	42
Minimum Concentration	<5	<5	<0.1	<2	<5	<10	<1	<10	<1	<5	<5	<2	<5	<1	<0.0005	<0.75	<0.0005	<0.0005	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Minimum Detect	5	5	0.1	ND	5.8	ND	2.3	11	ND	5	7	2.2	6	ND	ND	ND	0.00061	0.00055	ND	ND	1	ND	ND	ND	ND	ND	ND
Maximum Concentration	6.3	17	0.2	<5	47	<10	2.5	<50	<1	10	46	<5	20	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Maximum Detect	6.3	17	0.2	ND	47	ND	2.5	38	ND	10	46	3.4	20	ND	ND	0.0024	0.00078	ND	ND	1.6	ND	ND	ND	ND	ND	ND	
Average Concentration	2.8	6.6	0.068	2.3	14	5	1	20	0.5	5.5	23	1.6	5.4	0.5	0.12	0.38	0.12	0.12	0.63	0.63	0.29	0.25	0.25	0.25	0.25	0.25	0.25
Median Concentration	2.5	6.85	0.05	2.5	13	5	1	19	0.5	5.4	20	1	5	0.5	0.0005	0.375	0.0018	0.00025	0.625	0.625	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Standard Deviation	0.87	3.2	0.043	0.5	8.5	0	0.34	7.8	0	2.5	14	0.81	2.3	0	0.13	0	0.12	0.13	0	0	0.22	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1: From Simpson et al. (2021). Normalised to 1% organic carbon.
- #2: Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #3: Primarily adapted from the ERL/ERM values of Long et al. (1995).
- #4: Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #5: These are the original criteria from the 2009 Guidelines - some values have been updated after publication. Updated values are reflected in the ANZG 2018 sediment quality guideline values - high.

										PAH																													
										Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos				
										mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
EQL										0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	
99% Species Protection - Sediment																																							
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ³																								50															
ANZG (2018) DGV - Sediment Quality																								10 ^{#2}															
ANZG (2018) GV-High - Sediment Quality																								50 ^{#2}															
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																																
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
						955181	M23-Ja0010228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						RN1379931	N23/000750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
						955181	M23-Ja0010229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						RN1379931	N23/000751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
						955181	M23-Ja0010230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						RN1379931	N23/000752	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
						955181	M23-Ja0010231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						RN1379931	N23/000753	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED_T01_22126	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
						952366	S22-De0050118	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
						955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		K_SED02_0.0	0.0	16/12/2022	Normal	952366	S22-De0050119	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
						955181	M23-Ja0010233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						RN1379931	N23/000754	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
K_SED02_0.5	0.5	16/12/2022	Normal	952366	S22-De0050120	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
				955181	M23-Ja0010234	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
				RN1379931	N23/000755	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
K_SED02_1.0	1.0	16/12/2022	Normal	952366	S22-De0050121	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
				955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
				RN1379931	N23/000756	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
K_SED03	Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
						955181	M23-Ja0010239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						RN1379931	N23/000761	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED_T03_22126	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
						952366	S22-De0050124	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
						955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
		K_SED03_0.0	0.0	16/12/2022	Normal	952366	S22-De0050125	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
						955181	M23-Ja0010236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						RN1379931	N23/000757	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
K_SED03_0.5	0.5	16/12/2022	Normal	952366	S22-De0050126	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
				955181	M23-Ja0010237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
				RN1379931	N23/000758	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
K_SED03_1.0	1.0	16/12/2022	Normal	952366	S22-De0050127	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
				955181	M23-Ja0010238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
				RN1379931	N23/000759	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5								
						955181	M23-Ja0010238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						RN1379931	N23/000760	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
		K_SED_T02_22126	0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
						952366	S22-De0050121	<0.5	0.6	1.2																													

								PAH																																
								Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos							
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg					
EQL								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.005	0.005	0.005	0.005	0.05	0.005			0.01			0.05	0.05							
99% Species Protection - Sediment																																								
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ³																				50		0.027								0.006										
ANZG (2018) DGV - Sediment Quality																			10 ^{#2}		0.0014 ^{#2}								0.0045 ^{#2}											
ANZG (2018) GV-High - Sediment Quality																			50 ^{#2}		0.007 ^{#2}								0.009 ^{#2}											
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																																	
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000764	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
					Normal	952366	S22-De0050115	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				
					Normal	955181	M23-Ja0010243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	RN1379931	N23/000765	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	952366	S22-De0050116	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
					Normal	955181	M23-Ja0010244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
		K_SED05_0.4	0.4	16/12/2022	Normal	RN1379931	N23/000766	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
					Normal	952366	S22-De0050117	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
					Normal	955181	M23-Ja0010244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	RN1379931	N23/000767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	952366	S22-De0050117	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
					Normal	955181	M23-Ja0010245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000767	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
					Normal	952366	S22-De0050106	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
					Normal	955181	M23-Ja0010246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	RN1379931	N23/000768	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	952366	S22-De0050107	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
					Normal	955181	M23-Ja0010247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		K_SED06_0.5	0.5	16/12/2022	Normal	RN1379931	N23/000769	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	952366	S22-De0050108	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
					Normal	955181	M23-Ja0010248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	RN1379931	N23/000770	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	952366	S22-De0050109	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
					Normal	955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5						
					Normal	953157	S22-De0056924	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
		LP-SED01-0.0	0.0	22/12/2022	Normal	RN1379937	N23/000820	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
					Normal	953157	S22-De0056925	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
		LP-SED01-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000821	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	953157	S22-De0056926	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
		LP-SED01-1.0	1.0	22/12/2022	Normal	RN1379937	N23/000822	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	953157	S22-De0056936	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
		LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	RN1379937	N23/000832	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
							Normal	952366	S22-De0050109	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
							Normal	955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
							Normal	RN1379931	N23/000771</																															

PAH																																					
Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos												
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg											
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.01																
99% Species Protection - Sediment																																					
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵																																					
ANZG (2018) DGV - Sediment Quality																																					
ANZG (2018) GV-High - Sediment Quality																																					

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
LP_SED04	La Perouse	LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	<0.5	0.7	1.2	0.5	<0.5	0.5	0.9	<0.5	<0.5	0.7	1.3	5.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2		
					Normal	RN1379937	N23/000823	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056928	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2	
					Normal	RN1379937	N23/000824	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2
					Normal	RN1379937	N23/000825	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<0.5	0.7	1.2	<0.5	<0.5	0.6	1	<0.5	<0.5	<0.5	1.1	3.7	3.7	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	
					Field_D	RN1379937	N23/000834	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2			
					Normal	RN1379937	N23/000826	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2		
					Normal	RN1379937	N23/000827	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2			
			Normal	RN1379937	N23/000828	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2			
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2		
					Normal	RN1379937	N23/000830	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2	
					Normal	RN1379937	N23/000831	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP-SED-DO2-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	-	-	<0.1	-	-	<0.2	<0.2				
Field_D	RN1379937	N23/000833	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

Statistical Summary	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Number of Results	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90	90
Number of Detects	42	90	90	43	42	44	44	42	42	43	44	44	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Minimum Concentration	<0.5	0.6	1.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	
Minimum Detect	ND	0.6	1.2	0.5	ND	0.5	0.9	ND	ND	0.7	1.1	3.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.5	0.7	1.2	0.5	<0.5	0.6	1	<0.5	<0.5	0.7	1.3	5.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.05	<0.05	<0.1	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2		
Maximum Detect	ND	0.7	1.2	0.5	ND	0.6	1	ND	ND	0.7	1.3	5.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.25	0.6	1.2	0.26	0.25	0.26	0.28	0.25	0.25	0.26	0.29	0.43	0.25	0.011	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017		
Median Concentration	0.25	0.6	1.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.0025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025		
Standard Deviation	0	0.02	0	0.036	0	0.061	0.14	0	0	0.065	0.19	0.9	0	0.012	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011		
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments

- #1: From Simpson et al. (2021). Normalised to 1% organic carbon.
- #2: Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #3: Primarily adapted from the ERL/ERM values of Long et al. (1995).
- #4: Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #5: These are the original criteria from the 2009 Guidelines - some values have been updated after publication. Updated values are reflected in the ANZG 2018 sediment quality guideline values - high.

Pesticides																						
Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos	
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
0.05	2	0.005	0.005	0.005	0.005		0.05	0.05	0.005	0.05	0.2		0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.2		
99% Species Protection - Sediment																						
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ³			0.02	0.046					0.27 0.62								0.12 0.22					
ANZG (2018) DGV - Sediment Quality			0.0014 ^{#2}	0.0035 ^{#2}	0.0012 ^{#2}				0.0028 ^{#2}								0.0027 ^{#2}					
ANZG (2018) GV-High - Sediment Quality			0.007 ^{#2}	0.009 ^{#2}	0.005 ^{#2}				0.007 ^{#2}								0.06 ^{#2}					

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-				
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-				
					Normal	955181	M23-Ja0010228	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	
					Normal	RN1379931	N23/000750	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	-
		K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-		
					Normal	955181	M23-Ja0010229	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	
					Normal	RN1379931	N23/000751	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	
		K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-		
					Normal	955181	M23-Ja0010230	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	
					Normal	RN1379931	N23/000752	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	
K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-				
					Field_D	955181	M23-Ja0010231	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-		
					Field_D	RN1379931	N23/000753	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-	
		K_SED_T01_22126	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	
					Normal	952366	S22-De0050118	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-
					Normal	955181	M23-Ja0010232	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-
		K_SED02_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000754	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-		
					Normal	952366	S22-De0050119	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-	
					Normal	955181	M23-Ja0010233	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	
K_SED02_0.5	0.5	16/12/2022	Normal	RN1379931	N23/000755	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-				
			Normal	952366	S22-De0050120	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-			
			Normal	955181	M23-Ja0010234	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-			
K_SED02_1.0	1.0	16/12/2022	Normal	RN1379931	N23/000756	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-				
			Field_D	952366	S22-De0050132	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-				
			Field_D	955181	M23-Ja0010239	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-			
K_SED03	Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-				
					Field_D	955181	M23-Ja0010239	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-		
					Field_D	RN1379931	N23/000761	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-		
		K_SED_T03_22126	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	
					Normal	952366	S22-De0050124	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-
					Normal	955181	M23-Ja0010235	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-
		K_SED03_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000757	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-		
					Normal	952366	S22-De0050125	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-	
					Normal	955181	M23-Ja0010236	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	
K_SED03_0.5	0.5	16/12/2022	Normal	RN1379931	N23/000758	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-				
			Normal	952366	S22-De0050126	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-			
			Normal	955181	M23-Ja0010237	-	-	<0.005	<0.005	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-			
K_SED03_1.0	1.0	16/12/2022	Normal	RN1379931	N23/000759	-	-	-	<0.001	<0.001	<0.001	-	-	-	<0.001	-	-	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	-	-				
			Field_D	952366	S22-De0050131	<0.2	<2	<0.05	<0.05	<0.05	<0.05</																			

								Pesticides																									
								Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos				
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
EQL								0.05	2	0.005	0.005	0.005	0.005		0.05	0.05																	
99% Species Protection - Sediment																																	
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ³											0.02	0.046					0.27	0.62							0.12	0.22							
ANZG (2018) DGV - Sediment Quality											0.0014 ^{#2}	0.0035 ^{#2}	0.0012 ^{#2}				0.0028 ^{#2}								0.0027 ^{#2}								
ANZG (2018) GV-High - Sediment Quality											0.007 ^{#2}	0.009 ^{#2}	0.005 ^{#2}				0.007 ^{#2}								0.06 ^{#2}								
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																										
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000764	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-				
					Normal	952366	S22-De0050115	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
					Normal	955181	M23-Ja0010243	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
					Normal	RN1379931	N23/000765	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-
					Normal	952366	S22-De0050116	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
					Normal	955181	M23-Ja0010244	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
		K_SED05_0.4	0.4	16/12/2022	Normal	RN1379931	N23/000766	-	-	-	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-		
					Normal	952366	S22-De0050117	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
					Normal	955181	M23-Ja0010244	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
					Normal	RN1379931	N23/000766	-	-	-	<0.001	<0.001	-	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	
					Normal	952366	S22-De0050117	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
					Normal	955181	M23-Ja0010245	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	RN1379931	S22-De0050106	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05				
					Normal	952366	S22-De0050106	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
					Normal	955181	M23-Ja0010246	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
					Normal	RN1379931	N23/000768	-	-	-	<0.001	<0.001	-	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	
					Normal	952366	S22-De0050107	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
					Normal	955181	M23-Ja0010247	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
		K_SED06_0.5	0.5	16/12/2022	Normal	RN1379931	N23/000769	-	-	-	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-		
					Normal	952366	S22-De0050108	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
					Normal	955181	M23-Ja0010248	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
					Normal	RN1379931	N23/000769	-	-	-	<0.001	<0.001	-	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-	
					Normal	952366	S22-De0050108	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
					Normal	955181	M23-Ja0010248	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
K_SED06_1.0	1.0	16/12/2022	Normal	RN1379931	N23/000770	-	-	-	<0.001	<0.001	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-				
			Normal	952366	S22-De0050108	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05			
			Normal	955181	M23-Ja0010248	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
			Normal	RN1379931	N23/000770	-	-	-	<0.001	<0.001	-	-	-	-	-	-	<0.001	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	-	-			
			Normal	952366	S22-De0050108	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
			Normal	955181	M23-Ja0010248	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005			
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05				
					Normal	953157	S22-De0056924	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05		
		LP_SED01-0.0	0.0	22/12/2022	Normal	RN1379937	N23/000820	-	-	-	<0.001	<0.001	-	-	-	-	<0.001	-	-	-	-	-	<										

Pesticides																							
Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos		
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
0.05	2	0.005	0.005	0.005	0.005		0.05	0.05	0.005	0.05	0.2		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.2		
99% Species Protection - Sediment																							
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵																							
ANZG (2018) DGV - Sediment Quality																							
ANZG (2018) GV-High - Sediment Quality																							

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos		
LP_SED04		LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	<0.2	<2	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-		
					Normal	RN1379937	N23/000823	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056928	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-	
					Normal	RN1379937	N23/000824	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-	
					Normal	RN1379937	N23/000825	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-	
					Field_D	RN1379937	N23/000834	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-
		LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<0.2	<2	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-
							Normal	RN1379937	N23/000826	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001
LP-SED05-0.4	0.4			22/12/2022	Normal	953157	S22-De0056931	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-	
					Normal	RN1379937	N23/000827	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-
LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-		
			Normal	RN1379937	N23/000828	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.05	-	<0.05	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-	
					Normal	RN1379937	N23/000829	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-	
					Normal	RN1379937	N23/000830	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-
Normal	RN1379937				N23/000831	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	
LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<0.2	<2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	-		
			Field_D	RN1379937	N23/000833	-	-	-	<0.001	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.001	<0.001	<0.001	-	-	-	

Statistical Summary

Number of Results	90	84	117	117	117	117	48	90	90	117	90	84	48	117	117	117	117	117	117	117	117	90	84	48				
Number of Detects	42	42	42	0	0	42	42	42	42	0	42	42	42	42	42	42	42	42	42	42	42	0	0	42	42	42		
Minimum Concentration	<0.05	<2	<0.005	<0.001	<0.001	<0.005	<0.05	<0.05	<0.05	<0.001	<0.05	<0.2	<0.05	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.05	<0.2	<0.05				
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Maximum Concentration	<0.2	<2	<0.05	<0.05	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05			
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
Average Concentration	0.091	1	0.017	0.011	0.015	0.017	0.025	0.091	0.091	0.011	0.091	0.1	0.025	0.017	0.017	0.017	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.011	0.091	0.1	0.025	
Median Concentration	0.1	1	0.025	0.0025	0.0025	0.025	0.025	0.1	0.1	0.0025	0.1	0.1	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.1	0.1	0.025	
Standard Deviation	0.025	0	0.011	0.012	0.023	0.011	0	0.025	0.025	0.012	0.025	0	0.011	0.011	0.011	0.011	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.012	0.025	0	0	
Number of Guideline Exceedances	0	0	0	75	75	0	0	0	0	75	0	0	0	0	0	0	75	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1: From Simpson et al. (2021). Normalised to 1% organic carbon.
- #2: Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #3: Primarily adapted from the ERL/ERM values of Long et al. (1995).
- #4: Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #5: These are the original criteria from the 2009 Guidelines - some values have been updated after publication. Updated values are reflected in the ANZG 2018 sediment quality guideline values - high.

								Fenitrothion	Fenthion	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos	PCB # 8	PCB # 18	PCB # 28	PCB # 44	PCB # 52	PCB # 66	PCB # 77			
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		
EQL								0.2	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	2	2	2	2	2	2			
99% Species Protection - Sediment										0.001																								
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ³										0.001																								
ANZG (2018) DGV - Sediment Quality										0.0009 ^{#2}																								
ANZG (2018) GV-High - Sediment Quality										0.0014 ^{#2}																								
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																											
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000764	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2				
					Normal	952366	S22-De0050115	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010243	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000765	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2	
					Normal	952366	S22-De0050116	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-
					Normal	955181	M23-Ja0010244	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED05_0.4	0.4	16/12/2022	Normal	RN1379931	N23/000766	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2			
					Normal	952366	S22-De0050117	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010244	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000766	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2	
					Normal	952366	S22-De0050117	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-
					Normal	955181	M23-Ja0010245	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000767	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2					
					Normal	952366	S22-De0050106	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010246	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000768	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2	
					Normal	952366	S22-De0050107	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010247	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED06_0.5	0.5	16/12/2022	Normal	RN1379931	N23/000769	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2			
					Normal	952366	S22-De0050107	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010247	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	RN1379931	N23/000769	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2	
					Normal	952366	S22-De0050108	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010248	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K_SED06_1.0	1.0	16/12/2022	Normal	RN1379931	N23/000770	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2					
			Normal	952366	S22-De0050108	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-			
			Normal	955181	M23-Ja0010248	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
			Normal	RN1379931	N23/000770	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2			
			Normal	952366	S22-De0050108	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-			
			Normal	955181	M23-Ja0010248	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	-	-	-	-	-	-	-	-	-				
					Normal	953157	S22-De0056924	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-		
		LP-SED01-0.0	0.0	22/12/2022	Normal	RN1379937	N23/000820	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2				
					Normal	953157	S22-De0056925	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-		
		LP-SED01-0.5	0.5	22/12/2022	Normal	RN1379937	N23/000821	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2				
					Normal	953157	S22-De0056926	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-		
		LP-SED01-1.0	1.0	22/12/2022	Normal	RN1379937	N23/000822	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2				
					Normal	953157	S22-De0056926	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-		
		LP-SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-				
					Field_D	RN1379937	N23/000832	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2			
		LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05																			

	Fenitrothion	Fenthion	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos	PCB # 8	PCB # 18	PCB # 28	PCB # 44	PCB # 52	PCB # 66	PCB # 77	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	
EQL	0.2	0.05	0.005	0.005	0.005	0.005	0.05	0.005	0.2	0.2	0.2	0.2						2	2	2	2	2	2	2	
99% Species Protection - Sediment																									
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵			0.001																						
ANZG (2018) DGV - Sediment Quality			0.0009 ^{#2}																						
ANZG (2018) GV-High - Sediment Quality			0.0014 ^{#2}																						

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Fenitrothion	Fenthion	γ-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos	PCB # 8	PCB # 18	PCB # 28	PCB # 44	PCB # 52	PCB # 66	PCB # 77			
LP_SED04		LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-		
					Normal	RN1379937	N23/000823	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056928	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-
					Normal	RN1379937	N23/000824	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-
					Normal	RN1379937	N23/000825	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-
					Field_D	RN1379937	N23/000834	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-		
					Normal	RN1379937	N23/000826	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
					Normal	RN1379937	N23/000827	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	-		
			Normal	RN1379937	N23/000828	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2	
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	-	<0.05	<0.05	-	-	-	-	-	-	-	-	-	-	-	-		
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-		
					Normal	RN1379937	N23/000829	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
					Normal	RN1379937	N23/000830	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-	
Normal	RN1379937				N23/000831	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2	
LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<0.2	<0.2	<0.05	<0.05	<0.05	<0.2	<0.05	<0.2	<2	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	-	-	-	-	-	-	-	-			
			Field_D	RN1379937	N23/000833	-	-	<0.0009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<2	<2	<2	<2	<2	<2	<2	

Statistical Summary	84	90	117	117	117	117	90	117	90	90	90	90	84	48	48	84	84	84	42	42	42	42	42	42	42
Number of Results	84	90	117	117	117	117	90	117	90	90	90	90	84	48	48	84	84	84	42	42	42	42	42	42	42
Number of Detects	42	42	0	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.05	<0.0009	<0.005	<0.005	<0.005	<0.05	<0.005	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<2	<0.2	<2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.1	0.091	0.011	0.017	0.017	0.017	0.091	0.023	0.1	0.89	0.1	0.1	0.1	0.025	0.025	0.1	0.1	0.1	1	1	1	1	1	1	1
Median Concentration	0.1	0.1	0.0025	0.025	0.025	0.025	0.1	0.025	0.1	1	0.1	0.1	0.025	0.025	0.1	0.1	0.1	1	1	1	1	1	1	1	1
Standard Deviation	0	0.025	0.012	0.011	0.011	0.011	0.025	0.025	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1: From Simpson et al. (2021). Normalised to 1% organic carbon.
- #2: Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #3: Primarily adapted from the ERL/ERM values of Long et al. (1995).
- #4: Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #5: These are the original criteria from the 2009 Guidelines - some values have been updated after publication. Updated values are reflected in the ANZG 2018 sediment quality guideline values - high.

								PCBs																	
								PCB # 101	PCB # 105	PCB # 118	PCB # 126	PCB # 128	PCB # 138	PCB # 153	PCB # 169	PCB # 170	PCB # 180	PCB # 187	PCB # 195	PCB # 206	PCB # 209	Total PCB			
								ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg		
EQL								2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
99% Species Protection - Sediment																									
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵																									
ANZG (2018) DGV - Sediment Quality																							34		
ANZG (2018) GV-High - Sediment Quality																								280	
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																		
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
						955181	M23-Ja0010228	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						RN1379931	N23/000750	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
		K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						955181	M23-Ja0010229	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						RN1379931	N23/000751	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
		K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						955181	M23-Ja0010230	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						RN1379931	N23/000752	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						955181	M23-Ja0010231	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
						RN1379931	N23/000753	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
		K_SED_T01_22126	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						952366	S22-De0050118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED02_0.0	0.0	16/12/2022	Normal	952366	S22-De0050118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						RN1379931	N23/000754	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
K_SED02_0.5	0.5	16/12/2022	Normal	952366	S22-De0050119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				955181	M23-Ja0010233	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				RN1379931	N23/000755	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
K_SED02_1.0	1.0	16/12/2022	Normal	952366	S22-De0050120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				955181	M23-Ja0010234	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				RN1379931	N23/000756	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
K_SED03	Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						955181	M23-Ja0010239	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
						RN1379931	N23/000761	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
		K_SED_T03_22126	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						952366	S22-De0050124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED03_0.0	0.0	16/12/2022	Normal	952366	S22-De0050124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						RN1379931	N23/000757	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
K_SED03_0.5	0.5	16/12/2022	Normal	952366	S22-De0050125	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				955181	M23-Ja0010236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				RN1379931	N23/000758	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
K_SED03_1.0	1.0	16/12/2022	Normal	952366	S22-De0050126	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				955181	M23-Ja0010237	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				RN1379931	N23/000759	2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.1		
K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
						955181	M23-Ja0010238	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
						RN1379931	N23/000760	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
		K_SED_T02_22126	0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						952366	S22-De0050121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED04_0.0	0.0	16/12/2022	Normal	952366	S22-De0050121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
						955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
						RN1379931	N23/000762	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
K_SED04_0.5	0.5	16/12/2022	Normal	952366	S22-De0050122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				955181	M23-Ja0010241	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
				RN1379931	N23/000763	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
K_SED04_1.0	1.0	16/12/2022	Normal	952366	S22-De0050123	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
				955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

								PCBs																		
								PCB # 101	PCB # 105	PCB # 118	PCB # 126	PCB # 128	PCB # 138	PCB # 153	PCB # 169	PCB # 170	PCB # 180	PCB # 187	PCB # 195	PCB # 206	PCB # 209	Total PCB				
								ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg			
EQL								2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
99% Species Protection - Sediment																										
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵																										
ANZG (2018) DGV - Sediment Quality																								34		
ANZG (2018) GV-High - Sediment Quality																									280	
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																			
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000764	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
					Normal	952366	S22-De0050115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010243	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED05_0.4	0.4	16/12/2022	Normal	RN1379931	N23/000765	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
					Normal	952366	S22-De0050116	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED05_0.75	0.8	16/12/2022	Normal	RN1379931	N23/000766	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
					Normal	952366	S22-De0050117	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010245	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	RN1379931	N23/000767	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
					Normal	952366	S22-De0050106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	955181	M23-Ja0010246	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED06_0.5	0.5	16/12/2022	Normal	RN1379931	N23/000768	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
					Normal	952366	S22-De0050107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	955181	M23-Ja0010247	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		K_SED06_1.0	1.0	16/12/2022	Normal	RN1379931	N23/000769	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
					Normal	952366	S22-De0050108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Normal	955181	M23-Ja0010248	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	953157	S22-De0056924	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	RN1379937	N23/000820	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
		LP-SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	RN1379937	N23/000821	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
					Normal	953157	S22-De0056926	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP-SED01-1.0	1.0	22/12/2022	Normal	RN1379937	N23/000822	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
					Normal	953157	S22-De0056936	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
					Field_D	RN1379937	N23/000832	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	RN1379931	N23/000771	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	RN1379931	N23/000772	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
		LP_SED02_1.0	1.0	15/12/2022	Normal	952366	S22-De0050111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	955181	M23-Ja0010251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	RN1379931	N23/000773	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	955181	M23-Ja0010252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	RN1379931	N23/000774	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	955181	M23-Ja0010253	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	RN1379931	N23/000775	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
		LP_SED03_1.0	1.0	15/12/2022	Normal	952366	S22-De0050114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
					Normal	955181	M23-Ja0010254	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
					Normal	RN1379931	N23/000776	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	
LP_SED04	La Perouse	LP_SED_T03_221222	1.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	-	-	-	-	-	-	-	-	-	-	-	-	-	-					

								PCBs																		
								PCB # 101	PCB # 105	PCB # 118	PCB # 126	PCB # 128	PCB # 138	PCB # 153	PCB # 169	PCB # 170	PCB # 180	PCB # 187	PCB # 195	PCB # 206	PCB # 209	Total PCB				
								ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg			
EQL								2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
99% Species Protection - Sediment																										
National Assessment Guidelines for Dredging 2009 - Sediment Quality High Values ⁵																										
ANZG (2018) DGV - Sediment Quality																								34		
ANZG (2018) GV-High - Sediment Quality																										280
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																			
		LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000823	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056928	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	RN1379937	N23/000824	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Normal	RN1379937	N23/000825	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
					Field_D	RN1379937	N23/000834	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2		
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
					Normal	RN1379937	N23/000826	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000827	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
			Normal	RN1379937	N23/000828	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000829	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
					Normal	RN1379937	N23/000830	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2			
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Normal	RN1379937				N23/000831	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				
LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
			Field_D	RN1379937	N23/000833	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2				

Statistical Summary

Number of Results	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
Number of Detects	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Minimum Concentration	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Minimum Detect	2	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.1
Maximum Concentration	2	<2	2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	4.1
Maximum Detect	2	ND	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.1
Average Concentration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1.1
Median Concentration	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Standard Deviation	0.15	0	0.15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.48
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

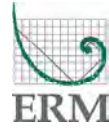
- #1: From Simpson et al. (2021). Normalised to 1% organic carbon.
- #2: Primarily adapted from TEL and PEL values of MacDonald et al. (2000) and CCME (2002). Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #3: Primarily adapted from the ERL/ERM values of Long et al. (1995).
- #4: Normalised to 1% organic carbon within the limits of 0.2 to 10%.
- #5: These are the original criteria from the 2009 Guidelines - some values have been updated after publication. Updated values are reflected in the ANZG 2018 sediment quality guideline values - high.

	PFAS																				SVOC								
	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorododecanoic acid (PFDoA)	Perfluorooheptanoic acid (PFHpA)	Perfluorooxohexanoic acid (PFHxA)	Perfluorooheptanesulfonic acid (PFHpS)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentanoic acid (PFPeA)	Perfluorooctanoic acid (PFOA)	Perfluoropropanesulfonic acid (PFPrS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	Sum of PFAS (WA DER List)	Sum of PFAS _s (n=30)*	Sum of PFHxS and PFOS	Sum of US EPA PFAS (PFOS + PFOA)*	Demeton-O	Demeton-S	EPN	Fensulfothion	>C10 - C16 Fraction	>C16 - C34 Fraction
EQL	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.05	0.1	0.01	0.01	2	2	2	2	0.05	0.1
99% Species Protection - Elutriate										6 ^{#1}																			
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems																													
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)										0.00023 ^{#7}				19 ^{#7}															

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	PFDS	PFDA	PFHxS	PFDoA	PFHpA	PFHxA	PFHpS	PFNS	PFNA	PFOS	PFPeS	PFOSA	PFPeA	PFOA	PFPrS	PFTeDA	PFTrDA	PFUnA	Sum of enHealth PFAS	Sum of PFAS (WA DER List)	Sum of PFAS _s (n=30)	Sum of PFHxS and PFOS	Sum of US EPA PFAS	Demeton-O	Demeton-S	EPN	Fensulfothion	>C10 - C16 Fraction	>C16 - C34 Fraction
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1
K_SED05	Kurnell	LP_EL05-0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1	
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1	
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1	
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1	

Statistical Summary																																					
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<2	<2	<2	<2	<0.05	<0.1		
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Average Concentration	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.05	0.005	0.005	1	1	1	1	0.025	0.05	
Median Concentration	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.05	0.005	0.005	1	1	1	1	0.025	0.05	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments
 #1:From Simpson et al. (2021).
 #2:Apply LOSP Unknown
 #3:Apply LOSP 99
 #4:Apply LOSP 95
 #5:Apply Freshwater DGV (LOSP Unknown)
 #6:Apply Freshwater LOSP Unknown
 #7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th



	TRH										BTEX						Metals													
	>C34 - C40 Fraction	TRH C15-C28	TRH C29-C36	TRH C6-C10	TRH C6-C10 less BTEX (F1)	TRH C10-C14	TRH C10-C36 (Total)	TRH C6-C9	TRH >C10-C16 less Naphthalene (F2)	TRH >C10-C40 (total)*	Toluene	Benzene	Ethylbenzene	m&p-Xylenes	o-Xylene	Xylenes	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)
	mg/kg	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	mg/kg	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
EQL	0.1	0.1	0.1	0.2	0.2	0.05	0.1	0.2	0.05	0.1	0.001	0.001	0.001	0.002	0.001	0.003	1	0.2	1	1	1	1	0.1	1	5	0.02	0.001	50	5	5
99% Species Protection - Elutriate																														
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems																	0.7 ^{#3}	4.4 ^{#4}	2.7 ^{#4}	1 ^{#4}	1.3 ^{#4}	4.4 ^{#4}	0.1 ^{#3}	7 ^{#3}	15 ^{#4}					
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																														

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	4000	<5	<5
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3500	<5	<5	
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3500	<5	<5	
K_SED05	Kurnell	LP_EL05_0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3900	<5	<5	
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3700	<5	<5	
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3800	<5	<5	
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3800	<5	<5	

Statistical Summary	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	3500	<5	<5			
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.1	<0.1	<0.1	<0.2	<0.2	<0.05	<0.1	<0.2	<0.05	<0.1	<0.01	<0.01	<0.01	<0.02	<0.01	<0.03	<10	<2	<50	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<1	<10	<50	<0.2	<0.05	4000	<5	<5			
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.05	0.05	0.05	0.1	0.1	0.025	0.05	0.1	0.025	0.05	0.005	0.005	0.005	0.01	0.005	0.015	5	1	25	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Median Concentration	0.05	0.05	0.05	0.1	0.1	0.025	0.05	0.1	0.025	0.05	0.005	0.005	0.005	0.01	0.005	0.015	5	1	25	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments
 #1:From Simpson et al. (2021).
 #2:Apply LOSP Unknown
 #3:Apply LOSP 99
 #4:Apply LOSP 95
 #5:Apply Freshwater DGV (LOSP Unknown)
 #6:Apply Freshwater LOSP Unknown
 #7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th

	Organotins										PAH																	
	Manganese	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBT0)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC
	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG
EQL	5	0.005	10	5	7.5	5	5	12.5	12.5	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
99% Species Protection - Elutriate																												
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	80 ^{#2}	0.1 ^{#4}																										50 ^{#3}
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																												

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Manganese	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBT0)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC		
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2	
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
K_SED05	Kurnell	LP_EL05-0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2

Statistical Summary																																			
Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<50	<0.05	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<1	<0.2	<0.2	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	25	0.025	5	2.5	3.8	2.5	2.5	6.3	6.3	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.5	0.1	0.1
Median Concentration	25	0.025	5	2.5	3.75	2.5	2.5	6.25	6.25	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.5	0.1	0.1
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments
#1:From Simpson et al. (2021).
#2:Apply LOSP Unknown
#3:Apply LOSP 99
#4:Apply LOSP 95
#5:Apply Freshwater DGV (LOSP Unknown)
#6:Apply Freshwater LOSP Unknown
#7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th

	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Ronnel	Bolstar (Sulprofos)	Merphos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
EQL	2	0.2	2	2	2	2	2	2	0.002
99% Species Protection - Elutriate									
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	0.05 ^{#5}	0.04 ^{#2}			0.004 ^{#5}				
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)									

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Ronnel	Bolstar (Sulprofos)	Merphos
K_SED02	Kurnell	K_EL02_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003540	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
K_SED04	Kurnell	K_EL04_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003541	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
K_SED05	Kurnell	LP-EL05-0.0	0.0	22/12/2022	Normal	954270	S23-Ja0003538	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
K_SED06	Kurnell	K_EL06_0.0	0.0	16/12/2022	Normal	954270	S23-Ja0003542	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
LP_SED02	La Perouse	LP_EL02_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003543	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002
LP_SED03	La Perouse	LP_EL03_0.0	0.0	15/12/2022	Normal	954270	S23-Ja0003544	<2	<0.2	<2	<2	<2	<2	<2	<2	<0.002

Statistical Summary

Number of Results	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	1	0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.001
Median Concentration	1	0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.001
Standard Deviation	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances	6	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1:From Simpson et al. (2021).
- #2:Apply LOSP Unknown
- #3:Apply LOSP 99
- #4:Apply LOSP 95
- #5:Apply Freshwater DGV (LOSP Unknown)
- #6:Apply Freshwater LOSP Unknown
- #7:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using th

						OCs		OPs											
	Omethoate	Pirimiphos-methyl	Pyrazophos	Terbufos	Tetrachlorvinphos	Toxaphene	Mevinphos (Phosdrin)	Naled (Dibrom)	Tokuthion	Trichloronate	Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	2-N-EtFOSE	2-N-MeFOSE	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)		
	µg/L	mg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/KG	MG/KG	µg/L	µg/L	µg/L	µg/L	µg/L		
EOL	20	0.02	2	2	0.002	5	2	2	2	2	0.002	0.002	0.01	0.05	0.05	0.01	0.05		
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems						0.0006 ^{#1}													
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																			

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode																	
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<20	<0.02	<2	<2	<0.002	<5	<2	<2	<2	<2	<0.002	<0.002	<0.01	<0.05	<0.05	<0.1	<0.1
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<20	<0.02	<2	<2	<0.002	<5	<2	<2	<2	<2	<0.002	<0.002	<0.01	<0.05	<0.05	<0.01	<0.05

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<20	<0.02	<2	<2	<0.002	<5	<2	<2	<2	<2	<0.002	<0.002	<0.01	<0.05	<0.05	<0.01	<0.05
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<20	<0.02	<2	<2	<0.002	<5	<2	<2	<2	<2	<0.002	<0.002	<0.01	<0.05	<0.05	<0.1	<0.1
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																	
Median Concentration	10	0.01	1	1	0.001	2.5	1	1	1	1	0.001	0.001	0.005	0.025	0.025	0.0275	0.0375
Standard Deviation																	
Number of Guideline Exceedances	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1:Apply LOSP Unknown
- #2:Apply LOSP 99
- #3:Apply LOSP 95
- #4:Apply Freshwater DGV (LOSP Unknown)
- #5:Apply Freshwater LOSP Unknown
- #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values can be set using the nationally-agreed process.

		PFAS																													
		8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-EtFOSA	N-EtFOAAA	N-MeFOAAA	N-methylperfluoro-1-octane sulfonamide (N-MeFOASA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorohexanesulfonic acid (PFHS)	Perfluorododecanoic acid (PFDoA)	Perfluorooheptanoic acid (PFHpA)	Perfluorohexanoic acid (PFHxA)	Perfluorooheptanesulfonic acid (PFHpS)	Perfluorononanesulfonic acid (PFNS)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonic acid (PFOS)	Perfluoropentanesulfonic acid (PFPeS)	Perfluorooctanesulfonamide (PFOSA)	Perfluoropentanoic acid (PFPeA)	Perfluorooctanoic acid (PFOA)	Perfluoropropanesulfonic acid (PFPPS)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	Sum of enHealth PFAS (PFHS + PFOS + PFOA)*	Sum of PFAS (WA DER List)	Sum of PFAS _n (n=30)*	Sum of PFHS and PFOA	
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL		0.01	0.05	0.05	0.05	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems																															
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																		0.00023 ^{#6}					19 ^{#6}								

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	8:2 FTS	N-EtFOSA	N-EtFOAAA	N-MeFOAAA	N-MeFOASA	PFBS	PFBA	PFDS	PFDA	PFHS	PFDoA	PFHpA	PFHxA	PFHpS	PFNS	PFNA	PFOS	PFPeS	PFOSA	PFPeA	PFOA	PFPPS	PFTeDA	PFTrDA	PFUnA	enHealth PFAS	PFAS (WA DER List)	PFAS _n (n=30)	PFHS and PFOA	
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<0.01	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<0.01	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01

Statistical Summary																																				
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Minimum Concentration	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Maximum Concentration	<0.01	<0.05	<0.05	<0.05	<0.05	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.1	<0.1	<0.01		
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Average Concentration																																				
Median Concentration	0.005	0.025	0.025	0.025	0.025	0.0275	0.05	0.005	0.005	0.005	0.005	0.005	0.005	0.0275	0.0275	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025	0.0275	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.05	0.05	0.005	
Standard Deviation																																				
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

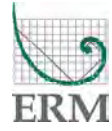
Env Stds Comments
 #1:Apply LOSP Unknown
 #2:Apply LOSP 99
 #3:Apply LOSP 95
 #4:Apply Freshwater DGV (LOSP Unknown)
 #5:Apply Freshwater LOSP Unknown
 #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values ca

	SVOC					TRH												BTEX						Other Metals							
	Sum of US EPA PFAS (PFOS + PFOA)*	Demeton-O	Demeton-S	EPN	Fensulfothion	>C10 - C16 Fraction	>C16 - C34 Fraction	>C34 - C40 Fraction	TRH C15-C28	TRH C29-C36	TRH C6-C10	TRH C6-C10 less BTEX (F1)	TRH C10-C14	TRH C10-C36 (Total)	TRH C6-C9	TRH >C10-C16 less Naphthalene (F2)	TRH >C10-C40 (total)*	Toluene	Benzene	Ethylbenzene	m&p-Xylenes	o-Xylene	Xylenes	Arsenic	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	
	µg/L	µg/L	µg/L	µg/L	µg/L	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	mg/kg	mg/kg	mg/kg	MG/KG	MG/KG	mg/kg	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
EQL	0.01	2	2	2	2	0.05	0.1	0.1	0.1	0.1	0.02	0.02	0.05	0.1	0.02	0.05	0.1	0.001	0.001	0.001	0.002	0.001	0.003	1	0.2	3	1	1	1	0.1	
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems																									0.7 ^{#2}	4.4 ^{#3}	27 ^{#3}	1 ^{#3}	1.3 ^{#3}	4.4 ^{#3}	0.1 ^{#2}
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																															

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	1	<0.1
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	1	<0.1
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	<1	<0.1

Statistical Summary	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	<1	<1	<1	<1	<0.1	<0.1	<0.1	
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	1	ND	ND	1	ND	ND	
Maximum Concentration	<0.01	<2	<2	<2	<2	<0.05	<0.1	<0.1	<0.1	<0.02	<0.02	<0.05	<0.1	<0.02	<0.05	<0.1	<0.001	<0.001	<0.001	<0.002	<0.001	<0.003	2	<0.2	<3	<1	<1	<1	1	<1	<1	<1	<1	<0.1		
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND	ND	ND	ND	1	ND	ND	1	ND	ND	ND	
Average Concentration																																				
Median Concentration	0.005	1	1	1	1	0.025	0.05	0.05	0.05	0.05	0.01	0.01	0.025	0.05	0.01	0.025	0.05	0.0005	0.0005	0.0005	0.001	0.0005	0.0015	2	0.1	1.5	0.5	0.5	0.75	0.05	0.05	0.05	0.05	0.05		
Standard Deviation																																				
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments
 #1:Apply LOSP Unknown
 #2:Apply LOSP 99
 #3:Apply LOSP 95
 #4:Apply Freshwater DGV (LOSP Unknown)
 #5:Apply Freshwater LOSP Unknown
 #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values are available.

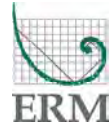


	Metals										Organotins								PAH												
	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	
	µg/L	µg/L	mg/L	mg/L	µg/L	µg/L	µg/L	mg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	
EQL	1	5	0.02	0.001	50	5	5	0.005	10	5	7.5	5	5	12.5	12.5	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	7 ^{#2}	15 ^{#3}						80 ^{#1}	0.1 ^{#3}																						
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																															

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene				
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<1	5	<0.02	<0.001	4100	<5	<5	6	<0.005	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001		
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<1	<5	<0.02	<0.001	4000	<5	<5	<5	<0.005	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Statistical Summary																																						
Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Number of Detects	0	1	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<1	<5	<0.02	<0.001	4000	<5	<5	<5	<0.005	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Minimum Detect	ND	5	ND	ND	4000	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<1	5	<0.02	<0.001	4100	<5	<5	6	<0.005	<10	<5	<7.5	<5	<5	<12.5	<12.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Maximum Detect	ND	5	ND	ND	4100	ND	ND	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																																						
Median Concentration	0.5	3.75	0.01	0.0005	4050	2.5	2.5	4.25	0.0025	5	2.5	3.75	2.5	2.5	6.25	6.25	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005		
Standard Deviation																																						
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Env Stds Comments
 #1:Apply LOSP Unknown
 #2:Apply LOSP 99
 #3:Apply LOSP 95
 #4:Apply Freshwater DGV (LOSP Unknown)
 #5:Apply Freshwater LOSP Unknown
 #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values ca



							Pesticides																												
	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Chlordane	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	DDT	DDT+DDE+DDD	Diazinon	Dichlorvos	Dieldrin	Dimethoate	Disulfoton	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenitrothion	Fenthion	g-BHC (Lindane)	
	MG/KG	MG/KG	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
EQL	0.001	0.001	1	0.2	0.2	0.2	0.2	2	0.2	2	20	2	2	20	0.2	0.2	0.2	0.2	2	2	0.2	2	2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	2	2	2	0.2
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems			50 ^{#2}			0.003 ^{#1}		0.01 ^{#4}		0.001 ^{#1}		0.009 ^{#3}					0.0004 ^{#1}		0.01 ^{#4}		0.01 ^{#5}	0.15 ^{#4}				0.004 ^{#2}						0.001 ^{#1}		0.007 ^{#1}	
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)																																			

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<0.2	
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<2	<0.2

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.001	<0.001	<1	<0.2	<0.2	<0.2	<0.2	<2	<0.2	<2	<20	<2	<2	<20	<0.2	<0.2	<0.2	<2	<2	<0.2	<2	<2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<2	<2	<2	<2	<2	<0.2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																																			
Median Concentration	0.0005	0.0005	0.5	0.1	0.1	0.1	0.1	1	0.1	1	10	1	1	10	0.1	0.1	0.1	1	1	0.1	1	1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	1	1	1	1	1	0.1
Standard Deviation																																			
Number of Guideline Exceedances	0	0	0	0	0	2	0	2	0	2	0	2	0	0	0	0	2	0	2	0	2	2	0	0	0	0	2	0	0	0	0	0	0	0	2
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1:Apply LOSP Unknown
- #2:Apply LOSP 99
- #3:Apply LOSP 95
- #4:Apply Freshwater DGV (LOSP Unknown)
- #5:Apply Freshwater LOSP Unknown
- #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values ca

	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Ronnel	Bolstar (Sulprofos)	Merphos
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	mg/L
EQL	0.2	0.2	0.2	2	0.2	2	2	2	2	2	2	0.002
ANZG (2018) Marine Water - Slightly to moderately disturbed ecosystems	0.0004 ^{#1}		0.05 ^{#2}	0.05 ^{#4}	0.04 ^{#1}			0.004 ^{#4}				
NEMP (2020) Interim Marine - Slightly to moderately disturbed systems (99%)												

LocCode	Monitoring_Zone	Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor	Methyl parathion	Monocrotophos	Parathion	Phorate	Ronnel	Bolstar (Sulprofos)	Merphos	
K_SEAWATER	Kurnell	K_SEAWATER	16/12/2022	Normal	952366	S22-De0050133	<0.2	<0.2	<0.2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<0.002
LP_SEAWATER	La Perouse	LP_SEAWATER	15/12/2022	Normal	952366	S22-De0050134	<0.2	<0.2	<0.2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<0.002

Statistical Summary

Number of Results	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<0.2	<0.2	<2	<0.2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<0.002
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration																			
Median Concentration	0.1	0.1	0.1	1	0.1	1	1	1	1	1	1	1	1	1	1	1	1	1	0.001
Standard Deviation																			
Number of Guideline Exceedances	2	0	2	2	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Env Stds Comments

- #1:Apply LOSP Unknown
- #2:Apply LOSP 99
- #3:Apply LOSP 95
- #4:Apply Freshwater DGV (LOSP Unknown)
- #5:Apply Freshwater LOSP Unknown
- #6:ANZG technical draft default guideline values. Freshwater values are to be used on an interim basis until final marine guideline values are available.



Table 4. Laboratory Analytical Results - Sediment (Waste Classification)
Kamay Ferry Wharf
Arup

	Pesticides					Moisture Content		OCs	OPs										PFAS										
	Omethoate	Pyrimiphos-methyl	Pyrazophos	Terbufos	Tetrachlorvinphos	Moisture Content	Moisture Content (dried @ 103°C)	Toxaphene	Mevinphos (Phosdrin)	Naled (Dibrom)	Toluthion	Trichloronate	Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	2-N-EtFOSE	2-N-MeFOSE	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-EFOSA	N-EFOSAA	N-MeFOSAA	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorohexanesulfonic acid (PFHS)
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	µg/kg	UG/KG	UG/KG	µg/kg	µg/kg	µg/kg	UG/KG	UG/KG	UG/KG	UG/KG	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
EQL	2	0.2	0.2	0.2	0.2		1	0.1	0.2	0.2	0.2	0.2	0.01	0.01	0.5	5	5	0.5	0.5	0.5	5	10	10	0.5	0.2	1	0.2	0.2	0.2
NSW EPA (2014) General Solid Waste CT1																													
NSW EPA (2014) General Solid Waste SCC1																													
NSW EPA (2014) Restricted Solid Waste CT2																													
NSW EPA (2014) Restricted Solid Waste SCC2																													

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Omethoate	Pyrimiphos-methyl	Pyrazophos	Terbufos	Tetrachlorvinphos	Moisture Content	Moisture Content (dried @ 103°C)	Toxaphene	Mevinphos (Phosdrin)	Naled (Dibrom)	Toluthion	Trichloronate	Vic EPA IWRG 621 OCP (Total)*	Vic EPA IWRG 621 Other OCP (Total)*	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	2-N-EtFOSE	2-N-MeFOSE	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	N-EFOSA	N-EFOSAA	N-MeFOSAA	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecanesulfonic acid (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorohexanesulfonic acid (PFHS)		
		LP-SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<2	<0.2	<0.2	<0.2	<0.2	-	17	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
		LP-SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	<2	<0.2	<0.2	<0.2	<0.2	-	20	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
		LP-SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<2	<0.2	<0.2	<0.2	<0.2	-	24	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<2	<0.2	<0.2	<0.2	<0.2	-	29	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
				15/12/2022		955181	M23-Ja0010249	-	-	-	-	-	-	28	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<2	<0.2	<0.2	<0.2	<0.2	-	27	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
				15/12/2022		955181	M23-Ja0010250	-	-	-	-	-	-	30	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		LP_SED02_1.0	1.0	15/12/2022	Normal	952366	S22-De0050111	<2	<0.2	<0.2	<0.2	<0.2	-	20	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
				15/12/2022		955181	M23-Ja0010251	-	-	-	-	-	-	17	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	<2	<0.2	<0.2	<0.2	<0.2	-	23	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
				15/12/2022		955181	M23-Ja0010252	-	-	-	-	-	-	23	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	<2	<0.2	<0.2	<0.2	<0.2	-	22	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
				15/12/2022		955181	M23-Ja0010253	-	-	-	-	-	-	23	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		LP_SED03_1.0	1.0	15/12/2022	Normal	952366	S22-De0050114	<2	<0.2	<0.2	<0.2	<0.2	-	24	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	<5
				15/12/2022		955181	M23-Ja0010254	-	-	-	-	-	-	22	<0.1	-	-	-	-	<0.01	<0.01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LP_SED04	La Perouse	LP_SED_T03_221222	1.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	-	-	-	-	-	22	-	-	-	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.2	<1	<0.2	<0.2	<0.2		
		LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	<2	<0.2	<0.2	<0.2	<0.2	-	24	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056928	<2	<0.2	<0.2	<0.2	<0.2	-	23	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<2	<0.2	<0.2	<0.2	<0.2	-	12	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
		LP-SED-D03-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<2	<0.2	<0.2	<0.2	<0.2	-	27	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<2	<0.2	<0.2	<0.2	<0.2	-	26	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<2	<0.2	<0.2	<0.2	<0.2	-	26	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
		LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<2	<0.2	<0.2	<0.2	<0.2	-	25	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	-	-	-	-	-	19.9	-	-	-	-	-	-	-	-	<0.5	-	-	<0.5	<0.5	<0.5	-	-	-	<0.5	<0.2	<1	<0.2	<0.2	<0.2		
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<2	<0.2	<0.2	<0.2	<0.2	-	18	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<2	<0.2	<0.2	<0.2	<0.2	-	21	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<2	<0.2	<0.2	<0.2	<0.2	-	18	<0.5	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<5	<5	<5	<5	<10	<5	<5	<10	<10	<5	<5	<5	<5	<5	<5	<5	
		LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<2	<0.2	<0.2	<0.2	<0.2	-	20	<0.5	<0.2	<0.2	<0.2																				

								Metals										Organotins										P											
								Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *				
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL								0.1	2	5	10	1	10	1	5	5	2	5	1	0.001	0.75	0.001	0.0005	1.25	1.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
NSW EPA (2014) General Solid Waste CT1								4	40			20		100			20																						0.8
NSW EPA (2014) General Solid Waste SCC1								50	1050			100		1900			50																					10	
NSW EPA (2014) Restricted Solid Waste CT2								16	160			80		400			80																						3.2
NSW EPA (2014) Restricted Solid Waste SCC2								200	4200			400		7600			200																						23
LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *				
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<0.1	<5	17	<10	<2	27	<1	8.2	39	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2		
		K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<0.1	<5	18	<10	<2	32	<1	8.6	46	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	<0.1	<5	18	<10	<2	25	<1	7	42	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	0.1	<5	21	<10	<2	19	<1	7.1	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED_T01_221216	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	0.1	<2	22	<10	<1	<50	-	-	42	<5	8	-	<0.001	-	<0.001	<0.0005	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED02_0.0	0.0	16/12/2022	Normal	952366	S22-De0050118	<0.1	<5	12	<10	<2	18	<1	5.2	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED02_0.5	0.5	16/12/2022	Normal	952366	S22-De0050119	0.1	<5	19	<10	<2	16	<1	7.4	29	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED02_1.0	1.0	16/12/2022	Normal	952366	S22-De0050120	<0.1	<5	10	<10	<2	19	<1	6.4	23	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
K_SED03	Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	0.2	<5	20	<10	<2	19	<1	8.1	26	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED_T03_221216	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	0.2	<2	24	<10	<1	<50	-	-	44	<5	8	-	<0.001	-	<0.001	<0.0005	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED03_0.0	0.0	16/12/2022	Normal	952366	S22-De0050124	<0.1	<5	11	<10	<2	23	<1	5.3	33	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED03_0.5	0.5	16/12/2022	Normal	952366	S22-De0050125	<0.1	<5	12	<10	<2	17	<1	5	33	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED03_1.0	1.0	16/12/2022	Normal	952366	S22-De0050126	0.2	<5	29	<10	<2	30	<1	10	43	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	<0.1	<5	16	<10	2.3	24	<1	6.6	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED_T02_221216	0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	<0.1	<2	16	<10	<1	<50	-	-	42	<5	7	-	<0.001	-	<0.001	<0.0005	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED04_0.0	0.0	16/12/2022	Normal	952366	S22-De0050121	<0.1	<5	13	<10	<2	32	<1	5.1	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED04_0.5	0.5	16/12/2022	Normal	952366	S22-De0050122	<0.1	<5	17	<10	<2	26	<1	6.5	34	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED04_1.0	1.0	16/12/2022	Normal	952366	S22-De0050123	0.2	<5	30	<10	<2	29	<1	10	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	952366	S22-De0050115	<0.1	<5	13	<10	<2	24	<1	<5	29	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED05_0.4	0.4	16/12/2022	Normal	952366	S22-De0050116	<0.1	<5	25	<10	<2	27	<1	6.7	31	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED05_0.75	0.8	16/12/2022	Normal	952366	S22-De0050117	0.1	<5	21	<10	<2	19	<1	6.4	23	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	<0.1	<5	8.3	<10	<2	13	<1	<5	24	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED06_0.5	0.5	16/12/2022	Normal	952366	S22-De0050107	<0.1	<5	18	<10	<2	36	<1	5.4	37	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		K_SED06_1.0	1.0	16/12/2022	Normal	952366	S22-De0050108	<0.1	<5	13	<10	<2	12	<1	<5	45	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	<0.1	<2	47	<10	<1	<50	-	-	10	<5	6	-	<0.001	-	<0.001	<0.0005	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		LP-SED01-0.0	0.0	22/12/2022	Normal	953157	S22-De0056924																																

	Metals											Organotins											P						
	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *	
EQI	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NSW EPA (2014) General Solid Waste CT1	4	40	5	10	20	10	100	5	5	5	1	0.001	0.75	0.001	0.0005	1.25	1.25	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
NSW EPA (2014) General Solid Waste SCC1	50	1050			100		1900			50																			
NSW EPA (2014) Restricted Solid Waste CT2	16	160			80		400			80																			
NSW EPA (2014) Restricted Solid Waste SCC2	200	4200			400		7600			200																			

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *			
LP_SED01	La Perouse	LP-SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<0.1	<5	6.5	<10	<2	16	-	-	12	2.2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2		
		LP-SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	<0.1	<5	<5	<10	<2	<10	-	-	<5	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		LP-SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<0.1	<5	6	<10	<2	27	-	-	10	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<0.1	<5	8	<10	<2	11	<1	<5	15	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
				15/12/2022		955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<0.1	<5	10	<10	<2	13	<1	<5	17	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
				15/12/2022		955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050111	<0.1	<5	5.8	<10	<2	14	<1	<5	<5	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
				15/12/2022		955181	M23-Ja0010251	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	<0.1	<5	12	<10	<2	26	<1	<5	12	-	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
LP_SED04	La Perouse	LP_SED04_0	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	<0.1	<2	7	<10	<1	<50	-	-	10	<5	<5	-	<0.001	-	<0.001	<0.0005	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056927	<0.1	<5	19	<10	<2	18	-	-	15	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	1.2	
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<0.1	<5	6.3	<10	<2	14	-	-	9.1	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<0.1	<5	23	<10	<2	15	-	-	13	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<0.1	<5	13	<10	<2	17	-	-	14	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
		LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<0.1	<5	13	<10	<2	14	-	-	8.3	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.1	<2	<5	<10	<1	<50	-	-	7	<5	<5	-	<0.001	-	<0.001	<0.0005	-	-	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<0.1	<5	8.8	<10	<2	18	-	-	14	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<0.1	<5	5.8	<10	<2	22	-	-	12	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<0.1	<5	<5	<10	<2	<10	-	-	<5	<2	20	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
		LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<0.1	<5	7.1	<10	<2	38	-	-	15	<2	<10	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2	

Statistical Summary		Mercury	Nickel	Zinc	Barium	Beryllium	Boron	Chromium (hexavalent)	Chromium (Trivalent)	Manganese	Selenium	Vanadium	Dibutyltin	Dibutyltin as Sn	Monobutyltin	Monobutyltin as Sn	Tributyltin as Sn	Tributyltin oxide (TBTO)	Tri-n-butyltin	Fluoranthene	Acenaphthene	Fluorene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(a)pyrene TEQ (lower bound) *	Benzo(a)pyrene TEQ (medium bound) *	Benzo(a)pyrene TEQ (upper bound) *			
Number of Results		48	48	48	48	48	48	27	27	48	21	48	42	48	42	48	48	42	42	48	48	48	48	48	48	48	48	48	48	48		
Number of Detects		9	0	44	0	2	38	0	18	45	2	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	48	48
Minimum Concentration		<0.1	<2	<5	<10	<1	<10	<1	<5	<5	<2	<5	<1	<0.001	<0.75	<0.001	<0.0005	<1.25	<1.25	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	1.2
Minimum Detect		0.1	ND	5.8	ND	2.3	11	ND	5	7	2.2	6	ND	ND	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6	1.2	
Maximum Concentration		0.2	<5	47	<10	2.5	<50	<1	10	46	<5	20	<1	<0.5	<0.75	<0.5	<0.5	<1.25	<1.25	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.7	1.2
Maximum Detect		0.2	ND	47	ND	2.5	38	ND	10	46	3.4	20	ND	ND	ND	ND	ND	ND	ND	1.6	ND	ND	ND	ND	ND	ND	ND	ND	0.7	1.2		
Average Concentration		0.068	2.3	14	5	1	20	0.5	5.5	23	1.6	5.4	0.5	0.22	0.38	0.22	0.22	0.63	0.63	0.29	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.6	1.2	
Median Concentration		0.05	2.5	13	5	1	19	0.5	5.4	20	1	5	0.5	0.25																		

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Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD		
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.005	0.005	0.005	0.005	0.05	0.005			0.01			0.05	0.05	2	0.005	0.005			
								200																				4
								200																				7.5
								800																				16
								800																				30

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD		
EQL								0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.005	0.005	0.005	0.005	0.05	0.005			0.01			0.05	0.05	2	0.005	0.005			
NSW EPA (2014) General Solid Waste CT1																																				
NSW EPA (2014) General Solid Waste SCC1																																				
NSW EPA (2014) Restricted Solid Waste CT2																																				
NSW EPA (2014) Restricted Solid Waste SCC2																																				

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Benzo(b&j)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Phenanthrene	Pyrene	Total PAH*	Naphthalene	4,4-DDE	a-BHC	Aldrin	Aldrin + Dieldrin	Azinophos methyl	b-BHC	Bromophos-ethyl	Carbophenothion	Chlordane	Chlordane (cis)	Chlordane (trans)	Chlorfenvinphos	Chlorpyrifos	Chlorpyrifos-methyl	Coumaphos	d-BHC	DDD	
		LP-SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
				15/12/2022		955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	<0.01	-	-	-	-	-	-	<0.005	<0.005	
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
				15/12/2022		955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	<0.01	-	-	-	-	-	-	<0.005	<0.005	
		LP_SED02_1.0	1.0	15/12/2022	Normal	952366	S22-De0050111	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
				15/12/2022		955181	M23-Ja0010251	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	<0.01	-	-	-	-	-	-	<0.005	<0.005	
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
				15/12/2022		955181	M23-Ja0010252	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	<0.01	-	-	-	-	-	-	<0.005	<0.005	
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
				15/12/2022		955181	M23-Ja0010253	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	<0.01	-	-	-	-	-	-	<0.005	<0.005	
		LP_SED03_1.0	1.0	15/12/2022	Normal	952366	S22-De0050114	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
				15/12/2022		955181	M23-Ja0010254	-	-	-	-	-	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	<0.01	-	-	-	-	-	-	<0.005	<0.005	
LP_SED04	La Perouse	LP_SED_T03_221222	1.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	0.5	<0.5	0.5	0.9	<0.5	<0.5	0.7	1.3	5.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056928	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED-DO3-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<0.5	<0.5	0.6	1	<0.5	<0.5	<0.5	1.1	3.7	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	
		LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	-	-	<0.1	-	-	<0.2	<0.2	<0.2	<2	<0.05	<0.05	

Statistical Summary	Benzo(b&j
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Pesticides																											
DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Diethrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos	Fenitrothion	Fenthion	β-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor		
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		
0.005	0.005		0.05	0.05	0.005	0.05	0.2		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.2		0.2	0.05	0.005	0.005	0.005	0.005	0.05	0.005		
								60																			
								108																			
								240																			
								432																			

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	DDT	DDT+DDE+DDD	Demeton-S-methyl	Diazinon	Dichlorvos	Diethrin	Dimethoate	Disulfoton	Endosulfan	Endosulfan I	Endosulfan II	Endosulfan sulphate	Endrin	Endrin aldehyde	Endrin ketone	Ethion	Ethoprop	Fenamiphos	Fenitrothion	Fenthion	β-BHC (Lindane)	Heptachlor	Heptachlor epoxide	Hexachlorobenzene	Malathion	Methoxychlor		
LP_SED01	La Perouse	LP_SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
		LP_SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP_SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
				15/12/2022		955181	M23-Ja0010249	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050111	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
				15/12/2022		955181	M23-Ja0010250	<0.005	<0.005	-	-	-	<0.005	-	-	-	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	-	-	-	-	-	<0.005	<0.005	<0.005	<0.005	-	<0.005	
		LP_SED03_1.0	1.0	15/12/2022	Normal	952366	S22-De0050112	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LP_SED04	La Perouse	LP_SED04-0	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2
		LP_SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056927	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP_SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056928	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LP_SED05	La Perouse	LP_SED-D03-221222	1.0	22/12/2022	Field_D	953157	S22-De0056929	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP_SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP_SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LP_SED06	La Perouse	LP_SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2
		LP_SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP_SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
LP_SED06	La Perouse	LP_SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
		LP_SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<0.05	<0.05	-	<0.2	<0.2	<0.05	<0.2	<0.2	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Statistical Summary																																
Number of Results	75	75	6	48	48	75	48	42	6	75	75	75	75	75	75	75	48	42	6	42	48	75	75	75	75	48	75					
Number of Detects	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
Minimum Concentration	<0.005	<0.005	<0.05	<0.05	<0.05	<0.005	<0.05	<0.2	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.2	<0.05	<0.2	<0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.05	<0.005				
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				
Maximum Concentration	<0.2	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	<0.05	<0.2	<0.05	<0.05	<0.05	<0.05	<0.2	<0.2	
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND				
Average Concentration	0.023	0.017	0.025	0.091	0.091	0.017	0.091	0.1	0.025	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.017	0.091	0.1	0.025	0.1	0.091	0.017	0.017	0.017	0.017	0.091	0.023
Median Concentration	0.025	0.025	0.025	0.1	0.1	0.025	0.1	0.1	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.1	0.1	0.025	0.1	0.1	0.025	0.025	0.025	0.025	0.1	0.025
Standard Deviation																																

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos		
								mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
EQL								0.2	0.2	0.2	0.2			0.2	0.2	0.2		
NSW EPA (2014) General Solid Waste CT1																		
NSW EPA (2014) General Solid Waste SCC1																		
NSW EPA (2014) Restricted Solid Waste CT2																		
NSW EPA (2014) Restricted Solid Waste SCC2																		
K_SED01	Kurnell	K_SED01_0.0	0.0	16/12/2022	Normal	952366	S22-De0050127	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010228	-	-	-	-	-	-	-	-	-		
		K_SED01_0.5	0.5	16/12/2022	Normal	952366	S22-De0050128	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010229	-	-	-	-	-	-	-	-	-		
		K_SED01_1.0	1.0	16/12/2022	Normal	952366	S22-De0050129	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010230	-	-	-	-	-	-	-	-	-		
K_SED02	Kurnell	K_SED_D01_22126	0.5	16/12/2022	Field_D	952366	S22-De0050130	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010231	-	-	-	-	-	-	-	-	-		
		K_SED_T01_221216	0.5	16/12/2022	Interlab_D	ES2246581	ES2246581001	<0.2	<0.2	<0.2	-	<0.05	<0.05	-	-	-		
		K_SED02_0.0	0.0	16/12/2022	Normal	952366	S22-De0050118	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010232	-	-	-	-	-	-	-	-	-		
		K_SED02_0.5	0.5	16/12/2022	Normal	952366	S22-De0050119	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010233	-	-	-	-	-	-	-	-	-		
		K_SED02_1.0	1.0	16/12/2022	Normal	952366	S22-De0050120	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010234	-	-	-	-	-	-	-	-	-		
K_SED03	Kurnell	K_SED_D03_22126	1.0	16/12/2022	Field_D	952366	S22-De0050132	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010239	-	-	-	-	-	-	-	-	-		
		K_SED_T03_221216	1.0	16/12/2022	Interlab_D	ES2246581	ES2246581003	<0.2	<0.2	<0.2	-	<0.05	<0.05	-	-	-		
		K_SED03_0.0	0.0	16/12/2022	Normal	952366	S22-De0050124	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010235	-	-	-	-	-	-	-	-	-		
		K_SED03_0.5	0.5	16/12/2022	Normal	952366	S22-De0050125	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010236	-	-	-	-	-	-	-	-	-		
		K_SED03_1.0	1.0	16/12/2022	Normal	952366	S22-De0050126	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010237	-	-	-	-	-	-	-	-	-		
K_SED04	Kurnell	K_SED_D02_22126	0.0	16/12/2022	Field_D	952366	S22-De0050131	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010238	-	-	-	-	-	-	-	-	-		
		K_SED_T02_221216	0.0	16/12/2022	Interlab_D	ES2246581	ES2246581002	<0.2	<0.2	<0.2	-	<0.05	<0.05	-	-	-		
		K_SED04_0.0	0.0	16/12/2022	Normal	952366	S22-De0050121	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010240	-	-	-	-	-	-	-	-	-		
		K_SED04_0.5	0.5	16/12/2022	Normal	952366	S22-De0050122	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010241	-	-	-	-	-	-	-	-	-		
		K_SED04_1.0	1.0	16/12/2022	Normal	952366	S22-De0050123	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010242	-	-	-	-	-	-	-	-	-		
K_SED05	Kurnell	K_SED05_0.0	0.0	16/12/2022	Normal	952366	S22-De0050115	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010243	-	-	-	-	-	-	-	-	-		
		K_SED05_0.4	0.4	16/12/2022	Normal	952366	S22-De0050116	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010244	-	-	-	-	-	-	-	-	-		
		K_SED05_0.75	0.8	16/12/2022	Normal	952366	S22-De0050117	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010245	-	-	-	-	-	-	-	-	-		
K_SED06	Kurnell	K_SED06_0.0	0.0	16/12/2022	Normal	952366	S22-De0050106	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010246	-	-	-	-	-	-	-	-	-		
		K_SED06_0.5	0.5	16/12/2022	Normal	952366	S22-De0050107	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010247	-	-	-	-	-	-	-	-	-		
		K_SED06_1.0	1.0	16/12/2022	Normal	952366	S22-De0050108	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		
						955181	M23-Ja0010248	-	-	-	-	-	-	-	-	-		
LP_SED01	La Perouse	LP_SED_T01_221222	0.0	22/12/2022	Interlab_D	ES2246795	ES2246795001	<0.2	<0.2	<0.2	-	<0.05	<0.05	-	-	-		
		LP-SED01-0.0	0.0	22/12/2022	Normal	953157	S22-De0056924	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2		

	Methyl parathion	Monocrotophos	Parathion	Phorate	Pirimphos-ethyl	Prothiofos	Ronnel	Bolstar (Sulprofos)	Merphos
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
EQL	0.2	0.2	0.2	0.2			0.2	0.2	0.2
NSW EPA (2014) General Solid Waste CT1									
NSW EPA (2014) General Solid Waste SCC1									
NSW EPA (2014) Restricted Solid Waste CT2									
NSW EPA (2014) Restricted Solid Waste SCC2									

LocCode	Monitoring_Zone	Field_ID	Sample_Depth_Avg	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode										
		LP-SED01-0.5	0.5	22/12/2022	Normal	953157	S22-De0056925	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED01-1.0	1.0	22/12/2022	Normal	953157	S22-De0056926	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED-D01-221222	0.0	22/12/2022	Field_D	953157	S22-De0056936	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
LP_SED02	La Perouse	LP_SED02_0.0	0.0	15/12/2022	Normal	952366	S22-De0050109	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
				15/12/2022		955181	M23-Ja0010249	-	-	-	-	-	-	-	-	-	
		LP_SED02_0.5	0.5	15/12/2022	Normal	952366	S22-De0050110	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
				15/12/2022		955181	M23-Ja0010250	-	-	-	-	-	-	-	-	-	
		LP_SED02_1.0	1.0	15/12/2022	Normal	952366	S22-De0050111	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
				15/12/2022		955181	M23-Ja0010251	-	-	-	-	-	-	-	-	-	
LP_SED03	La Perouse	LP_SED03_0.0	0.0	15/12/2022	Normal	952366	S22-De0050112	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
				15/12/2022		955181	M23-Ja0010252	-	-	-	-	-	-	-	-	-	
		LP_SED03_0.5	0.5	15/12/2022	Normal	952366	S22-De0050113	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
				15/12/2022		955181	M23-Ja0010253	-	-	-	-	-	-	-	-	-	
		LP_SED03_1.0	1.0	15/12/2022	Normal	952366	S22-De0050114	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
				15/12/2022		955181	M23-Ja0010254	-	-	-	-	-	-	-	-	-	
LP_SED04	La Perouse	LP_SED_T03_221222	1.0	22/12/2022	Interlab_D	ES2246795	ES2246795003	<0.2	<0.2	<0.2	-	<0.05	<0.05	-	-	-	
		LP-SED04-0	0.0	22/12/2022	Normal	953157	S22-De0056927	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED04-0.5	0.5	22/12/2022	Normal	953157	S22-De0056928	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED04-1	1.0	22/12/2022	Normal	953157	S22-De0056929	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED-D03-221222	1.0	22/12/2022	Field_D	953157	S22-De0056938	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
LP_SED05	La Perouse	LP-SED05-0	0.1	22/12/2022	Normal	953157	S22-De0056930	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED05-0.4	0.4	22/12/2022	Normal	953157	S22-De0056931	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED05-0.75	0.8	22/12/2022	Normal	953157	S22-De0056932	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
LP_SED06	La Perouse	LP_SED_T02_221222	0.5	22/12/2022	Interlab_D	ES2246795	ES2246795002	<0.2	<0.2	<0.2	-	<0.05	<0.05	-	-	-	
		LP-SED06-0	0.0	22/12/2022	Normal	953157	S22-De0056933	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED06-0.5	0.5	22/12/2022	Normal	953157	S22-De0056934	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED06-1	1.0	22/12/2022	Normal	953157	S22-De0056935	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	
		LP-SED-D02-221222	0.5	22/12/2022	Field_D	953157	S22-De0056937	<0.2	<2	<0.2	<0.2	-	-	<0.2	<0.2	<0.2	

Statistical Summary

Number of Results	48	48	48	42	6	6	42	42	42
Number of Detects	0	0	0	0	0	0	0	0	0
Minimum Concentration	<0.2	<0.2	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.2
Minimum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND
Maximum Concentration	<0.2	<2	<0.2	<0.2	<0.05	<0.05	<0.2	<0.2	<0.2
Maximum Detect	ND	ND	ND	ND	ND	ND	ND	ND	ND
Average Concentration	0.1	0.89	0.1	0.1	0.025	0.025	0.1	0.1	0.1
Median Concentration	0.1	1	0.1	0.1	0.025	0.025	0.1	0.1	0.1
Standard Deviation	0	0.3	0	0	0	0	0	0	0
Number of Guideline Exceedances	0	0	0	0	0	0	0	0	0
Number of Guideline Exceedances(Detects Only)	0	0	0	0	0	0	0	0	0

APPENDIX C CORELOGS



ENVIRONMENTAL SEDIMENT CORE K_SED01

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Prince Charles Parade, Kurnell, NSW 2331	CORING DATE 16/12/2022 - 16/12/2022 CORING COMPANY McLennan Diving Service CORING METHOD Vibracoring TOTAL DEPTH 1.0 CORE TUBE Aluminium	COORDINATES 335304, 6236160 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Light brown grey, coarse, loose, very small shell fragment inclusions (0.5 mm), no odour or staining.	0.1		K_SED01_0.0 K_EL01_0.0	2.8	yes no	
	0.2					
	0.3					
	0.4					
	0.5		K_SED01_0.5 K_EL01_0.5	0.0	yes no	
	0.6					
	0.7					
	0.8					
	0.9					
Termination Depth at: 1.0 m	1		K_SED01_1.0 K_EL01_1.0	0.0	yes no	
	1.1					



ENVIRONMENTAL SEDIMENT CORE K_SED02

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Prince Charles Parade, Kurnell, NSW 2331	CORING DATE 16/12/2022 - 16/12/2022 CORING COMPANY McLennan Diving Service CORING METHOD Vibracoring TOTAL DEPTH 1.0 CORE TUBE Aluminium	COORDINATES 335336, 6236141 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Dark grey brown, coarse, loose, very small shell fragment inclusions (0.5 mm), no odour or staining.	0.1		K_SED02_0.0 K_EL02_0.0	0.1	yes yes	
	0.5		K_SED02_0.5 K_EL02_0.5 K_SED_D01_221216 K_SED_T01_221216	0.0	yes no yes yes	
Termination Depth at: 1.0 m	1		K_SED02_1.0 K_EL02_1.0	0.2	yes no	
	1.1					



ENVIRONMENTAL SEDIMENT CORE K_SED03

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Prince Charles Parade, Kurnell, NSW 2331	CORING DATE 16/12/2022 - 16/12/2022 CORING COMPANY McLennan Diving Service CORING METHOD Vibracoring TOTAL DEPTH 1.0 CORE TUBE Aluminum	COORDINATES 335325, 6236130 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Dark grey brown, coarse, loose, very small shell fragment inclusions (0.5 mm), no odour or staining.	0.1		K_SED03_0.0 K_EL03_0.0	0.0	yes no	
	0.2					
	0.3					
	0.4					
	0.5		K_SED03_0.5 K_EL03_0.5	0.0	yes no	
	0.6					
	0.7					
	0.8					
	0.9					
	1.0		K_SED03_1.0 K_EL03_1.0 K_SED_D03_221216 K_SED_T03_221216	0.0	yes no yes yes	
Termination Depth at: 1.0 m						
	1.1					



ENVIRONMENTAL SEDIMENT CORE K_SED04

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Prince Charles Parade, Kurnell, NSW 2331	CORING DATE 16/12/2022 - 16/12/2022 CORING COMPANY McLennan Diving Service CORING METHOD Vibracoring TOTAL DEPTH 1.0 CORE TUBE Aluminum	COORDINATES 335349, 6236086 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Dark grey brown, coarse, loose, very small shell fragment inclusions (0.5 mm), few large whole shells (3cm), no odour or staining.	0.1		K_SED04_0.0 K_EL04_0.0 K_SED_D02_221216 K_SED_T02_221216	0.2	yes yes yes yes	
	0.5		K_SED04_0.5 K_EL04_0.5	0.0	yes no	
Termination Depth at: 1.0 m	1		K_SED04_1.0 K_EL04_1.0	0.1	yes no	
	1.1					



ENVIRONMENTAL SEDIMENT CORE K_SED05

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Prince Charles Parade, Kurnell, NSW 2331	CORING DATE 16/12/2022 - 16/12/2022 CORING COMPANY McLennan Diving Service CORING METHOD Vibracoring TOTAL DEPTH 0.75 CORE TUBE Aluminum	COORDINATES 335369, 6236058 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Dark grey, coarse, loose, anoxic odour, no staining.	0.1		K_SED05_0.0 K_EL05_0.0	0.0	yes no	
	0.2					
	0.3					
	0.4		K_SED05_0.4 K_EL05_0.4	0.0	yes no	
	0.5					
	0.6					
	0.7		K_SED05_0.75 K_EL05_0.75	0.1	yes no	Refusal on rock.
Termination Depth at:0.75 m	0.8					
	0.9					
	1					
	1.1					



ENVIRONMENTAL SEDIMENT CORE K_SED06

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Prince Charles Parade, Kurnell, NSW 2331	CORING DATE 16/12/2022 - 16/12/2022 CORING COMPANY McLennan Diving Service` CORING METHOD Vibracoring TOTAL DETPH 1.0 CORE TUBE Aluminum	COORDINATES 335383, 6236026 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Dark grey / light grey mottled, coarse, loose, small shell fragments (0.5mm), anoxic odour, no staining. Seagrass at surface.	0.1		K_SED06_0.0 K_EL06_0.0	0.0	yes yes	
	0.2					
	0.3					
	0.4					
	0.5		K_SED06_0.5 K_EL06_0.5	0.0	yes no	
	0.6					
	0.7					
	0.8					
	0.9					
Termination Depth at: 1.0 m	1		K_SED06_1.0 K_EL06_1.0	0.2	yes no	
	1.1					



ENVIRONMENTAL SEDIMENT CORE LP_SED01

PROJECT NUMBER 0564417	CORING DATE 22/12/2022 - 22/12/2022	COORDINATES 336395, 6237861
PROJECT NAME Kamay Ferry Wharf	CORING COMPANY McLennan Diving Service	COORD SYS MGA94
CLIENT Arup Pty Ltd	CORING METHOD Vibracoring	LOGGED BY IS
ADDRESS Anzac Parade, La Perouse, NSW 2036	TOTAL DEPTH 1.0	CHECKED BY JF
	CORE TUBE Aluminum	

COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Light brown, consisting of 95% shells, mix of fragments and whole (2mm-10mm), few large shells (7cm), 5% coarse sand content, medium dense, no odour, no staining.	0.1		LP_SED01_0.0 LP_EL01_0.0 LP_SED_D01_22122 LP_SED_T01_22122	0.2	yes no yes yes	
@0.33m colour change to medium brown, consisting of shell fragments (2mm-5mm), few larger shells (3cm), 10% coarse sand content.	0.4					
@0.54m colour change to light grey, consisting of shell fragments (1mm-5mm), few small whole shells (1cm), 50% coarse sand content.	0.5		LP_SED01_0.5 LP_EL01_0.5	0.3	yes no	
	0.6					
SAND: Light grey / light brown / dark grey mottled, coarse, minor small shell fragment inclusions (1mm), medium dense, faint anoxic odour, no staining.	0.8					
	0.9					
Termination Depth at: 1.0 m	1		LP_SED01_1.0 LP_EL01_1.0	0.4	yes no	
	1.1					



ENVIRONMENTAL SEDIMENT CORE LP_SED02

PROJECT NUMBER 0564417	CORING DATE 15/12/2022 - 15/12/2022	COORDINATES 336425, 6237872
PROJECT NAME Kamay Ferry Wharf	CORING COMPANY McLennan Diving Service	COORD SYS MGA94
CLIENT Arup Pty Ltd	CORING METHOD Vibracoring	LOGGED BY IS
ADDRESS Anzac Parade, La Perouse, NSW 2036	TOTAL DEPTH 1.0	CHECKED BY JF
	CORE TUBE Aluminum	

COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Orange / grey, consisting of 95% rounded shells (1cm), 5% grey, coarse sand content, loose, no odour or staining.	0.1		LP_SED02_0.0 LP_EL02_0.0	2.8	yes yes	
@0.23m change to angular shell fragments (5mm), 10% grey, coarse sand content.	0.2					
	0.3					
	0.4					
@0.50m increasing coarse sand content to 20%.	0.5					
@0.60m larger shell fragments (2cm), 5% sand content.	0.6					
@ 0.720m increasing sand content to 20%.	0.7					
SILTY SAND: Dark grey brown, few small shells (2%), dense, anoxic odour, no staining.	0.8		LP_SED02_0.5 LP_EL02_0.5	1.3	yes no	
	0.9					
	1.0					
Termination Depth at: 1.0 m	1.1		LP_SED02_1.0 LP_EL02_1.0	1.1	yes no	



ENVIRONMENTAL SEDIMENT CORE LP_SED03

PROJECT NUMBER 0564417	CORING DATE 15/12/2022 - 15/12/2022	COORDINATES 336453, 6237873
PROJECT NAME Kamay Ferry Wharf	CORING COMPANY McLennan Diving Service	COORD SYS MGA94
CLIENT Arup Pty Ltd	CORING METHOD Vibracoring	LOGGED BY IS
ADDRESS Anzac Parade, La Perouse, NSW 2036	TOTAL DEPTH 1.0	CHECKED BY JF
	CORE TUBE Aluminum	

COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations		
<p>SAND: Light brown grey, consisting of 60% coarse sand, 40% angular shell fragments (0.3cm), medium dense, no odour or staining.</p> <hr style="border-top: 1px dashed black;"/> <p>@0.23m increasing angular shell fragments (up to 1cm) to 70%, 30% coarse sand.</p> <p>@0.500m - 0.550m a band of higher sand content (40%).</p> <hr style="border-top: 1px dashed black;"/> <p>@0.78m increasing coarse sand to 60%, 40% angular shell fragments (1mm).</p> <hr style="border-top: 1px dashed black;"/> <p>@0.97 increasing shell content (2cm) to 80%, 20% coarse sand.</p> <p>Termination Depth at: 1.0 m</p>	0.1		LP_SED03_0.0 LP_EL03_0.0	1.3	yes yes			
	0.2							
	0.3							
	0.4							
	0.5				LP_SED03_0.5 LP_EL03_0.5	1.6	yes no	
	0.6							
	0.7							
	0.8							
	0.9							
	1.0				LP_SED03_1.0 LP_EL03_1.0	0.6	yes no	
1.1								



ENVIRONMENTAL SEDIMENT CORE LP_SED04

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Anzac Parade, La Perouse, NSW 2036	CORING DATE 22/12/2022 - 22/12/2022 CORING COMPANY McLennan Diving Service CORING METHOD Vibracoring TOTAL DEPTH 1.0 CORE TUBE Aluminum	COORDINATES 336479, 6237862 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Dark brown and black mottled, coarse, consists of 30% shell fragments (1mm-2mm), anoxic odour, no staining.	0.1		LP_SED04_0.0 LP_EL04_0.0	0.3	yes no	
	0.2					
@0.50m change to light grey, consisting of 50% medium sized shell fragments (0.5mm-2mm), 50% sand content. @0.8m larger shells (up to 4cm).	0.3		LP_SED04_0.5 LP_EL04_0.5	0.3	yes no	
	0.4					
Termination Depth at: 1.0 m	0.5		LP_SED04_1.0 LP_EL04_1.0 LP_SED_D03_22122 LP_SED_T03_22122	0.4	yes no yes yes	
	0.6					
	0.7					
	0.8					
	0.9					
	1.0					
	1.1					



ENVIRONMENTAL SEDIMENT CORE LP_SED05

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Anzac Parade, La Perouse, NSW 2036	CORING DATE 22/12/2022 - 22/12/2022 CORING COMPANY McLennan Diving Service CORING METHOD Vibracoring TOTAL DEPTH 0.75 CORE TUBE Aluminum	COORDINATES 336494, 6237842 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Light grey brown, consisting of 60% coarse shell fragments (2mm), few larger whole shells (5cm), 40% coarse sand, medium dense, anoxic odour, no staining.	0.1		LP_SED05_0.0 LP_EL05_0.0	0.3	yes yes	Core had been filled by divers with 25cm of surface sand in order to retrieve it. In photo log, the core starts (0m) at 0.250m.
	0.2					
	0.3					
@0.530m larger shells, 20% sand content, some black mottling.	0.4		LP_SED05_0.4 LP_EL05_0.4	0.2	yes no	
	0.5					
Termination Depth at:0.75 m	0.6		LP_SED05_0.75 LP_EL05_0.75	0.3	yes no	Refusal on rock.
	0.7					
	0.8					
	0.9					
	1					
	1.1					



ENVIRONMENTAL SEDIMENT CORE LP_SED06

PROJECT NUMBER 0564417 PROJECT NAME Kamay Ferry Wharf CLIENT Arup Pty Ltd ADDRESS Anzac Parade, La Perouse, NSW 2036	CORING DATE 22/12/2022 - 22/12/2022 CORING COMPANY McLennan Diving Service CORING METHOD Vibracoring TOTAL DEPTH 1.0 CORE TUBE Alumnum	COORDINATES 336424, 6237862 COORD SYS MGA94 LOGGED BY IS CHECKED BY JF
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COMMENTS

Material Description	Depth (m)	Graphic Log	Samples	PID	Is Analysed?	Additional Observations
SAND: Light brown, consisting of coarse shell fragments (0.1 - 1.0mm), 40% coarse sand, some larger shell fragments (up to 2cm), medium dense, no odour or staining.	0.1		LP_SED06_0.0 LP_EL06_0.0	0.2	yes no	
	0.2					
SAND: Light brown, consisting of coarse shell fragments (0.1 - 1.0mm), 40% coarse sand, some larger shell fragments (up to 2cm), medium dense, no odour or staining.	0.3					
	0.4					
SAND: Light brown, consisting of coarse shell fragments (0.1 - 1.0mm), 40% coarse sand, some larger shell fragments (up to 2cm), medium dense, no odour or staining.	0.5		LP_SED06_0.5 LP_EL06_0.5 LP_SED_D02_22122 LP_SED_T02_22122	0.2	yes no yes yes	
	0.6					
@0.540m colour change to light grey sand.	0.7					
SAND: Medium brown, medium grained, medium dense, no odour or staining.	0.8					
	0.9					
Termination Depth at: 1.0 m	1		LP_SED06_1.0 LP_EL06_1.0	0.2	yes no	
	1.1					

APPENDIX D PHOTOGRAPHIC LOG



Project Photo Log Kamay Wharf - 0564417



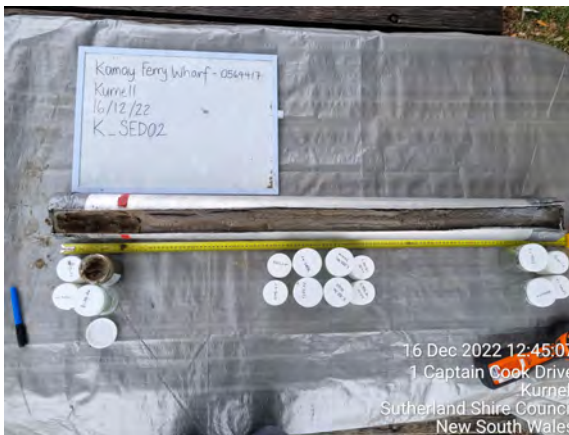
K_SED01

Prior to sub-sampling



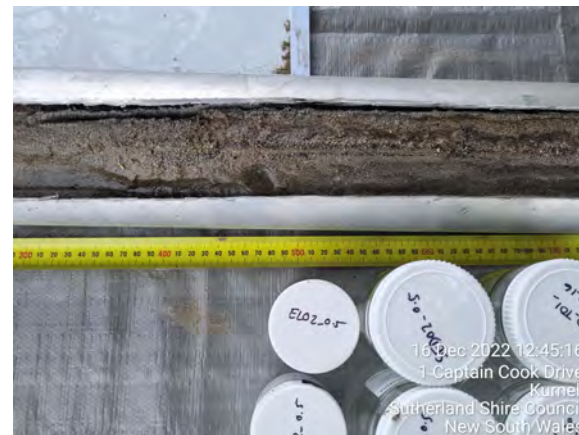
K_SED01

0.50 – 0.90 m
Light brownish grey, coarse sand, loosely compacted, soft, very small broken shell inclusions (0.5 mm).



K_SED02

Prior to sub-sampling



K_SED02

0.30 – 0.70 m
Dark greyish brown coarse sand, loosely compacted, soft, very small broken shell inclusions (0.5 mm).



Project Photo Log Kamay Wharf - 0564417



K_SED03

Prior to sub-sampling



K_SED03

Post sub-sampling
Dark greyish brown coarse sand, loosely compacted, soft, very small broken shell inclusions (0.5 mm).



K_SED04

Prior to sub-sampling



K_SED04

0.10 – 0.40 m
Dark greyish brown, coarse sand, loosely compacted, soft, very small broken shell inclusions (0.5 mm), few large whole shells (3cm).



Project Photo Log Kamay Wharf - 0564417



K_SED05

0.40 – 0.70 m

Dark grey coarse sand, loosely compacted, soft, anoxic odour.



K_SED05
Post sampling



K_SED06
Prior to sampling



K_SED06
0.70 – 1.00 m

Dark grey / light grey mottled coarse sand, loosely compacted, soft, small broken shells(0.5mm), anoxic odour. Seagrass at surface.



Project Photo Log Kamay Wharf - 0564417



LP_SED01

Prior to sub-sampling



LP_SED01

0.00 – 0.26 m

Light brown, coarse shell layer, mix of broken and whole shells (2mm-10mm), few large shells (7cm), 5% coarse sand content, medium densely compacted.



LP_SED02

Prior to sub-sampling



LP_SED02

0.20 – 0.60 m

Coarse orange / grey angular shell layer(0.5cm), mostly broken shells, 10% grey, coarse grained sand content, loosely compacted.



Project Photo Log Kamay Wharf - 0564417



LP_SED03

Prior to sub-sampling



LP_SED03

Post sub-sampling
Coarse angular shell layer, 70% broken shells (up to 1cm), 30% light brown coarse sand, medium densely compacted. @0.500m - 0.550m more sand content (40%).



LP_SED04

Prior to sub-sampling



LP_SED04

0.73 – 1.00 m
Medium sized shell layer, mostly broken (0.5mm-2mm), 50% light grey sand content. @0.8m larger shells (up to 4cm).



Project Photo Log Kamay Wharf - 0564417



LP_SED05

Prior to sub-sampling

22 Dec 2022 14:16:05
1613R Anzac Parade
La Perouse
City of Randwick
New South Wales



LP_SED05

0.23 – 5.3 m

Coarse shell layer, all broken (2mm), few larger whole shells (5cm), 40% coarse light greyish brown sand, medium densely compacted, anoxic odour throughout. @0.530m larger shells, 20% sand content, some black mottling.

22 Dec 2022 14:16:21
1613R Anzac Parade
La Perouse
City of Randwick
New South Wales



LP_SED06

Prior to sampling

22 Dec 2022 12:39:25
54 Endeavour Avenue
La Perouse
City of Randwick
New South Wales



LP_SED06

0.70 – 1.00 m

Medium brown, medium grained sand, soft, medium densely compacted.

22 Dec 2022 12:39:59
1613R Anzac Parade
La Perouse
City of Randwick
New South Wales

**APPENDIX E QUALITY ASSURANCE AND QUALITY CONTROL
ASSESSMENT**

E1 QUALITY ASSURANCE AND QUALITY CONTROL ASSESSMENT

The objective of this data assessment is to evaluate the quality of data gathered during the investigation detailed in the main body of this report. This evaluation has been undertaken to assess whether the data is of a suitable standard to be utilised in this report. The data assessment consists of comparing field and laboratory QA/QC results to documented guidelines. The data assessment has been prepared in accordance with the *NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure*. Particular reference has been made to the PARCC parameters (precision, accuracy, representativeness, completeness and comparability) in evaluating the data quality.

The following table presents the degree of QA/QC pertinent to the field investigations.

Table E1 - Field QA/QC Assessment

QA/QC Criterion	Comments
Number of samples collected	During the course of the investigation a total of 36 primary sediment samples and two surface water samples were submitted for chemical analysis.
Collection and analysis of replicate samples	Replicate sediment samples comprised of six intra-laboratory duplicate samples and six inter-laboratory duplicate samples.
Assessment of all relevant media	Sediment and surface water samples were collected and submitted for laboratory analysis as part of the investigation. No other media was required to be assessed during this investigation.
Appropriateness of sampling strategy	The sampling strategy was designed based on the preliminary CSM and the project objectives and is considered appropriate for the purposes of this investigation.
Sample collection, handling and transportation procedures	<p>Samples were collected, handled and transported following ERM's standard operating procedures.</p> <p>Sediment samples for chemical analysis (excluding PFAS) were placed in laboratory-supplied glass jars with Teflon-lined lids. Sediment samples for PFAS analysis were placed in laboratory-supplied PFAS-free plastic containers.</p> <p>Surface water samples for chemical analysis were placed in laboratory-supplied sample containers.</p> <p>All samples were stored in coolers with ice present.</p> <p>All samples were forwarded to the NATA accredited laboratories under chain of custody conditions. The methods used to collect the samples, the types of sample containers, preservation techniques and chain of custody protocols were documented appropriately.</p>
Sampling is representative of site conditions	The number and type of samples collected as part of the investigation are considered to be representative of the current site conditions and sufficient to achieve the project objectives.

Table E2 - Field QA/QC Plan Assessment

QA/QC Criterion	Comments
Sampling team	Sampling was carried out by Indiana Strachan, an appropriately qualified and experienced ERM environmental scientist.
Sampling method	Disposable aluminium sediment cores were opened using a disc cutter. Samples were then collected directly from the core. Surface water samples were collected into a 20L drum and decanted directly into laboratory-supplied sample bottles. All sampling was conducted by suitably trained field staff wearing protective clothing and disposable nitrile gloves changed between sampling locations.
Decontamination	Non-disposable sampling equipment was not used and therefore decontamination was not required. Dedicated clean nitrile gloves and disposable aluminium core tubes were changed prior to collecting each sample.
Sampling records	Sampling records were completed, describing the media sampled, the duplicate types and sampling locations.
Chain of custody information	Chain of custody information is provided in Appendix F as part of the laboratory documentation.
Sample splitting techniques	Field duplicate samples were split in the field by incrementally filling three sample containers with equal portions of sample.
Duplicate frequency and results for intra- and inter-laboratory duplicate samples	The following field duplicate sediment sampling frequencies were achieved: <ul style="list-style-type: none"> ■ Intra-laboratory duplicates: 1 duplicate sample per 6 primary samples ■ Inter-laboratory duplicates: 1 duplicate sample per 6 primary samples The intra- and inter-laboratory sampling frequencies exceeded the minimum required rates for the project. The RPDs between the primary and duplicate sample pairs were within the acceptable range with the exception of Total Organic Carbon in five out of six duplicate-primary pairs, particle size in three duplicate-primary pairs, zinc in one duplicate-primary pair and naphthalene in one duplicate-primary pair. These RPD exceedances are considered to be due to sediment sample matrix heterogeneity. These minor non-conformances are not considered to affect the suitability of the dataset to achieve the objectives of the investigation. Field duplicate results, including RPDs, are presented in Table E6.
Trip blank results	Trip blanks are used to identify whether cross-contamination is potentially occurring during the sample collection and transport process. The trip blank collected during the sediment sampling program reported target analytes below the laboratory LOR, indicating that cross contamination of samples during storage and transport is unlikely to have occurred.
Trip spike results	Trip spikes are used to identify whether loss of volatiles from samples is occurring during the sample collection and transport process. The trip spike collected during the sediment sampling program reported recoveries within the adopted acceptance limits, indicating that loss of volatiles is unlikely to have occurred during storage and transport of sediment samples.
Field instrument calibration	Where required, field equipment was calibrated prior to undertaken the investigation works. Calibration certificates for relevant field instruments are presented in Appendix G.

Table E3 – Laboratory QA/QC Assessment

QC/QC CRITERION	COMMENTS
Appropriate methodologies used for sample analysis	The NATA accredited laboratories used for the investigation were as follows: <ul style="list-style-type: none"> ■ Eurofins (primary and intra-laboratory duplicate samples) ■ ALS Environmental (inter-laboratory duplicate samples)

	<p>All laboratory reports were NATA stamped and signed by a NATA-accredited signatory. All methodologies were considered appropriate for the identified contaminants of concern in the matrix.</p> <p>Statistical data presented in the laboratory QA/QC report was considered adequate in demonstrating the precision and accuracy of the methods used to analyse field samples.</p>
Appropriate Limit of Reporting (LOR)	<p>The LORs for each analyte were below the screening levels adopted for this investigation with the exception of TBT and several OCPs in sediment. There were no detections for these analytes. Further analysis of sediment samples for these analytes was being undertaken at the time of writing of this report and these results will be provided as an addendum to this report.</p> <p>LORs for each analyte are presented in the laboratory reports.</p>
Laboratory QA/QC plan	<p>The types of QA/QC samples analysed by the laboratory for the documented samples were considered sufficient to assess the precision and accuracy of the laboratory methods used. The statistical data presented in the laboratory QA/QC report were considered adequate in demonstrating the precision and accuracy of the methods used to analyse field samples.</p> <p>All laboratory quality sample results and analysis frequencies were reported within the required ranges.</p>

The following tables present the degree of QA/QC pertinent to the laboratory program.

Table E4 – Laboratory QA/QC Plan Assessment

QC/QC CRITERION	COMMENTS
Signed chain of custody forms	Scanned copies of signed chain of custody forms were returned by the laboratory.
Record of holding times	Samples were received and analysed within specified laboratory holding times. Confirmation is provided on the certified laboratory reports presented in Appendix F.
Analytical methods	The analytical methods used were NATA approved as documented on the laboratory reports.
Laboratory accreditation	The laboratories were NATA accredited.
Laboratory performance in inter-laboratory trials	The laboratories used in this investigation participate in inter-laboratory trials to maintain their NATA accreditation. As such, the current NATA accreditation of the laboratories is considered to indicate that the laboratories' performance in inter-laboratory trials is satisfactory.
The results of blind duplicate samples collected from the field	This is discussed above with results tabulated in Table E6. The results were within acceptable limits.

The following table presents an overall assessment of the precision, accuracy, representativeness, comparability and completeness data quality indicators.

Table E5 – Overall Sampling and Analysis Methodology Assessment

FIELD CONSIDERATIONS	LABORATORY CONSIDERATIONS
Precision Requirements	
The requirements of the SAQP and ERM SOPs were complied with	<p>Analysis of the following were reported:</p> <ul style="list-style-type: none"> ■ Field intralaboratory and interlaboratory duplicates; ■ Field trip blanks; ■ Field trip spikes.
Precision Comments	

FIELD CONSIDERATIONS**LABORATORY CONSIDERATIONS**

The number of field intra- and inter-laboratory laboratory pairs collected during the sediment sampling program was considered acceptable for the purposes of the investigation. Analytical results of duplicate samples were considered to indicate that suitable data quality was achieved.

Accuracy Requirements

The requirements of the SAQP and ERM SOPs were complied with

Analysis of the following were reported:

- Method blanks;
- Matrix spikes;
- Laboratory duplicates;
- Surrogate spikes;
- Certified reference materials;
- Laboratory control samples;
- Laboratory prepared spikes.

Accuracy Comments

Laboratory QA/QC samples were reported within the acceptance limits specified in the laboratory reports.

Representativeness Requirements

Appropriate required media sampled.

All samples were analysed in accordance with the SAQP.

Representativeness Comments

QC outliers were not considered to affect the suitability of the dataset or the overall conclusions of the investigation.

Comparability Requirements

The same SOPs were used during each sampling event.
All sampling was conducted by an appropriately qualified and experienced ERM environmental scientist.
Impacts of climatic conditions on sample integrity were minimised by storing and transporting samples in a chilled cooler.
The types of samples collected were consistent.
Results of field screening were comparable with laboratory analysis.

Analytical methods suitable for the target media were used.
The LORs used to report analyte concentrations were less than the adopted acceptance criteria.
The same laboratories were used to analyse primary samples.
The same units were used to report analyte concentrations.
Results of laboratory analysis was comparable with field screening results.

Comparability Comments

Overall the methods and analytical data reported by the primary and secondary laboratories is considered acceptable for the purposes of this assessment.
SOPs were followed during sampling at all locations and therefore the methods used are comparable.
LORs for above the applicable screening criteria for TBT and OCPs in sediment. Further laboratory analysis was being undertaken at the time of reporting and will be reported as an addendum.

Completeness Requirements

All critical locations were sampled.
The investigation was conducted following ERM SOPs and any variations from these procedures were documented.
All sampling was conducted by an appropriately qualified and experienced ERM environmental scientist.
Documentation of field works was provided.

All critical samples and analytes were analysed.
Appropriate analysis methods and LORs were used.
Sample documentation was provided.
Samples were analysed within the required holding times for the analyses performed.

Completeness Comments

No significant non-conformances were noted.

SDG	Field ID	Sampled Date/Time	12-Jan-23			19-Dec-22			19-Dec-22			12-Jan-23			19-Dec-22			19-Dec-22		
			K_SED02_0.5	K_SED_D01_221216	RPD	K_SED02_0.5	K_SED_D01_221216	RPD	K_SED02_0.5	ALSE-Sydney 22-Dec-22	RPD	K_SED03_1.0	K_SED_D03_221216	RPD	K_SED03_1.0	K_SED_D03_221216	RPD	K_SED03_1.0	ALSE-Sydney 22-Dec-22	RPD
Metals	Arsenic	mg/kg	2 (Primary): 5 (Interlab)			2.8	4.0	35	2.8	<5.0	0			3.3	3.0	10	3.3	<5.0	0	
	Cadmium	mg/kg	0.4 (Primary): 1 (Interlab)			<0.4	<0.4	0	<0.4	<1.0	0			<0.4	<0.4	0	<0.4	<1.0	0	
	Chromium	mg/kg	5 (Primary): 2 (Interlab)			7.4	7.1	4	7.4	9.0	20			10.0	8.1	21	10.0	11.0	10	
	Cobalt	mg/kg	5 (Primary): 2 (Interlab)			<5.0	<5.0	0	<5.0	<2.0	0			<5.0	<5.0	0	<5.0	<2.0	0	
	Copper	mg/kg	5			<5.0	<5.0	0	<5.0	<5.0	0			<5.0	<5.0	0	<5.0	5.0	0	
	Lead	mg/kg	5			8.9	8.4	6	8.9	11.0	21			12.0	7.8	42	12.0	11.0	9	
	Mercury	mg/kg	0.1			0.1	0.1	0	0.1	0.1	0			0.2	0.2	0	0.2	0.2	0	
	Nickel	mg/kg	5 (Primary): 2 (Interlab)			<5.0	<5.0	0	<5.0	<2.0	0			<5.0	<5.0	0	<5.0	<2.0	0	
	Zinc	mg/kg	5			19.0	21.0	10	19.0	22.0	15			29.0	20.0	37	29.0	24.0	19	
	Barium	mg/kg	10			<10.0	<10.0	0	<10.0	<10.0	0			<10.0	<10.0	0	<10.0	<10.0	0	
	Beryllium	mg/kg	2 (Primary): 1 (Interlab)			<2.0	<2.0	0	<2.0	<1.0	0			<2.0	<2.0	0	<2.0	<1.0	0	
	Boron	mg/kg	10 (Primary): 50 (Interlab)			16.0	19.0	17	16.0	<50.0	0			30.0	19.0	45	30.0	<50.0	0	
	Chromium (hexavalent)	mg/kg	1			<1.0	<1.0	0	<1.0	<1.0	0			<1.0	<1.0	0	<1.0	<1.0	0	
	Chromium (Trivalent)	mg/kg	5			7.4	7.1	4	7.4					10.0	8.1	21	10.0			
	Manganese	mg/kg	5			29.0	26.0	11	29.0	42.0	37			43.0	26.0	49	43.0	44.0	2	
	Selenium	mg/kg	2 (Primary): 5 (Interlab)																	
	Vanadium	mg/kg	10 (Primary): 5 (Interlab)			<10.0	<10.0	0	<10.0	8.0	0			<10.0	<10.0	0	<10.0	8.0	0	
	Organotins	Dibutyltin	mg/kg	1			<1.0	<1.0	0	<1.0				<1.0	<1.0	0	<1.0			
		Dibutyltin as Sn	mg/kg	0.5 (Primary): 0.001 (Interlab)			<0.5	<0.5	0	<0.5	<0.001	0			<0.5	<0.5	0	<0.5	<0.001	0
Monobutyltin		mg/kg	0.75			<0.75	<0.75	0	<0.75	<0.005	0			<0.75	<0.75	0	<0.75	<0.005	0	
Monobutyltin as Sn		mg/kg	0.5 (Primary): 0.001 (Interlab)			<0.5	<0.5	0	<0.5	<0.001	0			<0.5	<0.5	0	<0.5	<0.001	0	
Tributyltin as Sn		mg/kg	0.5 (Primary): 0.0005 (Interlab)			<0.5	<0.5	0	<0.5	<0.0005	0			<0.5	<0.5	0	<0.5	<0.0005	0	
Tributyltin oxide (TBTO)		mg/kg	1.25			<1.25	<1.25	0	<1.25					<1.25	<1.25	0	<1.25			
Tri-n-butyltin		mg/kg	1.25			<1.25	<1.25	0	<1.25					<1.25	<1.25	0	<1.25			
PAH	Fluoranthene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Acenaphthene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Fluorene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Acenaphthylene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Anthracene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Benz(a)anthracene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Benzo(a)pyrene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5			0.6	0.6	0	0.6	0.6	0			0.6	0.6	0	0.6	0.6	0	
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5			1.2	1.2	0	1.2	1.2	0			1.2	1.2	0	1.2	1.2	0	
	Benzo(b&j)fluoranthene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Benzo(g,h,i)perylene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Benzo(k)fluoranthene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Chrysene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Dibenz(a,h)anthracene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Phenanthrene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Pyrene	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Total PAH*	mg/kg	0.5			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)			<0.5	<0.5	0	<0.5	<0.5	0			<0.5	<0.5	0	<0.5	<0.5	0	
Pesticides	4,4-DDE	mg/kg	0.05			<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0	
	4,4-DDE	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0		
	a-BHC	mg/kg	0.05			<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0	
	a-BHC	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0		
	Aldrin	mg/kg	0.05			<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0	
	Aldrin	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0		
	Aldrin + Dieldrin	mg/kg	0.05			<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0	
	Aldrin + Dieldrin	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0		
	Azinophos methyl	mg/kg	0.2 (Primary): 0.05 (Interlab)			<0.2	<0.2	0	<0.2	<0.05	0			<0.2	<0.2	0	<0.2	<0.05	0	
	b-BHC	mg/kg	0.05			<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0	
	b-BHC	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0		
	Chlordane	mg/kg	0.1 (Primary): 0.05 (Interlab)			<0.1	<0.1	0	<0.1	<0.05	0			<0.1	<0.1	0	<0.1	<0.05	0	
	Chlordane	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0		
	Chlorfenvinphos	mg/kg	0.2 (Primary): 0.05 (Interlab)			<0.2	<0.2	0	<0.2	<0.05	0			<0.2	<0.2	0	<0.2	<0.05	0	
	Chlorpyrifos	mg/kg	0.2 (Primary): 0.05 (Interlab)			<0.2	<0.2	0	<0.2	<0.05	0			<0.2	<0.2	0	<0.2	<0.05	0	
	Chlorpyrifos-methyl	mg/kg	0.2 (Primary): 0.05 (Interlab)			<0.2	<0.2	0	<0.2	<0.05	0			<0.2	<0.2	0	<0.2	<0.05	0	
	Coumaphos	mg/kg	2			<2.0	<2.0	0	<2.0	<2.0	0			<2.0	<2.0	0	<2.0	<2.0	0	
	d-BHC	mg/kg	0.05			<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0	
	d-BHC	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0		
	DDD	mg/kg	0.05			<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0	
	DDD	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0		
	DDT	mg/kg	0.05 (Primary): 0.2 (Interlab)			<0.05	<0.05	0	<0.05	<0.2	0			<0.05	<0.05	0	<0.05	<0.2	0	
	DDT	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.0										

SDG	12-Jan-23	12-Jan-23	19-Dec-22	19-Dec-22	19-Dec-22	ALSE-Sydney 22-Dec-22	12-Jan-23	12-Jan-23	19-Dec-22	19-Dec-22	19-Dec-22	ALSE-Sydney 22-Dec-22	12-Jan-23	12-Jan-23	19-Dec-22	19-Dec-22	19-Dec-22	ALSE-Sydney 22-Dec-22	
Field ID	K_SED02_0.5	K_SED_D01_221216	K_SED02_0.5	K_SED_D01_221216	K_SED02_0.5	K_SED_T01_221216	K_SED03_1.0	K_SED_D03_221216	K_SED03_1.0	K_SED_D03_221216	K_SED03_1.0	K_SED_T03_221216	K_SED03_1.0	K_SED_D03_221216	K_SED03_1.0	K_SED_T03_221216	K_SED03_1.0	K_SED_T03_221216	
Sampled Date/Time	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	16/12/2022	
Endrin ketone	mg/kg	0.005	<0.005	<0.005	0														
Ethion	mg/kg	0.2 (Primary): 0.05 (Interlab)				<0.2	<0.2	0	<0.2	<0.05	0			<0.2	<0.2	0	<0.2	<0.05	0
Ethion	mg/kg	0.2				<0.2	<0.2	0	<0.2					<0.2	<0.2	0	<0.2		
Fenitrothion	mg/kg	0.2				<0.2	<0.2	0	<0.2					<0.2	<0.2	0	<0.2		
Fenthion	mg/kg	0.2 (Primary): 0.05 (Interlab)				<0.2	<0.2	0	<0.2	<0.05	0			<0.2	<0.2	0	<0.2	<0.05	0
g-BHC (Lindane)	mg/kg	0.05				<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0
g-BHC (Lindane)	mg/kg	0.005	<0.005	<0.005	0							<0.005	<0.005	0					
Heptachlor	mg/kg	0.05				<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0
Heptachlor	mg/kg	0.005	<0.005	<0.005	0							<0.005	<0.005	0					
Heptachlor epoxide	mg/kg	0.05				<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0
Heptachlor epoxide	mg/kg	0.005	<0.005	<0.005	0							<0.005	<0.005	0					
Hexachlorobenzene	mg/kg	0.05				<0.05	<0.05	0	<0.05	<0.05	0			<0.05	<0.05	0	<0.05	<0.05	0
Hexachlorobenzene	mg/kg	0.005	<0.005	<0.005	0							<0.005	<0.005	0					
Malathion	mg/kg	0.2 (Primary): 0.05 (Interlab)				<0.2	<0.2	0	<0.2	<0.05	0			<0.2	<0.2	0	<0.2	<0.05	0
Methoxychlor	mg/kg	0.05 (Primary): 0.2 (Interlab)				<0.05	<0.05	0	<0.05	<0.2	0			<0.05	<0.05	0	<0.05	<0.2	0
Methoxychlor	mg/kg	0.005	<0.005	<0.005	0							<0.005	<0.005	0					
Methyl parathion	mg/kg	0.2				<0.2	<0.2	0	<0.2	<0.2	0			<0.2	<0.2	0	<0.2	<0.2	0
Monocrotophos	mg/kg	2 (Primary): 0.2 (Interlab)				<2.0	<2.0	0	<2.0	<0.2	0			<2.0	<2.0	0	<2.0	<0.2	0
Parathion	mg/kg	0.2				<0.2	<0.2	0	<0.2	<0.2	0			<0.2	<0.2	0	<0.2	<0.2	0
Phorate	mg/kg	0.2				<0.2	<0.2	0	<0.2					<0.2	<0.2	0	<0.2		
Ronnel	mg/kg	0.2				<0.2	<0.2	0	<0.2					<0.2	<0.2	0	<0.2		
Bolstar (Sulprofos)	mg/kg	0.2				<0.2	<0.2	0	<0.2					<0.2	<0.2	0	<0.2		
Merphos	mg/kg	0.2				<0.2	<0.2	0	<0.2					<0.2	<0.2	0	<0.2		

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

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: Case-by-Case (1-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL))

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

SDG	Field ID	Sampled Date/Time	12-Jan-23 K_SED04_0.0	12-Jan-23 K_SED_D02_221216	RPD	19-Dec-22 K_SED04_0.0	19-Dec-22 K_SED_D02_221216	RPD	19-Dec-22 K_SED04_0.0	ALSE-Sydney K_SED_T02_221216	RPD	22-Dec-22 LP-SED01-0.0	22-Dec-22 LP-SED-D01-221222	RPD	22-Dec-22 LP-SED01-0.0	ALSE-Sydney LP_SED_T01_221222	RPD	22-Dec-22 LP-SED06-0.5	22-Dec-22 LP-SED-D02-221222	RPD	
Chem_Group	ChemName	Units	EQL																		
	Omethoate	mg/kg	2			<2.0	<2.0	0	<2.0			<2.0	<2.0	0	<2.0			<2.0	<2.0	0	
	Pirimiphos-methyl	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
	Pyrazophos	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
	Terbufos	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
	Tetrachlorvinphos	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
Moisture Content	Moisture Content (dried @ 103°C)	%	1	27.0	27.0	0	29.0	28.0	4	29.0		19.0	24.0	23	19.0			21.0	20.0	5	
OCs	Toxaphene	mg/kg	0.5			<0.5	<0.5	0	<0.5			<0.5	<0.5	0	<0.5			<0.5	<0.5	0	
	Toxaphene	mg/kg	0.1	<0.1	<0.1	0															
OPs	Mevinphos (Phosdrin)	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
	Naled (Dibrom)	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
	Tokuthion	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
	Trichloronate	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
	Vic EPA IWRG 621 OCP (Total)*	mg/kg	0.1			<0.1	<0.1	0	<0.1			<0.1	<0.1	0	<0.1			<0.1	<0.1	0	
	Vic EPA IWRG 621 OCP (Total)*	mg/kg	0.01	<0.01	<0.01	0															
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	0.1			<0.1	<0.1	0	<0.1			<0.1	<0.1	0	<0.1			<0.1	<0.1	0	
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	0.01	<0.01	<0.01	0															
PFAS	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/kg	5 (Primary): 0.5 (Interlab)			<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	
	2-N-EtFOSE	µg/kg	5			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	
	2-N-MeFOSE	µg/kg	5			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/kg	5 (Primary): 0.5 (Interlab)			<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	10 (Primary): 0.5 (Interlab)			<10.0	<10.0	0	<10.0	<0.5	0	<10.0	<10.0	0	<10.0	<0.5	0	<10.0	<10.0	0	
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	5 (Primary): 0.5 (Interlab)			<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	
	N-EtFOA	µg/kg	5			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	
	N-EtFOA	µg/kg	10			<10.0	<10.0	0	<10.0			<10.0	<10.0	0	<10.0			<10.0	<10.0	0	
	N-EtFOA	µg/kg	10			<10.0	<10.0	0	<10.0			<10.0	<10.0	0	<10.0			<10.0	<10.0	0	
	N-methylperfluoro-1-octane sulfonamide (N-MeFOA)	µg/kg	5 (Primary): 0.5 (Interlab)			<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	
	Perfluorobutanesulfonic acid (PFBS)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorobutanoic acid (PFBA)	µg/kg	5 (Primary): 1 (Interlab)			<5.0	<5.0	0	<5.0	<1.0	0	<5.0	<5.0	0	<5.0	<1.0	0	<5.0	<5.0	0	
	Perfluorodecanesulfonic acid (PFDS)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorodecanoic acid (PFDA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorohexanesulfonic acid (PFHxS)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorododecanoic acid (PFDoA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluoroheptanoic acid (PFHpA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorohexanoic acid (PFHxA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluoroheptanesulfonic acid (PFHpS)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorononanesulfonic acid (PFNS)	µg/kg	5			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	
	Perfluorononanoic acid (PFNA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorooctanesulfonic acid (PFOS)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	0.4	0	<5.0	<5.0	0	
	Perfluoropentanesulfonic acid (PFPeS)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorooctanesulfonamide (PFOSA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluoropentanoic acid (PFPeA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluorooctanoic acid (PFOA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluoropropanesulfonic acid (PFPrS)	µg/kg	5			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	
	Perfluorotetradecanoic acid (PFTeDA)	µg/kg	5 (Primary): 0.5 (Interlab)			<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0	<5.0	<5.0	0	
	Perfluorotridecanoic acid (PFTrDA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Perfluoroundecanoic acid (PFUnA)	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/kg	5			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	
	Sum of PFAS (WA DER List)	µg/kg	10 (Primary): 0.2 (Interlab)			<10.0	<10.0	0	<10.0	<0.2	0	<10.0	<10.0	0	<10.0	0.4	0	<10.0	<10.0	0	
	Sum of PFASs (n=30)*	µg/kg	50 (Primary): 0.2 (Interlab)			<50.0	<50.0	0	<50.0	<0.2	0	<50.0	<50.0	0	<50.0	0.4	0	<50.0	<50.0	0	
	Sum of PFHxS and PFOS	µg/kg	5 (Primary): 0.2 (Interlab)			<5.0	<5.0	0	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	0.4	0	<5.0	<5.0	0	
	Sum of US EPA PFAS (PFOS + PFOA)*	µg/kg	5			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	<5.0			<5.0	<5.0	0	
PSD	<63 Micron	%/W	0.1									7.7	5.4	35	7.7			7.3	1.5	132	
	>2000 Micron	%/W	0.1									42.0	75.0	56	42.0			51.0	66.0	26	
	1000-2000 Micron	%/W	0.1									12.0	3.7	106	12.0			13.0	6.5	67	
	125-250 Micron	%/W	0.1									29.0	1.0	187	29.0			14.0	3.1	127	
	250-500 Micron	%/W	0.1									5.7	6.0	5	5.7			3.6	17.0	130	
	500-1000 Micron	%/W	0.1									2.5	6.6	90	2.5			5.4	4.3	23	
	63-125 Micron	%/W	0.1									1.2	1.9	45	1.2			6.3	1.1	141	
SVOC	Demeton-O	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	
	Demeton-S	mg/kg	0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0	

SDG	Field ID	12-Jan-23 K_SED04_0.0	12-Jan-23 K_SED_D02_221216	RPD	19-Dec-22 K_SED04_0.0	19-Dec-22 K_SED_D02_221216	RPD	19-Dec-22 K_SED04_0.0	ALSE-Sydney 22-Dec-22 K_SED_T02_221216	RPD	22-Dec-22 LP-SED01-0.0	22-Dec-22 LP-SED-D01-221222	RPD	22-Dec-22 LP-SED01-0.0	ALSE-Sydney 29-Dec-22 LP_SED_T01_221222	RPD	22-Dec-22 LP-SED06-0.5	22-Dec-22 LP-SED-D02-221222	RPD
Sampled Date/Time		16/12/2022	16/12/2022		16/12/2022	16/12/2022		16/12/2022	16/12/2022		22/12/2022	22/12/2022		22/12/2022	22/12/2022		22/12/2022	22/12/2022	
Metals	Arsenic	mg/kg	2 (Primary); 5 (Interlab)		2.6	4.2	47	2.6	<5.0	0	<2.0	<2.0	0	<2.0	<5.0	0	2.4	3.4	34
	Cadmium	mg/kg	0.4 (Primary); 1 (Interlab)		<0.4	<0.4	0	<0.4	<1.0	0	<0.4	<0.4	0	<0.4	<1.0	0	<0.4	<0.4	0
	Chromium	mg/kg	5 (Primary); 2 (Interlab)		5.1	6.6	26	5.1	6.0	16	<5.0	<5.0	0	<5.0	3.0	0	<5.0	5.1	2
	Cobalt	mg/kg	5 (Primary); 2 (Interlab)		<5.0	<5.0	0	<5.0	<2.0	0			0			0			
	Copper	mg/kg	5		<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0
	Lead	mg/kg	5		6.7	7.0	4	6.7	7.0	4	<5.0	5.1	2	<5.0	6.0	18	<5.0	<5.0	0
	Mercury	mg/kg	0.1		<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	5 (Primary); 2 (Interlab)		<5.0	<5.0	0	<5.0	<2.0	0	<5.0	<5.0	0	<5.0	<2.0	0	<5.0	<5.0	0
	Zinc	mg/kg	5		13.0	16.0	21	13.0	16.0	21	8.0	6.0	29	8.0	47.0	142	5.8	7.1	20
	Barium	mg/kg	10		<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0
	Beryllium	mg/kg	2 (Primary); 1 (Interlab)		<2.0	2.3	14	<2.0	<1.0	0	<2.0	<2.0	0	<2.0	<1.0	0	<2.0	<2.0	0
	Boron	mg/kg	10 (Primary); 50 (Interlab)		32.0	24.0	29	32.0	<50.0	0	<10.0	27.0	92	<10.0	<50.0	0	22.0	38.0	53
	Chromium (hexavalent)	mg/kg	1		<1.0	<1.0	0	<1.0											
	Chromium (Trivalent)	mg/kg	5		5.1	6.6	26	5.1											
	Manganese	mg/kg	5		37.0	37.0	0	37.0	42.0	13	8.4	10.0	17	8.4	10.0	17	12.0	15.0	22
	Selenium	mg/kg	2 (Primary); 5 (Interlab)								<2.0	<2.0	0	<2.0	<5.0	0	<2.0	<2.0	0
	Vanadium	mg/kg	10 (Primary); 5 (Interlab)		<10.0	<10.0	0	<10.0	7.0	0	<10.0	<10.0	0	<10.0	6.0	0	<10.0	<10.0	0
Organotins	Dibutyltin	mg/kg	1		<1.0	<1.0	0	<1.0			<1.0	<1.0	0	<1.0			<1.0	<1.0	0
	Dibutyltin as Sn	mg/kg	0.5 (Primary); 0.001 (Interlab)		<0.5	<0.5	0	<0.5	<0.001	0	<0.5	<0.5	0	<0.5	<0.001	0	<0.5	<0.5	0
	Monobutyltin	mg/kg	0.75		<0.75	<0.75	0	<0.75			<0.75	<0.75	0	<0.75			<0.75	<0.75	0
	Monobutyltin as Sn	mg/kg	0.5 (Primary); 0.001 (Interlab)		<0.5	<0.5	0	<0.5	<0.001	0	<0.5	<0.5	0	<0.5	<0.001	0	<0.5	<0.5	0
	Tributyltin as Sn	mg/kg	0.5 (Primary); 0.0005 (Interlab)		<0.5	<0.5	0	<0.5	<0.0005	0	<0.5	<0.5	0	<0.5	<0.0005	0	<0.5	<0.5	0
	Tributyltin oxide (TBTO)	mg/kg	1.25		<1.25	<1.25	0	<1.25			<1.25	<1.25	0	<1.25			<1.25	<1.25	0
	Tri-n-butyltin	mg/kg	1.25		<1.25	<1.25	0	<1.25			<1.25	<1.25	0	<1.25			<1.25	<1.25	0
PAH	Fluoranthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Fluorene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Acenaphthylene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Anthracene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benz(a)anthracene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5		0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0	0.6	0.6	0
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5		1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
	Benzo(b&j)fluoranthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Chrysene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Total PAH*	mg/kg	0.5		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary); 1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary); 1 (Interlab)		<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Pesticides	4,4-DDE	mg/kg	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	4,4-DDE	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
	a-BHC	mg/kg	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	a-BHC	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
	Aldrin	mg/kg	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
	Aldrin + Dieldrin	mg/kg	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin + Dieldrin	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
	Azinophos methyl	mg/kg	0.2 (Primary); 0.05 (Interlab)		<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0
	b-BHC	mg/kg	0.05		<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	b-BHC	mg/kg	0.005	<0.005	<0.005	0	<0.005	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0	<0.005	<0.005	0
	Chlordane	mg/kg	0.1 (Primary); 0.05 (Interlab)		<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0	<0.1	<0.1	0
	Chlordane	mg/kg	0.01	<0.01	<0.01	0	<0.01	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0	<0.01	<0.01	0
	Chlorfenvinphos	mg/kg	0.2 (Primary); 0.05 (Interlab)		<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0
	Chlorpyrifos	mg/kg	0.2 (Primary); 0.05 (Interlab)		<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0
	Chlorpyrifos-methyl	mg/kg	0.2 (Primary); 0.05 (Interlab)		<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.							

SDG	Field ID	Sampled Date/Time	12-Jan-23 K_SED04_0.0 16/12/2022	12-Jan-23 K_SED_D02_221216 16/12/2022	RPD	19-Dec-22 K_SED04_0.0 16/12/2022	19-Dec-22 K_SED_D02_221216 16/12/2022	RPD	19-Dec-22 K_SED04_0.0 16/12/2022	ALSE-Sydney 22-Dec-22 K_SED_T02_221216 16/12/2022	RPD	22-Dec-22 LP-SED01-0.0 22/12/2022	22-Dec-22 LP-SED-D01-221222 22/12/2022	RPD	22-Dec-22 LP-SED01-0.0 22/12/2022	ALSE-Sydney 29-Dec-22 LP_SED_T01_221222 22/12/2022	RPD	22-Dec-22 LP-SED06-0.5 22/12/2022	22-Dec-22 LP-SED-D02-221222 22/12/2022	RPD	
	Endrin ketone	mg/kg	0.005	<0.005	<0.005	0															
	Ethion	mg/kg	0.2 (Primary): 0.05 (Interlab)				<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0
	Ethoprop	mg/kg	0.2				<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0
	Fenitrothion	mg/kg	0.2				<0.2	<0.2	0	<0.2			<0.2	<0.2	0	<0.2			<0.2	<0.2	0
	Fenthion	mg/kg	0.2 (Primary): 0.05 (Interlab)				<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0
	g-BHC (Lindane)	mg/kg	0.05				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	g-BHC (Lindane)	mg/kg	0.005	<0.005	<0.005	0															
	Heptachlor	mg/kg	0.05				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor	mg/kg	0.005	<0.005	<0.005	0															
	Heptachlor epoxide	mg/kg	0.05				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Heptachlor epoxide	mg/kg	0.005	<0.005	<0.005	0															
	Hexachlorobenzene	mg/kg	0.05				<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Hexachlorobenzene	mg/kg	0.005	<0.005	<0.005	0															
	Malathion	mg/kg	0.2 (Primary): 0.05 (Interlab)				<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0	<0.2	<0.2	0
	Methoxychlor	mg/kg	0.05 (Primary): 0.2 (Interlab)				<0.05	<0.05	0	<0.05	<0.2	0	<0.05	<0.05	0	<0.05	<0.2	0	<0.05	<0.05	0
	Methoxychlor	mg/kg	0.005	<0.005	<0.005	0															
	Methyl parathion	mg/kg	0.2				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Monocrotophos	mg/kg	2 (Primary): 0.2 (Interlab)				<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0	<2.0	<0.2	0	<2.0	<2.0	0
	Parathion	mg/kg	0.2				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Phorate	mg/kg	0.2				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Ronnel	mg/kg	0.2				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Bolstar (Sulprofos)	mg/kg	0.2				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0
	Merphos	mg/kg	0.2				<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	<0.2	0

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

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: Case-by-Case (1-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL))

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

SDG	Field ID	Sampled Date/Time	22-Dec-22 LP-SED06-0.5 22/12/2022	ALSE-Sydney 29-Dec-22 LP_SED_T02_221222 22/12/2022	RPD	22-Dec-22 LP-SED04-1 22/12/2022	22-Dec-22 LP-SED-DO3-221222 22/12/2022	RPD	22-Dec-22 LP-SED04-1 22/12/2022	ALSE-Sydney 29-Dec-22 LP_SED_T03_221222 22/12/2022	RPD			
Chem_Group	ChemName	Units	EQL											
	Ormethoate	mg/kg	2	<2.0		<2.0	<2.0	0	<2.0					
	Pirimiphos-methyl	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Pyrazophos	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Terbufos	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Tetrachlorvinphos	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
Moisture Content	Moisture Content (dried @ 103°C)	%	1	21.0		12.0	27.0	77	12.0					
OCs	Toxaphene	mg/kg	0.5	<0.5		<0.5	<0.5	0	<0.5					
	Toxaphene	mg/kg	0.1											
OPs	Mevinphos (Phosdrin)	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Naled (Dibrom)	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Tokuthion	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Trichloronate	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Vic EPA IWRG 621 OCP (Total)*	mg/kg	0.1	<0.1		<0.1	<0.1	0	<0.1					
	Vic EPA IWRG 621 OCP (Total)*	mg/kg	0.01											
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	0.1	<0.1		<0.1	<0.1	0	<0.1					
	Vic EPA IWRG 621 Other OCP (Total)*	mg/kg	0.01											
PFAS	10:2 Fluorotelomer sulfonic acid (10:2 FTS)	µg/kg	5 (Primary): 0.5 (Interlab)	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0		
	2-N-EtFOSE	µg/kg	5	<5.0			<5.0	<5.0	0	<5.0				
	2-N-MeFOSE	µg/kg	5	<5.0			<5.0	<5.0	0	<5.0				
	4:2 Fluorotelomer sulfonic acid (4:2 FTS)	µg/kg	5 (Primary): 0.5 (Interlab)	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0		
	6:2 Fluorotelomer sulfonic acid (6:2 FTS)	µg/kg	10 (Primary): 0.5 (Interlab)	<10.0	<0.5	0	<10.0	<10.0	0	<10.0	<0.5	0		
	8:2 Fluorotelomer sulfonic acid (8:2 FTS)	µg/kg	5 (Primary): 0.5 (Interlab)	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0		
	N-EtFOSA	µg/kg	5	<5.0			<5.0	<5.0	0	<5.0				
	N-EtFOSAA	µg/kg	10	<10.0			<10.0	<10.0	0	<10.0				
	N-MeFOSAA	µg/kg	10	<10.0			<10.0	<10.0	0	<10.0				
	N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	µg/kg	5 (Primary): 0.5 (Interlab)	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0		
	Perfluorobutanesulfonic acid (PFBS)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorobutanoic acid (PFBA)	µg/kg	5 (Primary): 1 (Interlab)	<5.0	<1.0	0	<5.0	<5.0	0	<5.0	<1.0	0		
	Perfluorodecanesulfonic acid (PFDS)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorodecanoic acid (PFDA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorohexanesulfonic acid (PFHxS)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorododecanoic acid (PFDoA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluoroheptanoic acid (PFHpA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorohexanoic acid (PFHxA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluoroheptanesulfonic acid (PFHpS)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorononanesulfonic acid (PFNS)	µg/kg	5	<5.0			<5.0	<5.0	0	<5.0				
	Perfluorononanoic acid (PFNA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorooctane sulfonic acid (PFOS)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluoropentanesulfonic acid (PFPeS)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorooctanesulfonamide (PFOSA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluoropentanoic acid (PFPeA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluorooctanoic acid (PFOA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluoropropanesulfonic acid (PFPrS)	µg/kg	5	<5.0			<5.0	<5.0	0	<5.0				
	Perfluorotetradecanoic acid (PFTeDA)	µg/kg	5 (Primary): 0.5 (Interlab)	<5.0	<0.5	0	<5.0	<5.0	0	<5.0	<0.5	0		
	Perfluorotridecanoic acid (PFTrDA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Perfluoroundecanoic acid (PFUnA)	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	µg/kg	5	<5.0			<5.0	<5.0	0	<5.0				
	Sum of PFAS (WA DER List)	µg/kg	10 (Primary): 0.2 (Interlab)	<10.0	<0.2	0	<10.0	<10.0	0	<10.0	<0.2	0		
	Sum of PFASs (n=30)*	µg/kg	50 (Primary): 0.2 (Interlab)	<50.0	<0.2	0	<50.0	<50.0	0	<50.0	<0.2	0		
	Sum of PFHxS and PFOS	µg/kg	5 (Primary): 0.2 (Interlab)	<5.0	<0.2	0	<5.0	<5.0	0	<5.0	<0.2	0		
	Sum of US EPA PFAS (PFOS + PFOA)*	µg/kg	5	<5.0			<5.0	<5.0	0	<5.0				
PSD	<63 Micron	%W/W	0.1	7.3		2.4	1.4	53	2.4					
	>2000 Micron	%W/W	0.1	51.0		56.0	70.0	22	56.0					
	1000-2000 Micron	%W/W	0.1	13.0		2.6	12.0	129	2.6					
	125-250 Micron	%W/W	0.1	14.0		8.4	4.7	56	8.4					
	250-500 Micron	%W/W	0.1	3.6		13.0	3.7	111	13.0					
	500-1000 Micron	%W/W	0.1	5.4		13.0	0.7	180	13.0					
	63-125 Micron	%W/W	0.1	6.3		4.3	7.4	53	4.3					
SVOC	Demeton-O	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Demeton-S	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	EPN	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
	Fensulfthion	mg/kg	0.2	<0.2		<0.2	<0.2	0	<0.2					
TOC	TOC	%	0.1 (Primary): 0.02 (Interlab)	1.5	0.12	170	<0.1	0.6	143	<0.1	0.37	115		
TRH	>C10 - C16 Fraction	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
	>C16 - C34 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0		
	>C34 - C40 Fraction	mg/kg	100	<100.0	<100.0	0	<100.0	<100.0	0	<100.0	<100.0	0		
	TRH C15-C28	mg/kg	50 (Primary): 100 (Interlab)	<50.0	<100.0	0	<50.0	<50.0	0	<50.0	<100.0	0		
	TRH C29-C36	mg/kg	50 (Primary): 100 (Interlab)	<50.0	<100.0	0	<50.0	<50.0	0	<50.0	<100.0	0		
	TRH C6-C10	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<10.0	0	<20.0	<20.0	0	<20.0	<10.0	0		
	TRH C6-C10 less BTEX (F1)	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<10.0	0	<20.0	<20.0	0	<20.0	<10.0	0		
	TRH C10-C14	mg/kg	20 (Primary): 50 (Interlab)	<20.0	<50.0	0	<20.0	<20.0	0	<20.0	<50.0	0		
	TRH C10-C36 (Total)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
	TRH C6-C9	mg/kg	20 (Primary): 10 (Interlab)	<20.0	<10.0	0	<20.0	<20.0	0	<20.0	<10.0	0		
	TRH >C10-C16 less Naphthalene (F2)	mg/kg	50	<50.0	<50.0	0	<50.0	<50.0	0	<50.0	<50.0	0		
	TRH >C10-C40 (total)*	mg/kg	100 (Primary): 50 (Interlab)	<100.0	<50.0	0	<100.0	<100.0	0	<100.0	<50.0	0		
BTEX	Toluene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.5	0	<0.1	<0.1	0	<0.1	<0.5	0		
	Benzene	mg/kg	0.1 (Primary): 0.2 (Interlab)	<0.1	<0.2	0	<0.1	<0.1	0	<0.1	<0.2	0		
	Ethylbenzene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.5	0	<0.1	<0.1	0	<0.1	<0.5	0		
	m&p-Xylenes	mg/kg	0.2 (Primary): 0.5 (Interlab)	<0.2	<0.5	0	<0.2	<0.2	0	<0.2	<0.5	0		
	o-Xylene	mg/kg	0.1 (Primary): 0.5 (Interlab)	<0.1	<0.5	0	<0.1	<0.1	0	<0.1	<0.5	0		
	Xylenes	mg/kg	0.3 (Primary): 0.5 (Interlab)	<0.3	<0.5	0	<0.3	<0.3	0	<0.3	<0.5	0		

SDG	Field ID	Sampled Date/Time	22-Dec-22	ALSE-Sydney 29-Dec-22	RPD	22-Dec-22	22-Dec-22	RPD	22-Dec-22	ALSE-Sydney 29-Dec-22	RPD	
			LP-SED06-0.5 22/12/2022	LP_SED_T02_221222 22/12/2022		LP-SED04-1 22/12/2022	LP-SED-DO3-221222 22/12/2022		LP-SED04-1 22/12/2022	LP_SED_T03_221222 22/12/2022		
Metals	Arsenic	mg/kg	2 (Primary): 5 (Interlab)	2.4	<5.0	0	<2.0	<2.0	0	<2.0	<5.0	0
	Cadmium	mg/kg	0.4 (Primary): 1 (Interlab)	<0.4	<1.0	0	<0.4	<0.4	0	<0.4	<1.0	0
	Chromium	mg/kg	5 (Primary): 2 (Interlab)	<5.0	3.0	0	<5.0	<5.0	0	<5.0	3.0	0
	Cobalt	mg/kg	5 (Primary): 2 (Interlab)									
	Copper	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	<5.0	0
	Lead	mg/kg	5	<5.0	<5.0	0	<5.0	<5.0	0	<5.0	5.0	0
	Mercury	mg/kg	0.1	<0.1	<0.1	0	<0.1	<0.1	0	<0.1	<0.1	0
	Nickel	mg/kg	5 (Primary): 2 (Interlab)	<5.0	<2.0	0	<5.0	<5.0	0	<5.0	<2.0	0
	Zinc	mg/kg	5	5.8	<5.0	15	6.3	7.4	16	6.3	7.0	11
	Barium	mg/kg	10	<10.0	<10.0	0	<10.0	<10.0	0	<10.0	<10.0	0
	Beryllium	mg/kg	2 (Primary): 1 (Interlab)	<2.0	<1.0	0	<2.0	<2.0	0	<2.0	<1.0	0
	Boron	mg/kg	10 (Primary): 50 (Interlab)	22.0	<50.0	0	14.0	27.0	63	14.0	<50.0	0
	Chromium (hexavalent)	mg/kg	1									
	Chromium (Trivalent)	mg/kg	5									
	Manganese	mg/kg	5	12.0	7.0	53	9.1	11.0	19	9.1	10.0	9
	Selenium	mg/kg	2 (Primary): 5 (Interlab)	<2.0	<5.0	0	<2.0	<2.0	0	<2.0	<5.0	0
	Vanadium	mg/kg	10 (Primary): 5 (Interlab)	<10.0	<5.0	0	<10.0	<10.0	0	<10.0	<5.0	0
Organotins	Dibutyltin	mg/kg	1	<1.0		<1.0	<1.0	0	<1.0			
	Dibutyltin as Sn	mg/kg	0.5 (Primary): 0.001 (Interlab)	<0.5	<0.001	0	<0.5	<0.5	0	<0.5	<0.001	0
	Monobutyltin	mg/kg	0.75	<0.75		<0.75	<0.75	0	<0.75			
	Monobutyltin as Sn	mg/kg	0.5 (Primary): 0.001 (Interlab)	<0.5	<0.001	0	<0.5	<0.5	0	<0.5	<0.001	0
	Tributyltin as Sn	mg/kg	0.5 (Primary): 0.0005 (Interlab)	<0.5	<0.0005	0	<0.5	<0.5	0	<0.5	<0.0005	0
	Tributyltin oxide (TBTO)	mg/kg	1.25	<1.25		<1.25	<1.25	0	<1.25			
	Tri-n-butyltin	mg/kg	1.25	<1.25		<1.25	<1.25	0	<1.25			
PAH	Fluoranthene	mg/kg	0.5	<0.5	0	<0.5	1.0	67	<0.5	<0.5	0	
	Acenaphthene	mg/kg	0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	
	Fluorene	mg/kg	0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	
	Acenaphthylene	mg/kg	0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	
	Anthracene	mg/kg	0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	
	Benz(a)anthracene	mg/kg	0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	
	Benzo(a)pyrene	mg/kg	0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	
	Benzo(a)pyrene TEQ (lower bound) *	mg/kg	0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	
	Benzo(a)pyrene TEQ (medium bound) *	mg/kg	0.5	0.6	0.6	0	0.6	0.7	15	0.6	0.6	0
	Benzo(a)pyrene TEQ (upper bound) *	mg/kg	0.5	1.2	1.2	0	1.2	1.2	0	1.2	1.2	0
	Benzo(b&f)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(g,h,i)perylene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Benzo(k)fluoranthene	mg/kg	0.5	<0.5	<0.5	0	<0.5	0.6	18	<0.5	<0.5	0
	Chrysene	mg/kg	0.5	<0.5	<0.5	0	<0.5	1.0	67	<0.5	<0.5	0
	Dibenz(a,h)anthracene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Indeno(1,2,3-cd)pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Phenanthrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
	Pyrene	mg/kg	0.5	<0.5	<0.5	0	<0.5	1.1	75	<0.5	<0.5	0
	Total PAH*	mg/kg	0.5	<0.5	<0.5	0	<0.5	3.7	152	<0.5	<0.5	0
	Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0
Naphthalene	mg/kg	0.5 (Primary): 1 (Interlab)	<0.5	<0.5	0	<0.5	<0.5	0	<0.5	<0.5	0	
Pesticides	4,4-DDE	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	4,4-DDE	mg/kg	0.005									
	a-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	a-BHC	mg/kg	0.005									
	Aldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin	mg/kg	0.005									
	Aldrin + Dieldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Aldrin + Dieldrin	mg/kg	0.005									
	Azinophos methyl	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0
	b-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	b-BHC	mg/kg	0.005									
	Chlordane	mg/kg	0.1 (Primary): 0.05 (Interlab)	<0.1	<0.05	0	<0.1	<0.1	0	<0.1	<0.05	0
	Chlordane	mg/kg	0.01									
	Chlorfenvinphos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0
	Chlorpyrifos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0
	Chlorpyrifos-methyl	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0
	Coumaphos	mg/kg	2	<2.0			<2.0	<2.0	0	<2.0		
	d-BHC	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	d-BHC	mg/kg	0.005									
	DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	DDD	mg/kg	0.005									
	DDT	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.2	0	<0.05	<0.05	0	<0.05	<0.2	0
	DDT	mg/kg	0.005									
	DDT+DDE+DDD	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	DDT+DDE+DDD	mg/kg	0.005									
	Diazinon	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0
	Dichlorvos	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0
	Dieldrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Dieldrin	mg/kg	0.005									
	Dimethoate	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.2	<0.05	0
	Disulfoton	mg/kg	0.2	<0.2			<0.2	<0.2	0	<0.2		
	Endosulfan I	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0
	Endosulfan I	mg/kg	0.005									
Endosulfan II	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	
Endosulfan II	mg/kg	0.005										
Endosulfan sulphate	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	
Endosulfan sulphate	mg/kg	0.005										
Endrin	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	
Endrin	mg/kg	0.005										
Endrin aldehyde	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	
Endrin aldehyde	mg/kg	0.005										
Endrin ketone	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	<0.05	0	

SDG	22-Dec-22	ALSE-Sydney 29-Dec-22	RPD	22-Dec-22	22-Dec-22	RPD	22-Dec-22	ALSE-Sydney 29-Dec-22	RPD	
Field ID	LP-SED06-0.5	LP_SED_T02_221222		LP-SED04-1	LP-SED-DO3-221222		LP-SED04-1	LP_SED_T03_221222		
Sampled Date/Time	22/12/2022	22/12/2022		22/12/2022	22/12/2022		22/12/2022	22/12/2022		
Endrin ketone	mg/kg	0.005								
Ethion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.05	0
Ethoprop	mg/kg	0.2	<0.2			<0.2	<0.2	0	<0.2	
Fenitrothion	mg/kg	0.2	<0.2			<0.2	<0.2	0	<0.2	
Fenthion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.05	0
g-BHC (Lindane)	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	0
g-BHC (Lindane)	mg/kg	0.005								
Heptachlor	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	0
Heptachlor	mg/kg	0.005								
Heptachlor epoxide	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	0
Heptachlor epoxide	mg/kg	0.005								
Hexachlorobenzene	mg/kg	0.05	<0.05	<0.05	0	<0.05	<0.05	0	<0.05	0
Hexachlorobenzene	mg/kg	0.005								
Malathion	mg/kg	0.2 (Primary): 0.05 (Interlab)	<0.2	<0.05	0	<0.2	<0.2	0	<0.05	0
Methoxychlor	mg/kg	0.05 (Primary): 0.2 (Interlab)	<0.05	<0.2	0	<0.05	<0.05	0	<0.05	0
Methoxychlor	mg/kg	0.005								
Methyl parathion	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	0
Monocrotophos	mg/kg	2 (Primary): 0.2 (Interlab)	<2.0	<0.2	0	<2.0	<2.0	0	<0.2	0
Parathion	mg/kg	0.2	<0.2	<0.2	0	<0.2	<0.2	0	<0.2	0
Phorate	mg/kg	0.2	<0.2			<0.2	<0.2	0	<0.2	
Ronnel	mg/kg	0.2	<0.2			<0.2	<0.2	0	<0.2	
Bolstar (Sulprofos)	mg/kg	0.2	<0.2			<0.2	<0.2	0	<0.2	
Merphos	mg/kg	0.2	<0.2			<0.2	<0.2	0	<0.2	

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

**High RPDs are in bold (Acceptable RPDs for each EQL multiplier range are: Case-by-Case (1-10 x EQL); 30 (10-30 x EQL); 30 (> 30 x EQL))

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

Trip Spike Recoveries (70% - 130% is acceptable)

SDG	Lab_Report_Number	Matrix_Type	SampleCode	Field_ID	Method_Name	Compound	Trip_Spike_Result	Trip_Spike_Control	Result_Units	Spike_Recovery_%	Acceptable	Result_Type
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	Benzene	NA	NA	NA	110	Y	REG
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	Ethylbenzene	NA	NA	NA	98	Y	REG
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	m&p-Xylenes	NA	NA	NA	100	Y	REG
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	Naphthalene	NA	NA	NA	120	Y	REG
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	o-Xylene	NA	NA	NA	100	Y	REG
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	Toluene	NA	NA	NA	96	Y	REG
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	TRH C6-C10	NA	NA	NA	110	Y	REG
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	TRH C6-C9	NA	NA	NA	93	Y	REG
19 Dec 2022	952366	SOIL	S22-De0050159	TS	LTM-ORG-2010 TRH C6-C40	Xylenes - Total	NA	NA	NA	100	Y	REG



**Table E8. Trip Blank Results - Sediment
Kamay Ferry Wharf
Arup**

SDG	19-Dec-22
Field ID	TB
Sampled_Date/Time	19-Dec-22
Sample Type	Trip_B

Chem_Group	ChemName	Units	EQL	
BTEX	Toluene	mg/kg	0.1	<0.1
	Benzene	mg/kg	0.1	<0.1
	Ethylbenzene	mg/kg	0.1	<0.1
	m&p-Xylenes	mg/kg	0.2	<0.2
	o-Xylene	mg/kg	0.1	<0.1
	Xylenes	mg/kg	0.3	<0.3
PAH	Naphthalene	mg/kg	0.5	<0.5
TRH	TRH C6-C10	mg/kg	1	<20
	TRH C6-C10 less BTEX (F1)	mg/kg	20	<20
	TRH C6-C9	mg/kg	1	<20

APPENDIX F LABORATORY DOCUMENTATION



ANALYSIS REPORT

PROJECT NO: EW230048

Location: 952366

					22-De0050106	22-De0050107	22-De0050108	22-De0050109
					CLIENT SAMPLE ID			
					K_SED06_0.0	K_SED06_0.5	K_SED06_1.0	LP_SED02_0.0
					DEPTH			
Test Parameter	Method Description	Method Reference	Units	LOR	230048-1	230048-2	230048-3	230048-4
Gravel 2.36-4.75mm	Sieve	AS1289.3.6.3	%	na	0.4	0.1	3.4	28.9
Very Coarse Sand 1.18-2.36mm	Sieve	AS1289.3.6.3	%	na	0.8	1.1	2.7	13.6
Coarse Sand 0.6-1.18mm	Sieve	AS1289.3.6.3	%	na	5.7	5.5	6.0	7.0
Medium Sand 0.3-0.6mm	Sieve	AS1289.3.6.3	%	na	24.4	21.1	18.3	17.1
Fine Sand 0.15-0.30mm	Sieve	AS1289.3.6.3	%	na	30.0	30.7	29.4	7.6
Very Fine Sand 0.075-0.15mm	Sieve	AS1289.3.6.3	%	na	3.4	5.5	6.6	0.5
Coarse Silt 0.02-0.075mm	Hydrometer	AS1289.3.6.3	%	na	2.9	3.3	0.9	2.5
Fine Silt 0.002-0.020mm	Hydrometer	AS1289.3.6.3	%	na	<0.1	<0.1	3.3	<0.1
Clay <0.002mm	Hydrometer	AS1289.3.6.3	%	na	32.4	32.7	29.3	22.9





ANALYSIS REPORT

PROJECT NO: EW230048

Location: 952366

CLIENT SAMPLE ID					22-De0050110	22-De0050111	22-De0050112	22-De0050113
					LP_SED02_0.5	LP_SED02_1.0	LP_SED03_0.0	LP_SED03_0.5
DEPTH					230048-5	230048-6	230048-7	230048-8
Test Parameter	Method Description	Method Reference	Units	LOR				
Gravel 2.36-4.75mm	Sieve	AS1289.3.6.3	%	na	29.5	3.2	11.8	10.2
Very Coarse Sand 1.18-2.36mm	Sieve	AS1289.3.6.3	%	na	10.3	1.0	7.9	9.2
Coarse Sand 0.6-1.18mm	Sieve	AS1289.3.6.3	%	na	6.5	3.5	5.7	6.9
Medium Sand 0.3-0.6mm	Sieve	AS1289.3.6.3	%	na	16.8	39.5	30.2	24.1
Fine Sand 0.15-0.30mm	Sieve	AS1289.3.6.3	%	na	11.0	22.2	15.1	17.4
Very Fine Sand 0.075-0.15mm	Sieve	AS1289.3.6.3	%	na	1.1	3.2	0.7	1.5
Coarse Silt 0.02-0.075mm	Hydrometer	AS1289.3.6.3	%	na	2.0	4.6	5.9	4.7
Fine Silt 0.002-0.020mm	Hydrometer	AS1289.3.6.3	%	na	3.3	3.3	3.3	3.3
Clay <0.002mm	Hydrometer	AS1289.3.6.3	%	na	19.5	19.5	19.5	22.8





ANALYSIS REPORT

PROJECT NO: EW230048

Location: 952366

					22-De0050114	22-De0050115	22-De0050116	22-De0050117
					CLIENT SAMPLE ID			
					LP_SED03_1.0	K_SED05_0.0	K_SED05_0.4	K_SED05_0.75
Test Parameter	Method Description	Method Reference	Units	LOR	230048-9	230048-10	230048-11	230048-12
Gravel 2.36-4.75mm	Sieve	AS1289.3.6.3	%	na	19.2	0.4	0.9	1.3
Very Coarse Sand 1.18-2.36mm	Sieve	AS1289.3.6.3	%	na	7.4	1.0	1.1	1.6
Coarse Sand 0.6-1.18mm	Sieve	AS1289.3.6.3	%	na	4.9	4.4	4.1	3.7
Medium Sand 0.3-0.6mm	Sieve	AS1289.3.6.3	%	na	21.0	24.1	18.2	16.1
Fine Sand 0.15-0.30mm	Sieve	AS1289.3.6.3	%	na	18.1	29.7	33.9	33.0
Very Fine Sand 0.075-0.15mm	Sieve	AS1289.3.6.3	%	na	1.6	3.9	5.8	5.1
Coarse Silt 0.02-0.075mm	Hydrometer	AS1289.3.6.3	%	na	1.8	10.3	6.7	10.7
Fine Silt 0.002-0.020mm	Hydrometer	AS1289.3.6.3	%	na	<0.1	3.3	3.3	3.2
Clay <0.002mm	Hydrometer	AS1289.3.6.3	%	na	26.1	22.8	26.0	25.2





ANALYSIS REPORT

PROJECT NO: EW230048

Location: 952366

					22-De0050118	22-De0050119	22-De0050120	22-De0050121
					CLIENT SAMPLE ID			
					K_SED02_0.0	K_SED02_0.5	K_SED02_1.0	K_SED04_0.0
					DEPTH			
Test Parameter	Method Description	Method Reference	Units	LOR	230048-13	230048-14	230048-15	230048-16
Gravel 2.36-4.75mm	Sieve	AS1289.3.6.3	%	na	0.9	0.6	6.3	0.6
Very Coarse Sand 1.18-2.36mm	Sieve	AS1289.3.6.3	%	na	0.1	0.6	3.5	0.3
Coarse Sand 0.6-1.18mm	Sieve	AS1289.3.6.3	%	na	0.7	1.8	3.1	1.2
Medium Sand 0.3-0.6mm	Sieve	AS1289.3.6.3	%	na	13.4	12.1	14.6	10.4
Fine Sand 0.15-0.30mm	Sieve	AS1289.3.6.3	%	na	33.7	33.2	28.6	41.8
Very Fine Sand 0.075-0.15mm	Sieve	AS1289.3.6.3	%	na	14.6	12.7	7.9	9.3
Coarse Silt 0.02-0.075mm	Hydrometer	AS1289.3.6.3	%	na	10.9	19.6	10.1	13.5
Fine Silt 0.002-0.020mm	Hydrometer	AS1289.3.6.3	%	na	3.3	<0.1	<0.1	<0.1
Clay <0.002mm	Hydrometer	AS1289.3.6.3	%	na	22.5	19.4	26.0	22.7





ANALYSIS REPORT

PROJECT NO: EW230048

Location: 952366

					22-De0050122	22-De0050123	22-De0050124	22-De0050125
					CLIENT SAMPLE ID			
					K_SED04_0.5	K_SED04_1.0	K_SED03_0.0	K_SED03_0.5
					DEPTH			
Test Parameter	Method Description	Method Reference	Units	LOR	230048-17	230048-18	230048-19	230048-20
Gravel 2.36-4.75mm	Sieve	AS1289.3.6.3	%	na	0.1	0.3	0.2	0.1
Very Coarse Sand 1.18-2.36mm	Sieve	AS1289.3.6.3	%	na	0.4	0.5	0.2	0.3
Coarse Sand 0.6-1.18mm	Sieve	AS1289.3.6.3	%	na	1.6	1.5	1.4	1.0
Medium Sand 0.3-0.6mm	Sieve	AS1289.3.6.3	%	na	12.5	12.0	13.5	14.7
Fine Sand 0.15-0.30mm	Sieve	AS1289.3.6.3	%	na	37.2	34.2	37.6	39.1
Very Fine Sand 0.075-0.15mm	Sieve	AS1289.3.6.3	%	na	9.6	9.0	13.7	12.6
Coarse Silt 0.02-0.075mm	Hydrometer	AS1289.3.6.3	%	na	9.2	13.0	10.8	2.78
Fine Silt 0.002-0.020mm	Hydrometer	AS1289.3.6.3	%	na	3.3	3.3	<0.1	3.3
Clay <0.002mm	Hydrometer	AS1289.3.6.3	%	na	26.1	26.1	22.8	26.2





ANALYSIS REPORT

PROJECT NO: EW230048

Location: 952366

					22-De0050126	22-De0050127	22-De0050128	22-De0050129
					CLIENT SAMPLE ID			
					K_SED03_1.0	K_SED01_0.0	K_SED01_0.5	K_SED01_1.0
					DEPTH			
Test Parameter	Method Description	Method Reference	Units	LOR	230048-21	230048-22	230048-23	230048-24
Gravel 2.36-4.75mm	Sieve	AS1289.3.6.3	%	na	0.5	<0.1	<0.1	<0.1
Very Coarse Sand 1.18-2.36mm	Sieve	AS1289.3.6.3	%	na	0.9	0.1	0.1	<0.1
Coarse Sand 0.6-1.18mm	Sieve	AS1289.3.6.3	%	na	1.9	0.8	0.6	0.4
Medium Sand 0.3-0.6mm	Sieve	AS1289.3.6.3	%	na	11.7	14.2	10.7	11.6
Fine Sand 0.15-0.30mm	Sieve	AS1289.3.6.3	%	na	35.5	38.0	37.6	39.2
Very Fine Sand 0.075-0.15mm	Sieve	AS1289.3.6.3	%	na	9.9	12.6	11.9	13.5
Coarse Silt 0.02-0.075mm	Hydrometer	AS1289.3.6.3	%	na	10.1	11.7	13.1	9.1
Fine Silt 0.002-0.020mm	Hydrometer	AS1289.3.6.3	%	na	3.3	<0.1	<0.1	<0.1
Clay <0.002mm	Hydrometer	AS1289.3.6.3	%	na	26.2	22.6	26.1	26.1





ANALYSIS REPORT

PROJECT NO: EW230048

Location: 952366

					CLIENT SAMPLE ID	22-De0050130	22-De0050131	22-De0050132	
					DEPTH	K_SED01_D01 _22126	K_SED01_D02 _22126	K_SED01_D03 _22126	
Test Parameter	Method Description	Method Reference	Units	LOR	230048-25	230048-26	230048-27		
Gravel 2.36-4.75mm	Sieve	AS1289.3.6.3	%	na	0.6	0.5	0.5		
Very Coarse Sand 1.18-2.36mm	Sieve	AS1289.3.6.3	%	na	1.1	0.7	1.1		
Coarse Sand 0.6-1.18mm	Sieve	AS1289.3.6.3	%	na	2.6	1.9	2.0		
Medium Sand 0.3-0.6mm	Sieve	AS1289.3.6.3	%	na	13.3	12.1	12.6		
Fine Sand 0.15-0.30mm	Sieve	AS1289.3.6.3	%	na	32.3	40.4	34.9		
Very Fine Sand 0.075-0.15mm	Sieve	AS1289.3.6.3	%	na	11.5	9.4	9.6		
Coarse Silt 0.02-0.075mm	Hydrometer	AS1289.3.6.3	%	na	9.3	9.1	10.2		
Fine Silt 0.002-0.020mm	Hydrometer	AS1289.3.6.3	%	na	<0.1	<0.1	<0.1		
Clay <0.002mm	Hydrometer	AS1289.3.6.3	%	na	29.2	26.0	29.2		

This Analysis Report shall not be reproduced except in full without the written approval of the laboratory.

Soils are air dried at 40°C and ground <2mm.

NB: LOR is the Lowest Obtainable Reading.

DOCUMENT END



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---	---	--

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Sample Receipt Advice

Company name: ERM Sydney
Contact name: Joseph Ferring
Project name: KAMAY WHARF PROJECT
Project ID: 0564417
Turnaround time: 1 Day
Date/Time received: Dec 19, 2022 5:30 PM
Eurofins reference: 952366

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✗ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✓ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

T01, T02, T03 (PFAS tub + soil jar) forwarded to ALS.
 Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Quinn Raw on phone : or by email: QuinnRaw@eurofins.com

Results will be delivered electronically via email to Joseph Ferring - Joseph.Ferring@erm.com.

Note: A copy of these results will also be delivered to the general ERM Sydney email address.



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Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 0564417

Order No.:
Report #: 952366
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Dec 19, 2022 5:30 PM
Due: Jan 10, 2023
Priority: 1 Day
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Oganotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
51	K_EL01_0.0	Dec 16, 2022		Soil	S22-De0050156	X														
52	K_EL01_0.5	Dec 16, 2022		Soil	S22-De0050157	X														
53	K_EL0_1.0	Dec 16, 2022		Soil	S22-De0050158	X														
54	TS	Not Provided		Soil	S22-De0050159														X	
55	TB	Not Provided		Soil	S22-De0050160												X			
Test Counts						24	27	27	29	29	29	29	29	29	27	29	1	29	1	29

ERM Sydney
 Level 15, 309 Kent St
 Sydney
 NSW 2000

Attention: **Joseph Ferring**

Report **952366-L**
 Project name **KAMAY WHARF PROJECT**
 Project ID **0564417**
 Received Date **Dec 19, 2022**

Client Sample ID			K_EL02_0.0	K_EL04_0.0	K_EL06_0.0	LP_EL02_0.0
Sample Matrix			AUS Leachate	AUS Leachate	AUS Leachate	AUS Leachate
Eurofins Sample No.			S23-Ja0003540	S23-Ja0003541	S23-Ja0003542	S23-Ja0003543
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	1	mg/L				
TRH C10-C14	0.05	mg/L				
TRH C15-C28	0.1	mg/L				
TRH C29-C36	0.1	mg/L				
TRH C10-C36 (Total)	0.1	mg/L	< 0	< 0	< 0	< 0
TRH C6-C10	1	mg/L				
TRH C6-C10 less BTEX (F1) ^{N04}	1	mg/L	-	-	-	-
TRH >C10-C16	0.05	mg/L				
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-	-	-	-
TRH >C16-C34	0.1	mg/L				
TRH >C34-C40	0.1	mg/L				
TRH >C10-C40 (total)*	0.1	mg/L	-	-	-	-
BTEX						
Benzene	0.02	mg/L				
Toluene	0.02	mg/L				
Ethylbenzene	0.02	mg/L				
m&p-Xylenes	0.02	mg/L				
o-Xylene	0.02	mg/L				
Xylenes - Total*	0.06	mg/L				
4-Bromofluorobenzene (surr.)	1	%				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.02	mg/L				
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L				
Acenaphthylene	0.001	mg/L				
Anthracene	0.001	mg/L				
Benz(a)anthracene	0.001	mg/L				
Benzo(a)pyrene	0.001	mg/L				
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L				
Benzo(g,h,i)perylene	0.001	mg/L				
Benzo(k)fluoranthene	0.001	mg/L				
Chrysene	0.001	mg/L				
Dibenz(a,h)anthracene	0.001	mg/L				
Fluoranthene	0.001	mg/L				
Fluorene	0.001	mg/L				

Client Sample ID			K_EL02_0.0	K_EL04_0.0	K_EL06_0.0	LP_EL02_0.0
Sample Matrix			AUS Leachate	AUS Leachate	AUS Leachate	AUS Leachate
Eurofins Sample No.			S23-Ja0003540	S23-Ja0003541	S23-Ja0003542	S23-Ja0003543
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Indeno(1.2.3-cd)pyrene	0.001	mg/L				
Naphthalene	0.001	mg/L				
Phenanthrene	0.001	mg/L				
Pyrene	0.001	mg/L				
Total PAH*	0.001	mg/L	-	-	-	-
2-Fluorobiphenyl (surr.)	1	%				
p-Terphenyl-d14 (surr.)	1	%				
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L				
4.4'-DDD	0.0002	mg/L				
4.4'-DDE	0.0002	mg/L				
4.4'-DDT	0.0002	mg/L				
a-HCH	0.0002	mg/L				
Aldrin	0.0002	mg/L				
b-HCH	0.0002	mg/L				
d-HCH	0.0002	mg/L				
Dieldrin	0.0002	mg/L				
Endosulfan I	0.0002	mg/L				
Endosulfan II	0.0002	mg/L				
Endosulfan sulphate	0.0002	mg/L				
Endrin	0.0002	mg/L				
Endrin aldehyde	0.0002	mg/L				
Endrin ketone	0.0002	mg/L				
g-HCH (Lindane)	0.0002	mg/L				
Heptachlor	0.0002	mg/L				
Heptachlor epoxide	0.0002	mg/L				
Hexachlorobenzene	0.0002	mg/L				
Methoxychlor	0.0002	mg/L				
Toxaphene	0.005	mg/L				
Aldrin and Dieldrin (Total)*	0.0002	mg/L	-	-	-	-
DDT + DDE + DDD (Total)*	0.0002	mg/L	-	-	-	-
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	-	-	-	-
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	-	-	-	-
Dibutylchloroendate (surr.)	1	%				
Tetrachloro-m-xylene (surr.)	1	%				
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L				
Bolstar	0.002	mg/L				
Chlorfenvinphos	0.02	mg/L				
Chlorpyrifos	0.002	mg/L				
Chlorpyrifos-methyl	0.002	mg/L				
Coumaphos	0.02	mg/L				
Demeton-S	0.002	mg/L				
Demeton-O	0.002	mg/L				
Diazinon	0.002	mg/L				
Dichlorvos	0.002	mg/L				
Dimethoate	0.002	mg/L				
Disulfoton	0.002	mg/L				
EPN	0.002	mg/L				

Client Sample ID			K_EL02_0.0	K_EL04_0.0	K_EL06_0.0	LP_EL02_0.0
Sample Matrix			AUS Leachate	AUS Leachate	AUS Leachate	AUS Leachate
Eurofins Sample No.			S23-Ja0003540	S23-Ja0003541	S23-Ja0003542	S23-Ja0003543
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Ethion	0.002	mg/L				
Ethoprop	0.002	mg/L				
Ethyl parathion	0.002	mg/L				
Fenitrothion	0.002	mg/L				
Fensulfothion	0.002	mg/L				
Fenthion	0.002	mg/L				
Malathion	0.002	mg/L				
Merphos	0.002	mg/L				
Methyl parathion	0.002	mg/L				
Mevinphos	0.002	mg/L				
Monocrotophos	0.002	mg/L				
Naled	0.002	mg/L				
Omethoate	0.02	mg/L				
Phorate	0.002	mg/L				
Pirimiphos-methyl	0.02	mg/L				
Pyrazophos	0.002	mg/L				
Ronnel	0.002	mg/L				
Terbufos	0.002	mg/L				
Tetrachlorvinphos	0.002	mg/L				
Tokuthion	0.002	mg/L				
Trichloronate	0.002	mg/L				
Triphenylphosphate (surr.)	1	%				
Organotins						
Tributyltin	0.0125	mg/L				
Tributyltin as Sn	0.005	mg/L				
Tributyltin Oxide	0.0125	mg/L				
Dibutyltin	0.01	mg/L				
Dibutyltin as Sn	0.005	mg/L				
Monobutyltin	0.0075	mg/L				
Monobutyltin as Sn	0.005	mg/L				
Tripropyltin as Sn (surr.)	1	%				
Chromium (hexavalent)	0.005	mg/L				
Chromium (trivalent)	0.005	mg/L	-	-	-	-
Heavy Metals						
Arsenic	0.01	mg/L				
Barium	0.02	mg/L				
Beryllium	0.001	mg/L				
Boron	0.05	mg/L				
Cadmium	0.005	mg/L				
Chromium	0.05	mg/L				
Cobalt	0.001	mg/L				
Copper	0.05	mg/L				
Lead	0.01	mg/L				
Manganese	0.005	mg/L				
Mercury	0.001	mg/L				
Nickel	0.01	mg/L				
Vanadium	0.005	mg/L				
Zinc	0.05	mg/L				

Client Sample ID			K_EL02_0.0	K_EL04_0.0	K_EL06_0.0	LP_EL02_0.0
Sample Matrix			AUS Leachate	AUS Leachate	AUS Leachate	AUS Leachate
Eurofins Sample No.			S23-Ja0003540	S23-Ja0003541	S23-Ja0003542	S23-Ja0003543
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
AUS Leaching Procedure						
Leachate Fluid ^{C01}		comment				
pH (initial)	0.1	pH Units				
pH (Leachate fluid)	0.1	pH Units				
pH (off)	0.1	pH Units				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L				
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L				
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L				
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L				
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L				
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L				
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L				
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L				
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L				
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	0.01	ug/L				
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L				
13C4-PFBA (surr.)	1	%				
13C5-PFPeA (surr.)	1	%				
13C5-PFHxA (surr.)	1	%				
13C4-PFHpA (surr.)	1	%				
13C8-PFOA (surr.)	1	%				
13C5-PFNA (surr.)	1	%				
13C6-PFDA (surr.)	1	%				
13C2-PFUnDA (surr.)	1	%				
13C2-PFDoDA (surr.)	1	%				
13C2-PFTeDA (surr.)	1	%				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L				
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L				
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L				
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L				
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L				
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L				
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L				
13C8-FOSA (surr.)	1	%				
D3-N-MeFOSA (surr.)	1	%				
D5-N-EtFOSA (surr.)	1	%				
D7-N-MeFOSE (surr.)	1	%				
D9-N-EtFOSE (surr.)	1	%				
D5-N-EtFOSAA (surr.)	1	%				
D3-N-MeFOSAA (surr.)	1	%				
Perfluoroalkyl sulfonic acids (PFSAs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L				
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L				
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L				
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L				

Client Sample ID			K_EL02_0.0	K_EL04_0.0	K_EL06_0.0	LP_EL02_0.0
Sample Matrix			AUS Leachate	AUS Leachate	AUS Leachate	AUS Leachate
Eurofins Sample No.			S23-Ja0003540	S23-Ja0003541	S23-Ja0003542	S23-Ja0003543
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L				
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L				
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L				
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L				
13C3-PFBS (surr.)	1	%				
18O2-PFHxS (surr.)	1	%				
13C8-PFOS (surr.)	1	%				
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L				
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L				
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L				
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L				
13C2-4:2 FTSA (surr.)	1	%				
13C2-6:2 FTSA (surr.)	1	%				
13C2-8:2 FTSA (surr.)	1	%				
13C2-10:2 FTSA (surr.)	1	%				
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	-	-	-	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-	-	-	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-	-	-	-
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	-	-	-	-
Sum of PFASs (n=30)*	0.1	ug/L	-	-	-	-

Client Sample ID			LP_EL03_0.0
Sample Matrix			AUS Leachate
Eurofins Sample No.			S23-Ja0003544
Date Sampled			Dec 16, 2022
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	1	mg/L	
TRH C10-C14	0.05	mg/L	
TRH C15-C28	0.1	mg/L	
TRH C29-C36	0.1	mg/L	
TRH C10-C36 (Total)	0.1	mg/L	< 0
TRH C6-C10	1	mg/L	
TRH C6-C10 less BTEX (F1) ^{N04}	1	mg/L	-
TRH >C10-C16	0.05	mg/L	
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	-
TRH >C16-C34	0.1	mg/L	
TRH >C34-C40	0.1	mg/L	
TRH >C10-C40 (total)*	0.1	mg/L	-

Client Sample ID			LP_EL03_0.0
Sample Matrix			AUS Leachate
Eurofins Sample No.			S23-Ja0003544
Date Sampled			Dec 16, 2022
Test/Reference	LOR	Unit	
BTEX			
Benzene	0.02	mg/L	
Toluene	0.02	mg/L	
Ethylbenzene	0.02	mg/L	
m&p-Xylenes	0.02	mg/L	
o-Xylene	0.02	mg/L	
Xylenes - Total*	0.06	mg/L	
4-Bromofluorobenzene (surr.)	1	%	
Total Recoverable Hydrocarbons - 2013 NEPM Fractions			
Naphthalene ^{N02}	0.02	mg/L	
Polycyclic Aromatic Hydrocarbons			
Acenaphthene	0.001	mg/L	
Acenaphthylene	0.001	mg/L	
Anthracene	0.001	mg/L	
Benz(a)anthracene	0.001	mg/L	
Benzo(a)pyrene	0.001	mg/L	
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	
Benzo(g,h,i)perylene	0.001	mg/L	
Benzo(k)fluoranthene	0.001	mg/L	
Chrysene	0.001	mg/L	
Dibenz(a,h)anthracene	0.001	mg/L	
Fluoranthene	0.001	mg/L	
Fluorene	0.001	mg/L	
Indeno(1,2,3-cd)pyrene	0.001	mg/L	
Naphthalene	0.001	mg/L	
Phenanthrene	0.001	mg/L	
Pyrene	0.001	mg/L	
Total PAH*	0.001	mg/L	-
2-Fluorobiphenyl (surr.)	1	%	
p-Terphenyl-d14 (surr.)	1	%	
Organochlorine Pesticides			
Chlordanes - Total	0.002	mg/L	
4,4'-DDD	0.0002	mg/L	
4,4'-DDE	0.0002	mg/L	
4,4'-DDT	0.0002	mg/L	
a-HCH	0.0002	mg/L	
Aldrin	0.0002	mg/L	
b-HCH	0.0002	mg/L	
d-HCH	0.0002	mg/L	
Dieldrin	0.0002	mg/L	
Endosulfan I	0.0002	mg/L	
Endosulfan II	0.0002	mg/L	
Endosulfan sulphate	0.0002	mg/L	
Endrin	0.0002	mg/L	
Endrin aldehyde	0.0002	mg/L	
Endrin ketone	0.0002	mg/L	
g-HCH (Lindane)	0.0002	mg/L	
Heptachlor	0.0002	mg/L	
Heptachlor epoxide	0.0002	mg/L	
Hexachlorobenzene	0.0002	mg/L	

Client Sample ID			LP_EL03_0.0
Sample Matrix			AUS Leachate
Eurofins Sample No.			S23-Ja0003544
Date Sampled			Dec 16, 2022
Test/Reference	LOR	Unit	
Organochlorine Pesticides			
Methoxychlor	0.0002	mg/L	
Toxaphene	0.005	mg/L	
Aldrin and Dieldrin (Total)*	0.0002	mg/L	-
DDT + DDE + DDD (Total)*	0.0002	mg/L	-
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	-
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	-
Dibutylchloroendate (surr.)	1	%	
Tetrachloro-m-xylene (surr.)	1	%	
Organophosphorus Pesticides			
Azinphos-methyl	0.002	mg/L	
Bolstar	0.002	mg/L	
Chlorfenvinphos	0.02	mg/L	
Chlorpyrifos	0.002	mg/L	
Chlorpyrifos-methyl	0.002	mg/L	
Coumaphos	0.02	mg/L	
Demeton-S	0.002	mg/L	
Demeton-O	0.002	mg/L	
Diazinon	0.002	mg/L	
Dichlorvos	0.002	mg/L	
Dimethoate	0.002	mg/L	
Disulfoton	0.002	mg/L	
EPN	0.002	mg/L	
Ethion	0.002	mg/L	
Ethoprop	0.002	mg/L	
Ethyl parathion	0.002	mg/L	
Fenitrothion	0.002	mg/L	
Fensulfothion	0.002	mg/L	
Fenthion	0.002	mg/L	
Malathion	0.002	mg/L	
Merphos	0.002	mg/L	
Methyl parathion	0.002	mg/L	
Mevinphos	0.002	mg/L	
Monocrotophos	0.002	mg/L	
Naled	0.002	mg/L	
Omethoate	0.02	mg/L	
Phorate	0.002	mg/L	
Pirimiphos-methyl	0.02	mg/L	
Pyrazophos	0.002	mg/L	
Ronnel	0.002	mg/L	
Terbufos	0.002	mg/L	
Tetrachlorvinphos	0.002	mg/L	
Tokuthion	0.002	mg/L	
Trichloronate	0.002	mg/L	
Triphenylphosphate (surr.)	1	%	
Organotins			
Tributyltin	0.0125	mg/L	
Tributyltin as Sn	0.005	mg/L	
Tributyltin Oxide	0.0125	mg/L	
Dibutyltin	0.01	mg/L	

Client Sample ID			LP_EL03_0.0
Sample Matrix			AUS Leachate
Eurofins Sample No.			S23-Ja0003544
Date Sampled			Dec 16, 2022
Test/Reference	LOR	Unit	
Organotins			
Dibutyltin as Sn	0.005	mg/L	
Monobutyltin	0.0075	mg/L	
Monobutyltin as Sn	0.005	mg/L	
Tripropyltin as Sn (surr.)	1	%	
Chromium			
Chromium (hexavalent)	0.005	mg/L	
Chromium (trivalent)	0.005	mg/L	-
Heavy Metals			
Arsenic	0.01	mg/L	
Barium	0.02	mg/L	
Beryllium	0.001	mg/L	
Boron	0.05	mg/L	
Cadmium	0.005	mg/L	
Chromium	0.05	mg/L	
Cobalt	0.001	mg/L	
Copper	0.05	mg/L	
Lead	0.01	mg/L	
Manganese	0.005	mg/L	
Mercury	0.001	mg/L	
Nickel	0.01	mg/L	
Vanadium	0.005	mg/L	
Zinc	0.05	mg/L	
AUS Leaching Procedure			
Leachate Fluid ^{C01}		comment	
pH (initial)	0.1	pH Units	
pH (Leachate fluid)	0.1	pH Units	
pH (off)	0.1	pH Units	
Perfluoroalkyl carboxylic acids (PFCAs)			
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	
13C4-PFBA (surr.)	1	%	
13C5-PFPeA (surr.)	1	%	
13C5-PFHxA (surr.)	1	%	
13C4-PFHpA (surr.)	1	%	
13C8-PFOA (surr.)	1	%	
13C5-PFNA (surr.)	1	%	
13C6-PFDA (surr.)	1	%	
13C2-PFUnDA (surr.)	1	%	
13C2-PFDoDA (surr.)	1	%	
13C2-PFTeDA (surr.)	1	%	

Client Sample ID			LP_EL03_0.0
Sample Matrix			AUS Leachate
Eurofins Sample No.			S23-Ja0003544
Date Sampled			Dec 16, 2022
Test/Reference	LOR	Unit	
Perfluoroalkyl sulfonamido substances			
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	
13C8-FOSA (surr.)	1	%	
D3-N-MeFOSA (surr.)	1	%	
D5-N-EtFOSA (surr.)	1	%	
D7-N-MeFOSE (surr.)	1	%	
D9-N-EtFOSE (surr.)	1	%	
D5-N-EtFOSAA (surr.)	1	%	
D3-N-MeFOSAA (surr.)	1	%	
Perfluoroalkyl sulfonic acids (PFASs)			
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	
13C3-PFBS (surr.)	1	%	
18O2-PFHxS (surr.)	1	%	
13C8-PFOS (surr.)	1	%	
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	
13C2-4:2 FTSA (surr.)	1	%	
13C2-6:2 FTSA (surr.)	1	%	
13C2-8:2 FTSA (surr.)	1	%	
13C2-10:2 FTSA (surr.)	1	%	
PFASs Summations			
Sum (PFHxS + PFOS)*	0.01	ug/L	-
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	-
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	-
Sum of PFASs (n=30)*	0.1	ug/L	-

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Jan 09, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Jan 09, 2023	7 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Jan 09, 2023	14 Days
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Jan 09, 2023	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Jan 09, 2023	7 Days
Organotins - Method: LTM-ORG-2400 Determination of organotins in solid & aqueous samples by LC-ICP-MS	Melbourne	Jan 09, 2023	7 Days
AUS Leaching Procedure - Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes	Sydney	Jan 09, 2023	7 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Jan 09, 2023	7 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Jan 09, 2023	7 Days
Chromium (hexavalent) - Method: In-house method E057.1	Sydney	Jan 09, 2023	28 Days
Chromium (trivalent) - Method: E043 /E057 Total Speciated Chromium	Sydney	Jan 09, 2023	28 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Jan 09, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jan 09, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jan 09, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFSA) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jan 09, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jan 09, 2023	28 Days

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Company Name:	ERM Sydney	Order No.:		Received:	Dec 19, 2022 5:30 PM
Address:	Level 15, 309 Kent St Sydney NSW 2000	Report #:	952366	Due:	Jan 5, 2023
Project Name:	KAMAY WHARF PROJECT	Phone:	02 8584 8888	Priority:	10 Day
Project ID:	564417	Fax:	02 8584 8800	Contact Name:	Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
External Laboratory							X													
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID															
1	K_SED06_0.0	Dec 16, 2022		Soil	S22-De0050106		X	X	X		X	X	X	X	X	X	X	X	X	X
2	K_SED06_0.5	Dec 16, 2022		Soil	S22-De0050107		X	X	X		X	X	X	X	X	X	X	X	X	X
3	K_SED06_1.0	Dec 16, 2022		Soil	S22-De0050108		X	X	X		X	X	X	X	X	X	X	X	X	X
4	LP_SED02_0.0	Dec 15, 2022		Soil	S22-De0050109		X	X	X		X	X	X	X	X	X	X	X	X	X
5	LP_SED02_0.5	Dec 15, 2022		Soil	S22-De0050110		X	X	X		X	X	X	X	X	X	X	X	X	X
6	LP_SED02_1.0	Dec 15, 2022		Soil	S22-De0050111		X	X	X		X	X	X	X	X	X	X	X	X	X
7	LP_SED03_0.0	Dec 15, 2022		Soil	S22-De0050112		X	X	X		X	X	X	X	X	X	X	X	X	X
8	LP_SED03_0.5	Dec 15, 2022		Soil	S22-De0050113		X	X	X		X	X	X	X	X	X	X	X	X	X
9	LP_SED03_1.0	Dec 15, 2022		Soil	S22-De0050114		X	X	X		X	X	X	X	X	X	X	X	X	X

Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 564417

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Phone: 02 8584 8888
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Received: Dec 19, 2022 5:30 PM
Due: Jan 5, 2023
Priority: 10 Day
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail				HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins	
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X			X					X
Sydney Laboratory - NATA # 1261 Site # 18217				X			X	X	X	X	X	X	X	X	X	X	X		
	0																		
10	K_SED05_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
11	K_SED05_0.4	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
12	K_SED05_0.75	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
13	K_SED02_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
14	K_SED02_0.5	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
15	K_SED02_1.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
16	K_SED04_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
17	K_SED04_0.5	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
18	K_SED04_1.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
19	K_SED03_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
20	K_SED03_0.5	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
21	K_SED03_1.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
22	K_SED01_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X

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Address:	Level 15, 309 Kent St Sydney NSW 2000	Report #:	952366	Due:	Jan 5, 2023
Project Name:	KAMAY WHARF PROJECT	Phone:	02 8584 8888	Priority:	10 Day
Project ID:	564417	Fax:	02 8584 8800	Contact Name:	Joseph Ferring
Eurofins Analytical Services Manager : Quinn Raw					

Sample Detail					HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254							X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217					X			X	X	X	X	X	X	X	X	X	X	X	
23	K_SED01_05	Dec 16, 2022		Soil	S22-De0050128	X	X	X		X	X	X	X	X	X		X		X
24	K_SED01_1.0	Dec 16, 2022		Soil	S22-De0050129	X	X	X		X	X	X	X	X	X		X		X
25	K_SED_D01_22126	Dec 16, 2022		Soil	S22-De0050130	X	X	X		X	X	X	X	X	X		X		X
26	K_SED_D02_22126	Dec 16, 2022		Soil	S22-De0050131	X	X	X		X	X	X	X	X	X		X		X
27	K_SED_D03_22126	Dec 16, 2022		Soil	S22-De0050132	X	X	X		X	X	X	X	X	X		X		X
28	K_SEWATER	Dec 16, 2022		Water	S22-De0050133			X		X	X	X			X		X		X
29	LP_SEWATER	Dec 15, 2022		Water	S22-De0050134			X		X	X	X			X		X		X
30	K_EL06_0.0	Dec 16, 2022		Soil	S22-De0050135	X													
31	K_EL06_0.5	Dec 16, 2022		Soil	S22-De0050136	X													
32	K_EL06_1.0	Dec 16, 2022		Soil	S22-De0050137	X													
33	LP_EL02_0.0	Dec 15, 2022		Soil	S22-De0050138	X													
34	LP_EL02_0.5	Dec 15, 2022		Soil	S22-De0050139	X													
35	LP_EL02_1.5	Dec 15, 2022		Soil	S22-De0050140	X													

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Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
36	LP_EL03_0.0	Dec 15, 2022		Soil	S22-De0050141	X														
37	LP_EL03_0.5	Dec 15, 2022		Soil	S22-De0050142	X														
38	LP_EL03_1.0	Dec 15, 2022		Soil	S22-De0050143	X														
39	K_EL05_0.0	Dec 16, 2022		Soil	S22-De0050144	X														
40	K_EL05_0.4	Dec 16, 2022		Soil	S22-De0050145	X														
41	K_EL05_0.75	Dec 16, 2022		Soil	S22-De0050146	X														
42	K_EL02_0.0	Dec 16, 2022		Soil	S22-De0050147	X														
43	K_EL02_0.5	Dec 16, 2022		Soil	S22-De0050148	X														
44	K_EL02-1.0	Dec 16, 2022		Soil	S22-De0050149	X														
45	K_EL04_0.0	Dec 16, 2022		Soil	S22-De0050150	X														
46	K_EL04_0.5	Dec 16, 2022		Soil	S22-De0050151	X														
47	K_EL04_1.0	Dec 16, 2022		Soil	S22-De0050152	X														
48	K_EL03_0.0	Dec 16, 2022		Soil	S22-De0050153	X														
49	K_EL03_0.5	Dec 16, 2022		Soil	S22-De0050154	X														
50	K_EL03_1.0	Dec 16, 2022		Soil	S22-De0050155	X														

Company Name:	ERM Sydney	Order No.:		Received:	Dec 19, 2022 5:30 PM
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Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
51	K_EL01_0.0	Dec 16, 2022		Soil	S22-De0050156	X														
52	K_EL01_0.5	Dec 16, 2022		Soil	S22-De0050157	X														
53	K_EL0_1.0	Dec 16, 2022		Soil	S22-De0050158	X														
54	TS	Not Provided		Soil	S22-De0050159														X	
55	TB	Not Provided		Soil	S22-De0050160												X			
Test Counts						24	27	27	29	29	29	29	29	29	27	29	1	29	1	29

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

DRAFT

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Glenn Jackson
General Manager

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

ERM Sydney
Level 15, 309 Kent St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: **Joseph Ferring**

Report **952366-S**
Project name **KAMAY WHARF PROJECT**
Project ID **0564417**
Received Date **Dec 19, 2022**

Client Sample ID			K_SED06_0.0	K_SED06_0.5	K_SED06_1.0	LP_SED02_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- De0050106	S22- De0050107	S22- De0050108	S22- De0050109
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	72	101	112	132
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			K_SED06_0.0	K_SED06_0.5	K_SED06_1.0	LP_SED02_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050106	S22-De0050107	S22-De0050108	S22-De0050109
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	57	59	55	61
p-Terphenyl-d14 (surr.)	1	%	70	74	65	68
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	114	118	105	70
Tetrachloro-m-xylene (surr.)	1	%	81	82	86	63
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			K_SED06_0.0	K_SED06_0.5	K_SED06_1.0	LP_SED02_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050106	S22-De0050107	S22-De0050108	S22-De0050109
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	69	61	54	61
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	117	116	111	114
Chromium						
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)	5	mg/kg	< 5	5.4	< 5	< 5
Total Organic Carbon						
Total Organic Carbon	0.1	%	1.4	< 0.1	< 0.1	1.1
% Moisture						
% Moisture	1	%	28	27	25	29
Particle Size Distribution						
Particle Size Distribution			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	< 2	2.0	2.6	3.9
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	13	36	12	11
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	5.4	< 5	< 5
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5

Client Sample ID			K_SED06_0.0	K_SED06_0.5	K_SED06_1.0	LP_SED02_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050106	S22-De0050107	S22-De0050108	S22-De0050109
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Lead	5	mg/kg	< 5	9.1	5.8	7.4
Manganese	5	mg/kg	24	37	45	15
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Vanadium	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	8.3	18	13	8.0
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	91	95	99	101
13C5-PFPeA (surr.)	1	%	112	116	115	121
13C5-PFHxA (surr.)	1	%	112	120	124	120
13C4-PFHpA (surr.)	1	%	110	115	117	119
13C8-PFOA (surr.)	1	%	112	119	123	122
13C5-PFNA (surr.)	1	%	130	136	135	139
13C6-PFDA (surr.)	1	%	139	147	145	142
13C2-PFUnDA (surr.)	1	%	139	145	144	146
13C2-PFDoDA (surr.)	1	%	133	141	141	152
13C2-PFTeDA (surr.)	1	%	139	146	161	168
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	104	110	113	108
D3-N-MeFOSA (surr.)	1	%	106	114	114	113
D5-N-EtFOSA (surr.)	1	%	113	117	119	126
D7-N-MeFOSE (surr.)	1	%	106	113	113	116
D9-N-EtFOSE (surr.)	1	%	97	101	101	101
D5-N-EtFOSAA (surr.)	1	%	158	161	168	177
D3-N-MeFOSAA (surr.)	1	%	177	184	195	INT

Client Sample ID			K_SED06_0.0	K_SED06_0.5	K_SED06_1.0	LP_SED02_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050106	S22-De0050107	S22-De0050108	S22-De0050109
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	113	114	118	124
18O2-PFHxS (surr.)	1	%	107	113	116	118
13C8-PFOS (surr.)	1	%	112	120	120	121
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	99	97	96	108
13C2-6:2 FTSA (surr.)	1	%	88	93	94	101
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	INT
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	INT
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			LP_SED02_0.5	LP_SED02_1.0	LP_SED03_0.0	LP_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050110	S22-De0050111	S22-De0050112	S22-De0050113
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100

Client Sample ID			LP_SED02_0.5	LP_SED02_1.0	LP_SED03_0.0	LP_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050110	S22-De0050111	S22-De0050112	S22-De0050113
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	116	107	101	111
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	127	119	54	126
p-Terphenyl-d14 (surr.)	1	%	150	120	56	INT
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			LP_SED02_0.5	LP_SED02_1.0	LP_SED03_0.0	LP_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050110	S22-De0050111	S22-De0050112	S22-De0050113
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	INT	130	55	INT
Tetrachloro-m-xylene (surr.)	1	%	125	122	54	133
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	135	120	INT	140

Client Sample ID			LP_SED02_0.5	LP_SED02_1.0	LP_SED03_0.0	LP_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050110	S22-De0050111	S22-De0050112	S22-De0050113
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	114	114	113	118
Chromium (hexavalent)						
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)						
Chromium (trivalent)	5	mg/kg	< 5	< 5	< 5	< 5
Total Organic Carbon						
Total Organic Carbon	0.1	%	3.7	1.8	< 0.1	< 0.1
% Moisture						
% Moisture	1	%	27	20	23	22
Particle Size Distribution						
Particle Size Distribution			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	4.3	6.8	< 2	2.8
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	13	14	< 10	26
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5	< 5
Cobalt	5	mg/kg	< 5	7.7	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	6.8	5.5	< 5	6.9
Manganese	5	mg/kg	17	< 5	7.3	12
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Vanadium	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	10	5.8	< 5	12
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	98	103	101	101
13C5-PFPeA (surr.)	1	%	119	122	124	121
13C5-PFHxA (surr.)	1	%	124	124	122	123
13C4-PFHpA (surr.)	1	%	116	123	121	121
13C8-PFOA (surr.)	1	%	117	129	125	122
13C5-PFNA (surr.)	1	%	134	139	135	138
13C6-PFDA (surr.)	1	%	143	149	146	145
13C2-PFUnDA (surr.)	1	%	145	155	151	145

Client Sample ID			LP_SED02_0.5	LP_SED02_1.0	LP_SED03_0.0	LP_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050110	S22-De0050111	S22-De0050112	S22-De0050113
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFDoDA (surr.)	1	%	141	153	144	140
13C2-PFTeDA (surr.)	1	%	148	156	148	162
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	108	112	113	107
D3-N-MeFOSA (surr.)	1	%	109	116	116	113
D5-N-EtFOSA (surr.)	1	%	118	124	118	124
D7-N-MeFOSE (surr.)	1	%	108	119	117	116
D9-N-EtFOSE (surr.)	1	%	101	104	104	102
D5-N-EtFOSAA (surr.)	1	%	163	175	180	169
D3-N-MeFOSAA (surr.)	1	%	197	198	199	INT
Perfluoroalkyl sulfonic acids (PFSA)s						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	118	124	119	124
18O2-PFHxS (surr.)	1	%	113	118	118	119
13C8-PFOS (surr.)	1	%	118	121	120	119
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	94	109	111	103
13C2-6:2 FTSA (surr.)	1	%	95	99	94	98
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	INT
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	INT

Client Sample ID			LP_SED02_0.5	LP_SED02_1.0	LP_SED03_0.0	LP_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050110	S22-De0050111	S22-De0050112	S22-De0050113
Date Sampled			Dec 15, 2022	Dec 15, 2022	Dec 15, 2022	Dec 15, 2022
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			LP_SED03_1.0	K_SED05_0.0	K_SED05_0.4	K_SED05_0.75
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050114	S22-De0050115	S22-De0050116	S22-De0050117
Date Sampled			Dec 15, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	102	99	111	104
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			LP_SED03_1.0	K_SED05_0.0	K_SED05_0.4	K_SED05_0.75
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050114	S22-De0050115	S22-De0050116	S22-De0050117
Date Sampled			Dec 15, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	115	82	60	75
p-Terphenyl-d14 (surr.)	1	%	148	86	59	76
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	137	101	57	72
Tetrachloro-m-xylene (surr.)	1	%	120	82	60	76
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			LP_SED03_1.0	K_SED05_0.0	K_SED05_0.4	K_SED05_0.75
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050114	S22-De0050115	S22-De0050116	S22-De0050117
Date Sampled			Dec 15, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	114	78	53	66
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	117	116	110	112
Chromium						
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)	5	mg/kg	< 5	< 5	6.7	6.4
Total Organic Carbon						
Total Organic Carbon	0.1	%	2.1	0.4	1.3	< 0.1
% Moisture						
% Moisture	1	%	24	29	29	27
Particle Size Distribution						
Particle Size Distribution			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	2.2	2.2	2.6	< 2
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	17	24	27	19
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	6.7	6.4
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	6.3

Client Sample ID			LP_SED03_1.0	K_SED05_0.0	K_SED05_0.4	K_SED05_0.75
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050114	S22-De0050115	S22-De0050116	S22-De0050117
Date Sampled			Dec 15, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Lead	5	mg/kg	5.9	7.4	9.8	9.5
Manganese	5	mg/kg	8.5	29	31	23
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Vanadium	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	8.1	13	25	21
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	101	100	104	105
13C5-PFPeA (surr.)	1	%	124	117	124	119
13C5-PFHxA (surr.)	1	%	124	123	123	126
13C4-PFHpA (surr.)	1	%	122	116	121	127
13C8-PFOA (surr.)	1	%	121	119	124	125
13C5-PFNA (surr.)	1	%	138	134	142	140
13C6-PFDA (surr.)	1	%	150	142	148	149
13C2-PFUnDA (surr.)	1	%	149	148	145	149
13C2-PFDoDA (surr.)	1	%	149	149	144	149
13C2-PFTeDA (surr.)	1	%	152	150	156	157
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	112	108	110	114
D3-N-MeFOSA (surr.)	1	%	114	108	117	113
D5-N-EtFOSA (surr.)	1	%	120	118	122	125
D7-N-MeFOSE (surr.)	1	%	116	113	118	117
D9-N-EtFOSE (surr.)	1	%	103	108	107	107
D5-N-EtFOSAA (surr.)	1	%	173	164	180	166
D3-N-MeFOSAA (surr.)	1	%	INT	193	INT	200

Client Sample ID			LP_SED03_1.0	K_SED05_0.0	K_SED05_0.4	K_SED05_0.75
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050114	S22-De0050115	S22-De0050116	S22-De0050117
Date Sampled			Dec 15, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	118	119	122	122
18O2-PFHxS (surr.)	1	%	114	114	118	118
13C8-PFOS (surr.)	1	%	122	113	121	117
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	96	94	98	101
13C2-6:2 FTSA (surr.)	1	%	95	94	96	99
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	INT
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	INT
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			K_SED02_0.0	K_SED02_0.5	K_SED02_1.0	K_SED04_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050118	S22-De0050119	S22-De0050120	S22-De0050121
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100

Client Sample ID			K_SED02_0.0	K_SED02_0.5	K_SED02_1.0	K_SED04_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050118	S22-De0050119	S22-De0050120	S22-De0050121
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	67	96	98	99
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	79	130	97	76
p-Terphenyl-d14 (surr.)	1	%	83	97	106	51
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			K_SED02_0.0	K_SED02_0.5	K_SED02_1.0	K_SED04_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050118	S22-De0050119	S22-De0050120	S22-De0050121
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	92	95	109	93
Tetrachloro-m-xylene (surr.)	1	%	97	104	93	81
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	56	75	90	76

Client Sample ID			K_SED02_0.0	K_SED02_0.5	K_SED02_1.0	K_SED04_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050118	S22-De0050119	S22-De0050120	S22-De0050121
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	115	114	116	117
Chromium (hexavalent)						
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)						
Chromium (trivalent)	5	mg/kg	5.2	7.4	6.4	5.1
Total Organic Carbon						
Total Organic Carbon	0.1	%	1.0	1.3	1.1	1.7
% Moisture						
% Moisture	1	%	29	29	27	29
Particle Size Distribution						
Particle Size Distribution			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	2.6	2.8	< 2	2.6
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	18	16	19	32
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	5.2	7.4	6.4	5.1
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	6.0	8.9	< 5	6.7
Manganese	5	mg/kg	26	29	23	37
Mercury	0.1	mg/kg	< 0.1	0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Vanadium	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	12	19	10	13
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	103	103	104	101
13C5-PFPeA (surr.)	1	%	122	125	123	119
13C5-PFHxA (surr.)	1	%	125	124	131	123
13C4-PFHpA (surr.)	1	%	123	125	127	121
13C8-PFOA (surr.)	1	%	127	121	125	117
13C5-PFNA (surr.)	1	%	143	137	139	136
13C6-PFDA (surr.)	1	%	150	148	150	143
13C2-PFUnDA (surr.)	1	%	156	147	147	143

Client Sample ID			K_SED02_0.0	K_SED02_0.5	K_SED02_1.0	K_SED04_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050118	S22-De0050119	S22-De0050120	S22-De0050121
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFDoDA (surr.)	1	%	150	149	150	146
13C2-PFTeDA (surr.)	1	%	144	143	156	142
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	111	108	113	107
D3-N-MeFOSA (surr.)	1	%	116	114	113	114
D5-N-EtFOSA (surr.)	1	%	119	122	125	118
D7-N-MeFOSE (surr.)	1	%	115	112	120	116
D9-N-EtFOSE (surr.)	1	%	105	104	104	107
D5-N-EtFOSAA (surr.)	1	%	178	170	178	167
D3-N-MeFOSAA (surr.)	1	%	INT	193	192	193
Perfluoroalkyl sulfonic acids (PFSA)s						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	118	119	120	118
18O2-PFHxS (surr.)	1	%	117	115	116	115
13C8-PFOS (surr.)	1	%	120	115	118	114
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	100	102	103	103
13C2-6:2 FTSA (surr.)	1	%	103	97	92	94
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	INT
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	INT

Client Sample ID			K_SED02_0.0	K_SED02_0.5	K_SED02_1.0	K_SED04_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050118	S22-De0050119	S22-De0050120	S22-De0050121
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			K_SED04_0.5	K_SED04_1.0	K_SED03_0.0	K_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050122	S22-De0050123	S22-De0050124	S22-De0050125
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	100	88	98	92
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5

Client Sample ID			K_SED04_0.5	K_SED04_1.0	K_SED03_0.0	K_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050122	S22-De0050123	S22-De0050124	S22-De0050125
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	102	110	108	50
p-Terphenyl-d14 (surr.)	1	%	87	93	127	52
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	129	101	137	64
Tetrachloro-m-xylene (surr.)	1	%	101	101	125	60
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			K_SED04_0.5	K_SED04_1.0	K_SED03_0.0	K_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050122	S22-De0050123	S22-De0050124	S22-De0050125
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	114	97	92	51
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	114	116	119	118
Chromium						
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)	5	mg/kg	6.5	10	5.3	5.0
Total Organic Carbon	0.1	%	0.8	1.4	0.5	0.7
% Moisture	1	%	31	35	26	26
Particle Size Distribution			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	2.4	3.4	2.5	2.5
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	26	29	23	17
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	6.5	10.0	5.3	5.0
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	5.9	< 5	< 5

Client Sample ID			K_SED04_0.5	K_SED04_1.0	K_SED03_0.0	K_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050122	S22-De0050123	S22-De0050124	S22-De0050125
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Heavy Metals						
Lead	5	mg/kg	7.5	12	5.6	5.5
Manganese	5	mg/kg	34	37	33	33
Mercury	0.1	mg/kg	< 0.1	0.2	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Vanadium	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	17	30	11	12
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	100	97	101	101
13C5-PFPeA (surr.)	1	%	120	117	122	124
13C5-PFHxA (surr.)	1	%	125	123	126	125
13C4-PFHpA (surr.)	1	%	121	119	120	124
13C8-PFOA (surr.)	1	%	116	118	122	121
13C5-PFNA (surr.)	1	%	136	132	138	134
13C6-PFDA (surr.)	1	%	145	139	145	144
13C2-PFUnDA (surr.)	1	%	149	147	142	143
13C2-PFDoDA (surr.)	1	%	143	133	142	144
13C2-PFTeDA (surr.)	1	%	143	147	139	141
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	108	111	107	110
D3-N-MeFOSA (surr.)	1	%	112	108	110	117
D5-N-EtFOSA (surr.)	1	%	115	119	118	118
D7-N-MeFOSE (surr.)	1	%	112	114	111	114
D9-N-EtFOSE (surr.)	1	%	102	98	102	105
D5-N-EtFOSAA (surr.)	1	%	176	164	168	174
D3-N-MeFOSAA (surr.)	1	%	192	188	189	INT

Client Sample ID			K_SED04_0.5	K_SED04_1.0	K_SED03_0.0	K_SED03_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050122	S22-De0050123	S22-De0050124	S22-De0050125
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	120	119	117	122
18O2-PFHxS (surr.)	1	%	115	116	116	116
13C8-PFOS (surr.)	1	%	115	115	118	117
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	96	103	101	100
13C2-6:2 FTSA (surr.)	1	%	93	91	94	100
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	INT
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	INT
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			K_SED03_1.0	K_SED01_0.0	K_SED01_0.5	K_SED01_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050126	S22-De0050127	S22-De0050128	S22-De0050129
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	23
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100

Client Sample ID			K_SED03_1.0	K_SED01_0.0	K_SED01_05	K_SED01_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050126	S22-De0050127	S22-De0050128	S22-De0050129
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	103	100	101	83
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	121	120	87	101
p-Terphenyl-d14 (surr.)	1	%	INT	125	108	INT
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05

Client Sample ID			K_SED03_1.0	K_SED01_0.0	K_SED01_05	K_SED01_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050126	S22-De0050127	S22-De0050128	S22-De0050129
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	122	130	80	143
Tetrachloro-m-xylene (surr.)	1	%	126	123	90	126
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	103	120	71	78

Client Sample ID			K_SED03_1.0	K_SED01_0.0	K_SED01_05	K_SED01_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050126	S22-De0050127	S22-De0050128	S22-De0050129
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	121	121	117	116
Chromium (hexavalent)						
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	< 1
Chromium (trivalent)						
Chromium (trivalent)	5	mg/kg	10	8.2	8.6	7.0
Total Organic Carbon						
Total Organic Carbon	0.1	%	1.3	0.8	1.1	1.0
% Moisture						
% Moisture	1	%	31	28	29	27
Particle Size Distribution						
Particle Size Distribution			see attached	see attached	see attached	see attached
Heavy Metals						
Arsenic	2	mg/kg	3.3	3.6	3.9	3.6
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	30	27	32	25
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	10	8.2	8.6	7.0
Cobalt	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	5.1
Lead	5	mg/kg	12	7.5	8.6	9.2
Manganese	5	mg/kg	43	39	46	42
Mercury	0.1	mg/kg	0.2	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Vanadium	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	29	17	18	18
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	100	100	96	101
13C5-PFPeA (surr.)	1	%	120	120	111	120
13C5-PFHxA (surr.)	1	%	123	123	118	124
13C4-PFHpA (surr.)	1	%	118	120	117	119
13C8-PFOA (surr.)	1	%	120	120	114	118
13C5-PFNA (surr.)	1	%	134	131	128	133
13C6-PFDA (surr.)	1	%	149	145	141	147
13C2-PFUnDA (surr.)	1	%	147	146	147	146

Client Sample ID			K_SED03_1.0	K_SED01_0.0	K_SED01_05	K_SED01_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050126	S22-De0050127	S22-De0050128	S22-De0050129
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
13C2-PFDoDA (surr.)	1	%	143	147	142	150
13C2-PFTeDA (surr.)	1	%	135	139	131	152
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	110	110	110	108
D3-N-MeFOSA (surr.)	1	%	115	107	112	113
D5-N-EtFOSA (surr.)	1	%	119	119	120	116
D7-N-MeFOSE (surr.)	1	%	117	114	113	119
D9-N-EtFOSE (surr.)	1	%	102	103	106	107
D5-N-EtFOSAA (surr.)	1	%	169	173	166	174
D3-N-MeFOSAA (surr.)	1	%	190	194	194	199
Perfluoroalkyl sulfonic acids (PFSA)s						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	119	117	120	120
18O2-PFHxS (surr.)	1	%	115	114	112	113
13C8-PFOS (surr.)	1	%	117	116	117	116
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)s						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	102	104	91	105
13C2-6:2 FTSA (surr.)	1	%	97	92	90	93
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	INT
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	INT

Client Sample ID			K_SED03_1.0	K_SED01_0.0	K_SED01_05	K_SED01_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050126	S22-De0050127	S22-De0050128	S22-De0050129
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			K_SED_D01_2 2126	K_SED_D02_2 2126	K_SED_D03_2 2126	TS
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0050130	S22-De0050131	S22-De0050132	S22-De0050159
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	-
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	-
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	-
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	-
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	-
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	-
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	-
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	-
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	-
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	-
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	-
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	-
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	-
4-Bromofluorobenzene (surr.)	1	%	91	97	72	-
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	-
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	-
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-

Client Sample ID			K_SED_D01_2 2126	K_SED_D02_2 2126	K_SED_D03_2 2126	TS
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- De0050130	S22- De0050131	S22- De0050132	S22- De0050159
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Not Provided ¹²
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
2-Fluorobiphenyl (surr.)	1	%	86	96	100	-
p-Terphenyl-d14 (surr.)	1	%	115	108	141	-
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	-
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	-
Dibutylchloroendate (surr.)	1	%	147	130	128	-
Tetrachloro-m-xylene (surr.)	1	%	115	116	115	-
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Coumaphos	2	mg/kg	< 2	< 2	< 2	-
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-

Client Sample ID			K_SED_D01_2 2126	K_SED_D02_2 2126	K_SED_D03_2 2126	TS
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- De0050130	S22- De0050131	S22- De0050132	S22- De0050159
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Not Provided ¹²
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Monocrotophos	2	mg/kg	< 2	< 2	< 2	-
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Omethoate	2	mg/kg	< 2	< 2	< 2	-
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	-
Triphenylphosphate (surr.)	1	%	81	126	97	-
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	-
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	-
Dibutyltin	1	mg/kg	< 1	< 1	< 1	-
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	-
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	-
Tripropyltin as Sn (surr.)	1	%	118	118	117	-
Chromium						
Chromium (hexavalent)	1	mg/kg	< 1	< 1	< 1	-
Chromium (trivalent)	5	mg/kg	7.1	6.6	8.1	-
Total Organic Carbon	0.1	%	1.1	1.0	0.7	-
% Moisture	1	%	29	28	29	-
Particle Size Distribution			see attached	see attached	see attached	-
TRH C6-C10	1	%	-	-	-	110
Heavy Metals						
Arsenic	2	mg/kg	4.0	4.2	3.0	-
Barium	10	mg/kg	< 10	< 10	< 10	-
Beryllium	2	mg/kg	< 2	2.3	< 2	-
Boron	10	mg/kg	19	24	19	-

Client Sample ID			K_SED_D01_2 2126	K_SED_D02_2 2126	K_SED_D03_2 2126	TS
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- De0050130	S22- De0050131	S22- De0050132	S22- De0050159
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Not Provided ¹²
Test/Reference	LOR	Unit				
Heavy Metals						
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	-
Chromium	5	mg/kg	7.1	6.6	8.1	-
Cobalt	5	mg/kg	< 5	< 5	< 5	-
Copper	5	mg/kg	< 5	< 5	< 5	-
Lead	5	mg/kg	8.4	7.0	7.8	-
Manganese	5	mg/kg	26	37	26	-
Mercury	0.1	mg/kg	0.1	< 0.1	0.2	-
Nickel	5	mg/kg	< 5	< 5	< 5	-
Vanadium	10	mg/kg	< 10	< 10	< 10	-
Zinc	5	mg/kg	21	16	20	-
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	-
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
13C4-PFBA (surr.)	1	%	103	104	100	-
13C5-PFPeA (surr.)	1	%	123	121	117	-
13C5-PFHxA (surr.)	1	%	125	129	121	-
13C4-PFHpA (surr.)	1	%	124	126	120	-
13C8-PFOA (surr.)	1	%	125	121	117	-
13C5-PFNA (surr.)	1	%	140	139	132	-
13C6-PFDA (surr.)	1	%	147	151	141	-
13C2-PFUnDA (surr.)	1	%	152	150	147	-
13C2-PFDoDA (surr.)	1	%	150	149	134	-
13C2-PFTeDA (surr.)	1	%	143	145	148	-
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	-
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	-
13C8-FOSA (surr.)	1	%	108	112	107	-
D3-N-MeFOSA (surr.)	1	%	116	117	116	-
D5-N-EtFOSA (surr.)	1	%	121	120	120	-
D7-N-MeFOSE (surr.)	1	%	117	119	114	-
D9-N-EtFOSE (surr.)	1	%	106	112	99	-

Client Sample ID			K_SED_D01_2 2126	K_SED_D02_2 2126	K_SED_D03_2 2126	TS
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22- De0050130	S22- De0050131	S22- De0050132	S22- De0050159
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Not Provided ¹²
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D5-N-EtFOSAA (surr.)	1	%	180	179	173	-
D3-N-MeFOSAA (surr.)	1	%	194	INT	197	-
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	-
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	-
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	-
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	-
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	-
13C3-PFBS (surr.)	1	%	117	123	118	-
18O2-PFHxS (surr.)	1	%	118	117	114	-
13C8-PFOS (surr.)	1	%	113	119	115	-
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	-
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	-
13C2-4:2 FTSA (surr.)	1	%	104	101	97	-
13C2-6:2 FTSA (surr.)	1	%	94	95	91	-
13C2-8:2 FTSA (surr.)	1	%	INT	INT	INT	-
13C2-10:2 FTSA (surr.)	1	%	INT	INT	INT	-
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	-
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	-
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	-
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	-
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	-
Total Recoverable Hydrocarbons						
Naphthalene	1	%	-	-	-	120
TRH C6-C9	1	%	-	-	-	93
BTEX						
Benzene	1	%	-	-	-	110
Ethylbenzene	1	%	-	-	-	98
m&p-Xylenes	1	%	-	-	-	100
o-Xylene	1	%	-	-	-	100
Toluene	1	%	-	-	-	96
Xylenes - Total	1	%	-	-	-	100
4-Bromofluorobenzene (surr.)	1	%	-	-	-	123

Client Sample ID			TB
Sample Matrix			Soil
Eurofins Sample No.			S22-De0050160
Date Sampled			Not Provided¹²
Test/Reference	LOR	Unit	
Total Recoverable Hydrocarbons			
TRH C6-C9	20	mg/kg	< 20
TRH C6-C10	20	mg/kg	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20
BTEX			
Benzene	0.1	mg/kg	< 0.1
Toluene	0.1	mg/kg	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2
o-Xylene	0.1	mg/kg	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3
4-Bromofluorobenzene (surr.)	1	%	150
Naphthalene ^{N02}	0.5	mg/kg	< 0.5

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Dec 21, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Dec 21, 2022	14 Days
Total Recoverable Hydrocarbons - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Dec 21, 2022	14 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Dec 21, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Dec 21, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Dec 21, 2022	14 Days
Organotins - Method: LTM-ORG-2400 Determination of organotins in solid & aqueous samples by LC-ICP-MS	Melbourne	Jan 03, 2023	14 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Jan 03, 2023	28 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Dec 21, 2022	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Dec 21, 2022	14 Days
Chromium (hexavalent) - Method: In-house method E057.2	Sydney	Dec 21, 2022	28 Days
Chromium (trivalent) - Method: E043 /E057 Total Speciated Chromium	Sydney	Dec 21, 2022	28 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Dec 21, 2022	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Dec 21, 2022	14 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 21, 2022	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 21, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 21, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 21, 2022	28 Days
PFASs Summations - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 21, 2022	

Company Name: ERM Sydney
Address: Level 15, 309 Kent St
 Sydney
 NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 0564417

Order No.:
Report #: 952366
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Dec 19, 2022 5:30 PM
Due: Jan 10, 2023
Priority: 1 Day
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
External Laboratory							X													
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID															
1	K_SED06_0.0	Dec 16, 2022		Soil	S22-De0050106		X	X	X		X	X	X	X	X	X	X	X	X	X
2	K_SED06_0.5	Dec 16, 2022		Soil	S22-De0050107		X	X	X		X	X	X	X	X	X	X	X	X	X
3	K_SED06_1.0	Dec 16, 2022		Soil	S22-De0050108		X	X	X		X	X	X	X	X	X	X	X	X	X
4	LP_SED02_0.0	Dec 15, 2022		Soil	S22-De0050109		X	X	X		X	X	X	X	X	X	X	X	X	X
5	LP_SED02_0.5	Dec 15, 2022		Soil	S22-De0050110		X	X	X		X	X	X	X	X	X	X	X	X	X
6	LP_SED02_1.0	Dec 15, 2022		Soil	S22-De0050111		X	X	X		X	X	X	X	X	X	X	X	X	X
7	LP_SED03_0.0	Dec 15, 2022		Soil	S22-De0050112		X	X	X		X	X	X	X	X	X	X	X	X	X
8	LP_SED03_0.5	Dec 15, 2022		Soil	S22-De0050113		X	X	X		X	X	X	X	X	X	X	X	X	X
9	LP_SED03_1.0	Dec 15, 2022		Soil	S22-De0050114		X	X	X		X	X	X	X	X	X	X	X	X	X

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Project ID:	0564417	Fax:	02 8584 8800	Contact Name:	Joseph Ferring
Eurofins Analytical Services Manager : Quinn Raw					

Sample Detail				HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins	
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X			X					X
Sydney Laboratory - NATA # 1261 Site # 18217				X			X	X	X	X	X	X	X	X	X	X	X		
	0																		
10	K_SED05_0.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
11	K_SED05_0.4	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
12	K_SED05_0.75	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
13	K_SED02_0.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
14	K_SED02_0.5	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
15	K_SED02_1.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
16	K_SED04_0.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
17	K_SED04_0.5	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
18	K_SED04_1.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
19	K_SED03_0.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
20	K_SED03_0.5	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
21	K_SED03_1.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X
22	K_SED01_0.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X			X

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Project ID:	0564417	Fax:	02 8584 8800	Contact Name:	Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail				HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins	
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X			X					X
Sydney Laboratory - NATA # 1261 Site # 18217				X			X	X	X	X	X	X	X	X	X	X	X	X	
23	K_SED01_05	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
24	K_SED01_1.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
25	K_SED_D01_22126	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
26	K_SED_D02_22126	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
27	K_SED_D03_22126	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
28	K_SEWATER	Dec 16, 2022	Seawater				X		X	X	X	X		X		X		X	
29	LP_SEWATER	Dec 15, 2022	Seawater				X		X	X	X	X		X		X		X	
30	K_EL06_0.0	Dec 16, 2022	Soil	X															
31	K_EL06_0.5	Dec 16, 2022	Soil	X															
32	K_EL06_1.0	Dec 16, 2022	Soil	X															
33	LP_EL02_0.0	Dec 15, 2022	Soil	X															
34	LP_EL02_0.5	Dec 15, 2022	Soil	X															
35	LP_EL02_1.5	Dec 15, 2022	Soil	X															

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Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
36	LP_EL03_0.0	Dec 15, 2022		Soil	S22-De0050141	X														
37	LP_EL03_0.5	Dec 15, 2022		Soil	S22-De0050142	X														
38	LP_EL03_1.0	Dec 15, 2022		Soil	S22-De0050143	X														
39	K_EL05_0.0	Dec 16, 2022		Soil	S22-De0050144	X														
40	K_EL05_0.4	Dec 16, 2022		Soil	S22-De0050145	X														
41	K_EL05_0.75	Dec 16, 2022		Soil	S22-De0050146	X														
42	K_EL02_0.0	Dec 16, 2022		Soil	S22-De0050147	X														
43	K_EL02_0.5	Dec 16, 2022		Soil	S22-De0050148	X														
44	K_EL02-1.0	Dec 16, 2022		Soil	S22-De0050149	X														
45	K_EL04_0.0	Dec 16, 2022		Soil	S22-De0050150	X														
46	K_EL04_0.5	Dec 16, 2022		Soil	S22-De0050151	X														
47	K_EL04_1.0	Dec 16, 2022		Soil	S22-De0050152	X														
48	K_EL03_0.0	Dec 16, 2022		Soil	S22-De0050153	X														
49	K_EL03_0.5	Dec 16, 2022		Soil	S22-De0050154	X														
50	K_EL03_1.0	Dec 16, 2022		Soil	S22-De0050155	X														

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Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
51	K_EL01_0.0	Dec 16, 2022		Soil	S22-De0050156	X														
52	K_EL01_0.5	Dec 16, 2022		Soil	S22-De0050157	X														
53	K_EL0_1.0	Dec 16, 2022		Soil	S22-De0050158	X														
54	TS	Not Provided		Soil	S22-De0050159														X	
55	TB	Not Provided		Soil	S22-De0050160												X			
Test Counts						24	27	27	29	29	29	29	29	29	27	29	1	29	1	29

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

µg/L: micrograms per litre

ppm: parts per million

ppb: parts per billion

%: Percentage

org/100 mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100 mL: Most Probable Number of organisms per 100 millilitres

CFU: Colony forming unit

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPaA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	mg/kg	< 0.05			0.05	Pass	
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Organotins							
Tributyltin	mg/kg	< 1.25			1.25	Pass	
Tributyltin as Sn	mg/kg	< 0.5			0.5	Pass	
Tributyltin Oxide	mg/kg	< 1.25			1.25	Pass	
Dibutyltin	mg/kg	< 1			1	Pass	
Dibutyltin as Sn	mg/kg	< 0.5			0.5	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Monobutyltin	mg/kg	< 0.75			0.75	Pass	
Monobutyltin as Sn	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Chromium (hexavalent)	mg/kg	< 1			1	Pass	
Total Organic Carbon	%	< 0.1			0.1	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Cobalt	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Method Blank						
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5		5	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10		10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5		5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5		5	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons						
TRH C6-C9	%	114		70-130	Pass	
TRH C10-C14	%	90		70-130	Pass	
TRH C6-C10	%	111		70-130	Pass	
TRH C6-C10	%	115		70-130	Pass	
TRH >C10-C16	%	86		70-130	Pass	
LCS - % Recovery						
BTEX						
Benzene	%	107		70-130	Pass	
Toluene	%	109		70-130	Pass	
Ethylbenzene	%	109		70-130	Pass	
m&p-Xylenes	%	111		70-130	Pass	
o-Xylene	%	110		70-130	Pass	
Xylenes - Total*	%	111		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	%	80		70-130	Pass	
LCS - % Recovery						
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	%	89		70-130	Pass	
Acenaphthylene	%	79		70-130	Pass	
Anthracene	%	77		70-130	Pass	
Benz(a)anthracene	%	86		70-130	Pass	
Benzo(a)pyrene	%	88		70-130	Pass	
Benzo(b&j)fluoranthene	%	85		70-130	Pass	
Benzo(g,h,i)perylene	%	92		70-130	Pass	
Benzo(k)fluoranthene	%	97		70-130	Pass	
Chrysene	%	97		70-130	Pass	
Dibenz(a,h)anthracene	%	83		70-130	Pass	
Fluoranthene	%	79		70-130	Pass	
Fluorene	%	88		70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	77		70-130	Pass	
Naphthalene	%	86		70-130	Pass	
Phenanthrene	%	86		70-130	Pass	
Pyrene	%	83		70-130	Pass	
LCS - % Recovery						
Organochlorine Pesticides						
Chlordanes - Total	%	94		70-130	Pass	
4,4'-DDD	%	82		70-130	Pass	
4,4'-DDE	%	86		70-130	Pass	
4,4'-DDT	%	85		70-130	Pass	
a-HCH	%	80		70-130	Pass	
Aldrin	%	82		70-130	Pass	
b-HCH	%	98		70-130	Pass	
d-HCH	%	78		70-130	Pass	
Dieldrin	%	92		70-130	Pass	
Endosulfan I	%	90		70-130	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	%	97		70-130	Pass	
Endosulfan sulphate	%	76		70-130	Pass	
Endrin	%	70		70-130	Pass	
Endrin aldehyde	%	80		70-130	Pass	
Endrin ketone	%	88		70-130	Pass	
g-HCH (Lindane)	%	87		70-130	Pass	
Heptachlor	%	100		70-130	Pass	
Heptachlor epoxide	%	76		70-130	Pass	
Hexachlorobenzene	%	89		70-130	Pass	
Methoxychlor	%	95		70-130	Pass	
LCS - % Recovery						
Organophosphorus Pesticides						
Diazinon	%	119		70-130	Pass	
Dimethoate	%	107		70-130	Pass	
Ethion	%	112		70-130	Pass	
Fenitrothion	%	120		70-130	Pass	
Methyl parathion	%	121		70-130	Pass	
Mevinphos	%	113		70-130	Pass	
LCS - % Recovery						
Organotins						
Tributyltin as Sn	%	125		60-140	Pass	
Dibutyltin as Sn	%	105		60-140	Pass	
Monobutyltin as Sn	%	107		60-140	Pass	
LCS - % Recovery						
Chromium (hexavalent)	%	105		70-130	Pass	
Total Organic Carbon	%	97		70-130	Pass	
Naphthalene	%	75		70-130	Pass	
LCS - % Recovery						
Heavy Metals						
Arsenic	%	111		80-120	Pass	
Barium	%	111		80-120	Pass	
Beryllium	%	112		80-120	Pass	
Boron	%	106		80-120	Pass	
Cadmium	%	111		80-120	Pass	
Chromium	%	98		80-120	Pass	
Cobalt	%	96		80-120	Pass	
Copper	%	94		80-120	Pass	
Lead	%	95		80-120	Pass	
Manganese	%	95		80-120	Pass	
Mercury	%	95		80-120	Pass	
Nickel	%	99		80-120	Pass	
Vanadium	%	100		80-120	Pass	
Zinc	%	106		80-120	Pass	
LCS - % Recovery						
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	%	96		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	98		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	99		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	99		50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	99		50-150	Pass	
Perfluorononanoic acid (PFNA)	%	96		50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	98		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	103		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	102		50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Perfluorotridecanoic acid (PFTrDA)	%	92			50-150	Pass		
Perfluorotetradecanoic acid (PFTeDA)	%	102			50-150	Pass		
LCS - % Recovery								
Perfluoroalkyl sulfonamido substances								
Perfluorooctane sulfonamide (FOSA)	%	97			50-150	Pass		
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	104			50-150	Pass		
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	99			50-150	Pass		
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	104			50-150	Pass		
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	95			50-150	Pass		
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	93			50-150	Pass		
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	98			50-150	Pass		
LCS - % Recovery								
Perfluoroalkyl sulfonic acids (PFSA's)								
Perfluorobutanesulfonic acid (PFBS)	%	100			50-150	Pass		
Perfluorononanesulfonic acid (PFNS)	%	92			50-150	Pass		
Perfluoropropanesulfonic acid (PFPrS)	%	98			50-150	Pass		
Perfluoropentanesulfonic acid (PFPeS)	%	96			50-150	Pass		
Perfluorohexanesulfonic acid (PFHxS)	%	98			50-150	Pass		
Perfluoroheptanesulfonic acid (PFHpS)	%	92			50-150	Pass		
Perfluorooctanesulfonic acid (PFOS)	%	95			50-150	Pass		
Perfluorodecanesulfonic acid (PFDS)	%	102			50-150	Pass		
LCS - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)								
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	102			50-150	Pass		
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	101			50-150	Pass		
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	96			50-150	Pass		
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	98			50-150	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons				Result 1				
TRH C6-C9	S22-De0032453	NCP	%	75		70-130	Pass	
TRH C10-C14	R22-De0043809	NCP	%	74		70-130	Pass	
TRH C6-C10	S22-De0032453	NCP	%	72		70-130	Pass	
TRH >C10-C16	R22-De0043809	NCP	%	75		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S22-De0032453	NCP	%	76		70-130	Pass	
Toluene	S22-De0032453	NCP	%	74		70-130	Pass	
Ethylbenzene	S22-De0032453	NCP	%	76		70-130	Pass	
m&p-Xylenes	S22-De0032453	NCP	%	77		70-130	Pass	
o-Xylene	S22-De0032453	NCP	%	73		70-130	Pass	
Xylenes - Total*	S22-De0032453	NCP	%	76		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	S22-De0030289	NCP	%	73		70-130	Pass	
Spike - % Recovery								
Organophosphorus Pesticides				Result 1				
Dimethoate	S23-Ja0001392	NCP	%	80		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Endrin aldehyde	N22-De0048225	NCP	%	106		70-130	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Perfluorobutanoic acid (PFBA)	S22-De0050116	CP	%	96		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S22-De0050116	CP	%	101		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S22-De0050116	CP	%	102		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S22-De0050116	CP	%	99		50-150	Pass	
Perfluorooctanoic acid (PFOA)	S22-De0050116	CP	%	101		50-150	Pass	
Perfluorononanoic acid (PFNA)	S22-De0050116	CP	%	101		50-150	Pass	
Perfluorodecanoic acid (PFDA)	S22-De0050116	CP	%	103		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S22-De0050116	CP	%	106		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S22-De0050116	CP	%	107		50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S22-De0050116	CP	%	94		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S22-De0050116	CP	%	103		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances				Result 1				
Perfluorooctane sulfonamide (FOSA)	S22-De0050116	CP	%	98		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-De0050116	CP	%	103		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-De0050116	CP	%	102		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-De0050116	CP	%	98		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-De0050116	CP	%	108		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-De0050116	CP	%	94		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-De0050116	CP	%	104		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1				
Perfluorobutanesulfonic acid (PFBS)	S22-De0050116	CP	%	100		50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S22-De0050116	CP	%	102		50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S22-De0050116	CP	%	94		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S22-De0050116	CP	%	92		50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S22-De0050116	CP	%	103		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S22-De0050116	CP	%	95		50-150	Pass	
Perfluorodecanesulfonic acid (PFDS)	S22-De0050116	CP	%	99		50-150	Pass	
Spike - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-De0050116	CP	%	93		50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-De0050116	CP	%	109		50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-De0050116	CP	%	99		50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-De0050116	CP	%	98		50-150	Pass	
Spike - % Recovery								

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Polycyclic Aromatic Hydrocarbons				Result 1				
Anthracene	S22-De0050117	CP	%	121		70-130	Pass	
Benz(a)anthracene	S22-De0050117	CP	%	114		70-130	Pass	
Benzo(a)pyrene	S22-De0050117	CP	%	124		70-130	Pass	
Benzo(g,h,i)perylene	S22-De0050117	CP	%	129		70-130	Pass	
Chrysene	S22-De0050117	CP	%	117		70-130	Pass	
Dibenz(a,h)anthracene	S22-De0050117	CP	%	109		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S22-De0050117	CP	%	121		70-130	Pass	
Spike - % Recovery								
Organotins				Result 1				
Tributyltin as Sn	S22-De0050118	CP	%	114		60-140	Pass	
Dibutyltin as Sn	S22-De0050118	CP	%	112		60-140	Pass	
Monobutyltin as Sn	S22-De0050118	CP	%	114		60-140	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	S22-De0050130	CP	%	95		70-130	Pass	
Acenaphthylene	S22-De0050130	CP	%	92		70-130	Pass	
Anthracene	S22-De0050130	CP	%	77		70-130	Pass	
Benz(a)anthracene	S22-De0050130	CP	%	99		70-130	Pass	
Benzo(a)pyrene	S22-De0050130	CP	%	112		70-130	Pass	
Benzo(b&j)fluoranthene	S22-De0050130	CP	%	112		70-130	Pass	
Benzo(g,h,i)perylene	S22-De0050130	CP	%	109		70-130	Pass	
Benzo(k)fluoranthene	S22-De0050130	CP	%	110		70-130	Pass	
Chrysene	S22-De0050130	CP	%	106		70-130	Pass	
Dibenz(a,h)anthracene	S22-De0050130	CP	%	106		70-130	Pass	
Fluoranthene	S22-De0050130	CP	%	95		70-130	Pass	
Fluorene	S22-De0050130	CP	%	100		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S22-De0050130	CP	%	105		70-130	Pass	
Naphthalene	S22-De0050130	CP	%	95		70-130	Pass	
Phenanthrene	S22-De0050130	CP	%	107		70-130	Pass	
Pyrene	S22-De0050130	CP	%	87		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S22-De0050130	CP	%	73		70-130	Pass	
4,4'-DDD	S22-De0050130	CP	%	76		70-130	Pass	
4,4'-DDE	S22-De0050130	CP	%	79		70-130	Pass	
4,4'-DDT	S22-De0050130	CP	%	74		70-130	Pass	
a-HCH	S22-De0050130	CP	%	71		70-130	Pass	
Aldrin	S22-De0050130	CP	%	79		70-130	Pass	
b-HCH	S22-De0050130	CP	%	102		70-130	Pass	
d-HCH	S22-De0050130	CP	%	92		70-130	Pass	
Dieldrin	S22-De0050130	CP	%	87		70-130	Pass	
Endosulfan I	S22-De0050130	CP	%	81		70-130	Pass	
Endosulfan II	S22-De0050130	CP	%	87		70-130	Pass	
Endosulfan sulphate	S22-De0050130	CP	%	71		70-130	Pass	
Endrin	S22-De0050130	CP	%	85		70-130	Pass	
Endrin ketone	S22-De0050130	CP	%	102		70-130	Pass	
Heptachlor	S22-De0050130	CP	%	102		70-130	Pass	
Heptachlor epoxide	S22-De0050130	CP	%	89		70-130	Pass	
Hexachlorobenzene	S22-De0050130	CP	%	80		70-130	Pass	
Methoxychlor	S22-De0050130	CP	%	89		70-130	Pass	
Spike - % Recovery								
Organophosphorus Pesticides				Result 1				
Diazinon	S22-De0050130	CP	%	116		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Ethion	S22-De0050130	CP	%	100		70-130	Pass	
Fenitrothion	S22-De0050130	CP	%	123		70-130	Pass	
Methyl parathion	S22-De0050130	CP	%	120		70-130	Pass	
Mevinphos	S22-De0050130	CP	%	110		70-130	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S22-De0050130	CP	%	98		75-125	Pass	
Barium	S22-De0050130	CP	%	97		75-125	Pass	
Beryllium	S22-De0050130	CP	%	101		75-125	Pass	
Boron	S22-De0050130	CP	%	106		75-125	Pass	
Cadmium	S22-De0050130	CP	%	98		75-125	Pass	
Chromium	S22-De0050130	CP	%	92		75-125	Pass	
Cobalt	S22-De0050130	CP	%	85		75-125	Pass	
Copper	S22-De0050130	CP	%	84		75-125	Pass	
Lead	S22-De0050130	CP	%	90		75-125	Pass	
Manganese	S22-De0050130	CP	%	99		75-125	Pass	
Mercury	S22-De0050130	CP	%	116		75-125	Pass	
Nickel	S22-De0050130	CP	%	87		75-125	Pass	
Vanadium	S22-De0050130	CP	%	93		75-125	Pass	
Zinc	S22-De0050130	CP	%	105		75-125	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	S22-De0050131	CP	%	90		70-130	Pass	
Acenaphthylene	S22-De0050131	CP	%	78		70-130	Pass	
Anthracene	S22-De0050131	CP	%	77		70-130	Pass	
Benz(a)anthracene	S22-De0050131	CP	%	94		70-130	Pass	
Benzo(a)pyrene	S22-De0050131	CP	%	93		70-130	Pass	
Benzo(b&j)fluoranthene	S22-De0050131	CP	%	94		70-130	Pass	
Benzo(g,h,i)perylene	S22-De0050131	CP	%	83		70-130	Pass	
Benzo(k)fluoranthene	S22-De0050131	CP	%	98		70-130	Pass	
Chrysene	S22-De0050131	CP	%	82		70-130	Pass	
Dibenz(a,h)anthracene	S22-De0050131	CP	%	79		70-130	Pass	
Fluoranthene	S22-De0050131	CP	%	99		70-130	Pass	
Fluorene	S22-De0050131	CP	%	99		70-130	Pass	
Indeno(1,2,3-cd)pyrene	S22-De0050131	CP	%	77		70-130	Pass	
Naphthalene	S22-De0050131	CP	%	88		70-130	Pass	
Phenanthrene	S22-De0050131	CP	%	105		70-130	Pass	
Pyrene	S22-De0050131	CP	%	93		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S22-De0050131	CP	%	100		70-130	Pass	
4,4'-DDD	S22-De0050131	CP	%	98		70-130	Pass	
4,4'-DDE	S22-De0050131	CP	%	98		70-130	Pass	
4,4'-DDT	S22-De0050131	CP	%	103		70-130	Pass	
a-HCH	S22-De0050131	CP	%	84		70-130	Pass	
Aldrin	S22-De0050131	CP	%	95		70-130	Pass	
b-HCH	S22-De0050131	CP	%	112		70-130	Pass	
d-HCH	S22-De0050131	CP	%	103		70-130	Pass	
Dieldrin	S22-De0050131	CP	%	79		70-130	Pass	
Endosulfan I	S22-De0050131	CP	%	102		70-130	Pass	
Endosulfan II	S22-De0050131	CP	%	99		70-130	Pass	
Endosulfan sulphate	S22-De0050131	CP	%	115		70-130	Pass	
Endrin	S22-De0050131	CP	%	83		70-130	Pass	
Endrin ketone	S22-De0050131	CP	%	114		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
g-HCH (Lindane)	S22-De0050131	CP	%	86			70-130	Pass	
Heptachlor	S22-De0050131	CP	%	116			70-130	Pass	
Heptachlor epoxide	S22-De0050131	CP	%	104			70-130	Pass	
Hexachlorobenzene	S22-De0050131	CP	%	83			70-130	Pass	
Methoxychlor	S22-De0050131	CP	%	100			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S22-De0050131	CP	%	112			70-130	Pass	
Ethion	S22-De0050131	CP	%	86			70-130	Pass	
Fenitrothion	S22-De0050131	CP	%	113			70-130	Pass	
Methyl parathion	S22-De0050131	CP	%	113			70-130	Pass	
Mevinphos	S22-De0050131	CP	%	105			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	S22-De0051502	NCP	mg/kg	< 20	< 20	<1	30%	Pass	
TRH C15-C28	S22-De0051502	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH C29-C36	S22-De0051502	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C10-C16	S22-De0051502	NCP	mg/kg	< 50	< 50	<1	30%	Pass	
TRH >C16-C34	S22-De0051502	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
TRH >C34-C40	S22-De0051502	NCP	mg/kg	< 100	< 100	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	S22-De0050112	CP	%	23	22	4.1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&i)fluoranthene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1,2,3-cd)pyrene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-De0050114	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4,4'-DDD	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDE	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4,4'-DDT	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
b-HCH	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
d-HCH	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Dieldrin	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Endosulfan I	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Endosulfan II	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-HCH (Lindane)	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S22-De0050114	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S22-De0050114	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S22-De0050114	CP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfthion	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S22-De0050114	CP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S22-De0050114	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S22-De0050114	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorononanoic acid (PFNA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-De0050114	CP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-De0050114	CP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-De0050114	CP	ug/kg	< 10	< 10	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-De0050114	CP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate								
Organotins				Result 1	Result 2	RPD		
Tributyltin	S22-De0050117	CP	mg/kg	< 1.25	< 1.25	<1	30%	Pass
Tributyltin as Sn	S22-De0050117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Tributyltin Oxide	S22-De0050117	CP	mg/kg	< 1.25	< 1.25	<1	30%	Pass
Dibutyltin	S22-De0050117	CP	mg/kg	< 1	< 1	<1	30%	Pass
Dibutyltin as Sn	S22-De0050117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Monobutyltin	S22-De0050117	CP	mg/kg	< 0.75	< 0.75	<1	30%	Pass
Monobutyltin as Sn	S22-De0050117	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	S22-De0050119	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10	S22-De0050119	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S22-De0050119	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S22-De0050119	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S22-De0050119	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S22-De0050119	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S22-De0050119	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)anthracene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S22-De0050119	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4,4'-DDD	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDE	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4,4'-DDT	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-HCH	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-HCH	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Endrin aldehyde	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S22-De0050119	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S22-De0050119	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S22-De0050119	CP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfthion	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S22-De0050119	CP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S22-De0050119	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S22-De0050119	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Chromium (hexavalent)	S22-De0050122	CP	mg/kg	< 1	< 1	<1	30%	Pass
Total Organic Carbon	S22-De0050122	CP	%	0.8	0.8	8.9	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S22-De0050123	CP	%	35	36	1.7	30%	Pass

Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S22-De0050125	CP	mg/kg	2.5	2.3	7.3	30%	Pass
Barium	S22-De0050125	CP	mg/kg	< 10	< 10	<1	30%	Pass
Beryllium	S22-De0050125	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	S22-De0050125	CP	mg/kg	17	17	<1	30%	Pass
Cadmium	S22-De0050125	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S22-De0050125	CP	mg/kg	5.0	< 5	2.1	30%	Pass
Cobalt	S22-De0050125	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	S22-De0050125	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	S22-De0050125	CP	mg/kg	5.5	5.4	2.0	30%	Pass
Manganese	S22-De0050125	CP	mg/kg	33	33	1.3	30%	Pass
Mercury	S22-De0050125	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S22-De0050125	CP	mg/kg	< 5	< 5	<1	30%	Pass
Vanadium	S22-De0050125	CP	mg/kg	< 10	< 10	<1	30%	Pass
Zinc	S22-De0050125	CP	mg/kg	12	11	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-De0050125	CP	ug/kg	< 10	< 10	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-De0050125	CP	ug/kg	< 10	< 10	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass

Duplicate								
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD		
Perfluorohexanesulfonic acid (PFHxS)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H,1H,2H,2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-De0050125	CP	ug/kg	< 10	< 10	<1	30%	Pass
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-De0050125	CP	ug/kg	< 5	< 5	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	S22-De0050129	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10	S22-De0050129	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S22-De0050129	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S22-De0050129	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S22-De0050129	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S22-De0050129	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S22-De0050129	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Acenaphthene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Acenaphthylene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Anthracene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benz(a)anthracene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(a)pyrene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(b&j)fluoranthene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(g,h,i)perylene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Benzo(k)fluoranthene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Chrysene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Dibenz(a,h)anthracene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluoranthene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Fluorene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Indeno(1.2.3-cd)pyrene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Naphthalene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Phenanthrene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Pyrene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	S22-De0050129	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
4.4'-DDD	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4.4'-DDE	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
4.4'-DDT	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Aldrin	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
b-HCH	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-HCH	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S22-De0050129	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S22-De0050129	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S22-De0050129	CP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfthion	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S22-De0050129	CP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S22-De0050129	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S22-De0050129	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass

Comments

Particle size distribution analysed by; East West Laboratories; report reference EW230048

Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
I12	Where sampling date has not been provided, Eurofins Environment Testing is not able to determine whether analysis has been performed within recommended holding times.
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Andrew Black	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Dilani Samarakoon	Senior Analyst-Inorganic
Fang Yee Tan	Senior Analyst-Metal
Mickael Ros	Senior Analyst-Metal
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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ERM Sydney
Level 15, 309 Kent St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: **Joseph Ferring**

Report **952366-W**
Project name **KAMAY WHARF PROJECT**
Project ID **0564417**
Received Date **Dec 19, 2022**

Client Sample ID			K_SEWATER	LP_SEWATER
Sample Matrix			Seawater	Seawater
Eurofins Sample No.			S22-De0050133	S22-De0050134
Date Sampled			Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	0.02	mg/L	< 0.02	< 0.02
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1
TRH C6-C10	0.02	mg/L	< 0.02	< 0.02
TRH C6-C10 less BTEX (F1) ^{N04}	0.02	mg/L	< 0.02	< 0.02
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1
BTEX				
Benzene	0.001	mg/L	< 0.001	< 0.001
Toluene	0.001	mg/L	< 0.001	< 0.001
Ethylbenzene	0.001	mg/L	< 0.001	< 0.001
m&p-Xylenes	0.002	mg/L	< 0.002	< 0.002
o-Xylene	0.001	mg/L	< 0.001	< 0.001
Xylenes - Total*	0.003	mg/L	< 0.003	< 0.003
4-Bromofluorobenzene (surr.)	1	%	102	91
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.01	mg/L	< 0.01	< 0.01
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.001	mg/L	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001

Client Sample ID			K_SEWATER	LP_SEWATER
Sample Matrix			Seawater	Seawater
Eurofins Sample No.			S22-De0050133	S22-De0050134
Date Sampled			Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit		
Polycyclic Aromatic Hydrocarbons				
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	57	140
p-Terphenyl-d14 (surr.)	1	%	103	58
Organochlorine Pesticides				
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002
Dibutylchloroendate (surr.)	1	%	63	71
Tetrachloro-m-xylene (surr.)	1	%	136	59
Organophosphorus Pesticides				
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002

Client Sample ID			K_SEWATER	LP_SEWATER
Sample Matrix			Seawater	Seawater
Eurofins Sample No.			S22-De0050133	S22-De0050134
Date Sampled			Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Ethion	0.002	mg/L	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	103	135
Organotins				
Tributyltin	0.0125	mg/L	< 0.0125	< 0.0125
Tributyltin as Sn	0.005	mg/L	< 0.005	< 0.005
Tributyltin Oxide	0.0125	mg/L	< 0.0125	< 0.0125
Dibutyltin	0.01	mg/L	< 0.01	< 0.01
Dibutyltin as Sn	0.005	mg/L	< 0.005	< 0.005
Monobutyltin	0.0075	mg/L	< 0.0075	< 0.0075
Monobutyltin as Sn	0.005	mg/L	< 0.005	< 0.005
Tripropyltin as Sn (surr.)	1	%	68	57
Chromium				
Chromium (hexavalent)	0.005	mg/L	< 0.005	< 0.005
Chromium (trivalent)	0.005	mg/L	< 0.005	< 0.005
Heavy Metals				
Arsenic	0.001	mg/L	0.002	0.002
Barium	0.02	mg/L	< 0.02	< 0.02
Beryllium	0.001	mg/L	< 0.001	< 0.001
Boron	0.05	mg/L	4.1	4.0
Cadmium	0.0002	mg/L	< 0.0002	< 0.0002
Chromium	0.003	mg/L	< 0.003	< 0.003
Cobalt	0.001	mg/L	< 0.001	< 0.001
Copper	0.001	mg/L	< 0.001	< 0.001
Lead	0.001	mg/L	0.001	< 0.001
Manganese	0.005	mg/L	0.006	< 0.005
Mercury	0.0001	mg/L	< 0.0001	< 0.0001
Nickel	0.001	mg/L	< 0.001	< 0.001
Vanadium	0.005	mg/L	< 0.005	< 0.005
Zinc	0.005	mg/L	0.005	< 0.005

Client Sample ID			K_SEWATER	LP_SEWATER
Sample Matrix			Seawater	Seawater
Eurofins Sample No.			S22-De0050133	S22-De0050134
Date Sampled			Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.1	^{G01} < 0.1
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.1	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.1	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.1	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	INT	INT
13C5-PFPeA (surr.)	1	%	INT	87
13C5-PFHxA (surr.)	1	%	INT	141
13C4-PFHpA (surr.)	1	%	INT	148
13C8-PFOA (surr.)	1	%	54	181
13C5-PFNA (surr.)	1	%	57	144
13C6-PFDA (surr.)	1	%	71	138
13C2-PFUnDA (surr.)	1	%	97	159
13C2-PFDoDA (surr.)	1	%	141	195
13C2-PFTeDA (surr.)	1	%	106	133
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	77	144
D3-N-MeFOSA (surr.)	1	%	83	113
D5-N-EtFOSA (surr.)	1	%	93	114
D7-N-MeFOSE (surr.)	1	%	71	108
D9-N-EtFOSE (surr.)	1	%	85	116
D5-N-EtFOSAA (surr.)	1	%	161	INT
D3-N-MeFOSAA (surr.)	1	%	91	144
Perfluoroalkyl sulfonic acids (PFSA)				
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.1	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01

Client Sample ID			K_SEWATER	LP_SEWATER
Sample Matrix			Seawater	Seawater
Eurofins Sample No.			S22-De0050133	S22-De0050134
Date Sampled			Dec 16, 2022	Dec 15, 2022
Test/Reference	LOR	Unit		
Perfluoroalkyl sulfonic acids (PFASs)				
13C3-PFBS (surr.)	1	%	INT	139
18O2-PFHxS (surr.)	1	%	54	140
13C8-PFOS (surr.)	1	%	83	141
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.1	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	< 0.1	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	INT	117
13C2-6:2 FTSA (surr.)	1	%	INT	169
13C2-8:2 FTSA (surr.)	1	%	55	130
13C2-10:2 FTSA (surr.)	1	%	135	194
PFASs Summations				
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.1	< 0.1
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	< 0.1

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Jan 04, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Dec 22, 2022	7 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Dec 22, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Melbourne	Jan 04, 2023	7 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Melbourne	Jan 04, 2023	7 Days
Organotins - Method: LTM-ORG-2400 Determination of organotins in solid & aqueous samples by LC-ICP-MS	Melbourne	Dec 22, 2022	7 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270)	Melbourne	Jan 04, 2023	7 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS (USEPA 8270)	Melbourne	Jan 04, 2023	7 Days
Chromium (hexavalent) - Method: In-house method E057.1	Sydney	Dec 22, 2022	28 Days
Chromium (trivalent) - Method: E043 /E057 Total Speciated Chromium	Sydney	Dec 21, 2022	28 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Dec 22, 2022	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 22, 2022	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 22, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 22, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 22, 2022	28 Days
PFASs Summations - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Sydney	Dec 21, 2022	

Company Name:	ERM Sydney	Order No.:		Received:	Dec 19, 2022 5:30 PM
Address:	Level 15, 309 Kent St Sydney NSW 2000	Report #:	952366	Due:	Jan 10, 2023
Project Name:	KAMAY WHARF PROJECT	Phone:	02 8584 8888	Priority:	1 Day
Project ID:	0564417	Fax:	02 8584 8800	Contact Name:	Joseph Ferring
Eurofins Analytical Services Manager : Quinn Raw					

Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
External Laboratory							X													
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID															
1	K_SED06_0.0	Dec 16, 2022		Soil	S22-De0050106		X	X	X		X	X	X	X	X	X		X		X
2	K_SED06_0.5	Dec 16, 2022		Soil	S22-De0050107		X	X	X		X	X	X	X	X	X		X		X
3	K_SED06_1.0	Dec 16, 2022		Soil	S22-De0050108		X	X	X		X	X	X	X	X	X		X		X
4	LP_SED02_0.0	Dec 15, 2022		Soil	S22-De0050109		X	X	X		X	X	X	X	X	X		X		X
5	LP_SED02_0.5	Dec 15, 2022		Soil	S22-De0050110		X	X	X		X	X	X	X	X	X		X		X
6	LP_SED02_1.0	Dec 15, 2022		Soil	S22-De0050111		X	X	X		X	X	X	X	X	X		X		X
7	LP_SED03_0.0	Dec 15, 2022		Soil	S22-De0050112		X	X	X		X	X	X	X	X	X		X		X
8	LP_SED03_0.5	Dec 15, 2022		Soil	S22-De0050113		X	X	X		X	X	X	X	X	X		X		X
9	LP_SED03_1.0	Dec 15, 2022		Soil	S22-De0050114		X	X	X		X	X	X	X	X	X		X		X

Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 0564417

Order No.:
Report #: 952366
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Dec 19, 2022 5:30 PM
Due: Jan 10, 2023
Priority: 1 Day
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail				HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins	
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X			X					X
Sydney Laboratory - NATA # 1261 Site # 18217				X			X	X	X	X	X	X	X	X	X	X	X	X	
	0																		
10	K_SED05_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
11	K_SED05_0.4	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
12	K_SED05_0.75	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
13	K_SED02_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
14	K_SED02_0.5	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
15	K_SED02_1.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
16	K_SED04_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
17	K_SED04_0.5	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
18	K_SED04_1.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
19	K_SED03_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
20	K_SED03_0.5	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
21	K_SED03_1.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X
22	K_SED01_0.0	Dec 16, 2022	Soil			X	X	X		X	X	X	X	X		X			X

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Melbourne Laboratory - NATA # 1261 Site # 1254						X	X	X	X	X	X			X					X
Sydney Laboratory - NATA # 1261 Site # 18217				X			X	X	X	X	X	X	X	X	X	X	X	X	
23	K_SED01_05	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
24	K_SED01_1.0	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
25	K_SED_D01_22126	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
26	K_SED_D02_22126	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
27	K_SED_D03_22126	Dec 16, 2022	Soil		X	X	X		X	X	X	X	X	X		X		X	
28	K_SEWATER	Dec 16, 2022	Seawater				X		X	X	X	X		X		X		X	
29	LP_SEWATER	Dec 15, 2022	Seawater				X		X	X	X	X		X		X		X	
30	K_EL06_0.0	Dec 16, 2022	Soil	X															
31	K_EL06_0.5	Dec 16, 2022	Soil	X															
32	K_EL06_1.0	Dec 16, 2022	Soil	X															
33	LP_EL02_0.0	Dec 15, 2022	Soil	X															
34	LP_EL02_0.5	Dec 15, 2022	Soil	X															
35	LP_EL02_1.5	Dec 15, 2022	Soil	X															

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Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X					X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X		
36	LP_EL03_0.0	Dec 15, 2022		Soil	S22-De0050141	X															
37	LP_EL03_0.5	Dec 15, 2022		Soil	S22-De0050142	X															
38	LP_EL03_1.0	Dec 15, 2022		Soil	S22-De0050143	X															
39	K_EL05_0.0	Dec 16, 2022		Soil	S22-De0050144	X															
40	K_EL05_0.4	Dec 16, 2022		Soil	S22-De0050145	X															
41	K_EL05_0.75	Dec 16, 2022		Soil	S22-De0050146	X															
42	K_EL02_0.0	Dec 16, 2022		Soil	S22-De0050147	X															
43	K_EL02_0.5	Dec 16, 2022		Soil	S22-De0050148	X															
44	K_EL02-1.0	Dec 16, 2022		Soil	S22-De0050149	X															
45	K_EL04_0.0	Dec 16, 2022		Soil	S22-De0050150	X															
46	K_EL04_0.5	Dec 16, 2022		Soil	S22-De0050151	X															
47	K_EL04_1.0	Dec 16, 2022		Soil	S22-De0050152	X															
48	K_EL03_0.0	Dec 16, 2022		Soil	S22-De0050153	X															
49	K_EL03_0.5	Dec 16, 2022		Soil	S22-De0050154	X															
50	K_EL03_1.0	Dec 16, 2022		Soil	S22-De0050155	X															

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Sample Detail						HOLD	Particle Size Distribution	Total Organic Carbon	Polycyclic Aromatic Hydrocarbons	Polycyclic Aromatic Hydrocarbons	Suite B14: OCP/OPP	Suite B14: OCP/OPP	NEPM 1999 Metals : Metals M15	BTEX and Naphthalene	Moisture Set	Total Recoverable Hydrocarbons	BTEXN and Volatile TRH	Per- and Polyfluoroalkyl Substances (PFASs)	BTEXN and Volatile TRH	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254								X	X	X	X	X	X			X				X
Sydney Laboratory - NATA # 1261 Site # 18217						X			X	X	X	X	X	X	X	X	X	X	X	
51	K_EL01_0.0	Dec 16, 2022		Soil	S22-De0050156	X														
52	K_EL01_0.5	Dec 16, 2022		Soil	S22-De0050157	X														
53	K_EL0_1.0	Dec 16, 2022		Soil	S22-De0050158	X														
54	TS	Not Provided		Soil	S22-De0050159														X	
55	TB	Not Provided		Soil	S22-De0050160												X			
Test Counts						24	27	27	29	29	29	29	29	29	27	29	1	29	1	29

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPaA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.02			0.02	Pass	
TRH C10-C14	mg/L	< 0.05			0.05	Pass	
TRH C15-C28	mg/L	< 0.1			0.1	Pass	
TRH C29-C36	mg/L	< 0.1			0.1	Pass	
TRH C6-C10	mg/L	< 0.02			0.02	Pass	
TRH >C10-C16	mg/L	< 0.05			0.05	Pass	
TRH >C16-C34	mg/L	< 0.1			0.1	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.01			0.01	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.002			0.002	Pass	
4,4'-DDD	mg/L	< 0.0002			0.0002	Pass	
4,4'-DDE	mg/L	< 0.0002			0.0002	Pass	
4,4'-DDT	mg/L	< 0.0002			0.0002	Pass	
a-HCH	mg/L	< 0.0002			0.0002	Pass	
Aldrin	mg/L	< 0.0002			0.0002	Pass	
b-HCH	mg/L	< 0.0002			0.0002	Pass	
d-HCH	mg/L	< 0.0002			0.0002	Pass	
Dieldrin	mg/L	< 0.0002			0.0002	Pass	
Endosulfan I	mg/L	< 0.0002			0.0002	Pass	
Endosulfan II	mg/L	< 0.0002			0.0002	Pass	
Endosulfan sulphate	mg/L	< 0.0002			0.0002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endrin	mg/L	< 0.0002			0.0002	Pass	
Endrin aldehyde	mg/L	< 0.0002			0.0002	Pass	
Endrin ketone	mg/L	< 0.0002			0.0002	Pass	
g-HCH (Lindane)	mg/L	< 0.0002			0.0002	Pass	
Heptachlor	mg/L	< 0.0002			0.0002	Pass	
Heptachlor epoxide	mg/L	< 0.0002			0.0002	Pass	
Hexachlorobenzene	mg/L	< 0.0002			0.0002	Pass	
Methoxychlor	mg/L	< 0.0002			0.0002	Pass	
Toxaphene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.002			0.002	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.02			0.02	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Organotins							
Tributyltin	mg/L	< 0.0125			0.0125	Pass	
Tributyltin as Sn	mg/L	< 0.005			0.005	Pass	
Tributyltin Oxide	mg/L	< 0.0125			0.0125	Pass	
Dibutyltin	mg/L	< 0.01			0.01	Pass	
Dibutyltin as Sn	mg/L	< 0.005			0.005	Pass	
Monobutyltin	mg/L	< 0.0075			0.0075	Pass	
Monobutyltin as Sn	mg/L	< 0.005			0.005	Pass	
Method Blank							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Barium	mg/L	< 0.02			0.02	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	
Boron	mg/L	< 0.05			0.05	Pass	
Cadmium	mg/L	< 0.0002			0.0002	Pass	
Chromium	mg/L	< 0.003			0.003	Pass	
Cobalt	mg/L	< 0.001			0.001	Pass	
Copper	mg/L	< 0.001			0.001	Pass	
Lead	mg/L	< 0.001			0.001	Pass	
Manganese	mg/L	< 0.005			0.005	Pass	
Mercury	mg/L	< 0.0001			0.0001	Pass	
Nickel	mg/L	< 0.001			0.001	Pass	
Vanadium	mg/L	< 0.005			0.005	Pass	
Zinc	mg/L	< 0.005			0.005	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05			0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01			0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01			0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01			0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01			0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01			0.01	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05			0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05			0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05			0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05			0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05			0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05			0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05			0.05	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01			0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01			0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01			0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01			0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01			0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01			0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01			0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01			0.01	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05			0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01			0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01			0.01	Pass	
LCS - % Recovery							

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Total Recoverable Hydrocarbons							
TRH C6-C9	%	71			70-130	Pass	
TRH C10-C14	%	103			70-130	Pass	
TRH C6-C10	%	71			70-130	Pass	
TRH >C10-C16	%	104			70-130	Pass	
LCS - % Recovery							
BTEX							
Benzene	%	84			70-130	Pass	
Toluene	%	87			70-130	Pass	
Ethylbenzene	%	79			70-130	Pass	
m&p-Xylenes	%	79			70-130	Pass	
o-Xylene	%	83			70-130	Pass	
Xylenes - Total*	%	80			70-130	Pass	
LCS - % Recovery							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	%	96			70-130	Pass	
LCS - % Recovery							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	%	118			70-130	Pass	
Acenaphthylene	%	128			70-130	Pass	
Anthracene	%	86			70-130	Pass	
Benz(a)anthracene	%	128			70-130	Pass	
Benzo(a)pyrene	%	120			70-130	Pass	
Benzo(b&j)fluoranthene	%	108			70-130	Pass	
Benzo(g,h,i)perylene	%	76			70-130	Pass	
Benzo(k)fluoranthene	%	98			70-130	Pass	
Chrysene	%	92			70-130	Pass	
Dibenz(a,h)anthracene	%	118			70-130	Pass	
Fluoranthene	%	86			70-130	Pass	
Fluorene	%	110			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	80			70-130	Pass	
Naphthalene	%	73			70-130	Pass	
Phenanthrene	%	96			70-130	Pass	
Pyrene	%	126			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	109			70-130	Pass	
4,4'-DDD	%	96			70-130	Pass	
4,4'-DDE	%	127			70-130	Pass	
4,4'-DDT	%	96			70-130	Pass	
a-HCH	%	88			70-130	Pass	
Aldrin	%	108			70-130	Pass	
b-HCH	%	106			70-130	Pass	
d-HCH	%	124			70-130	Pass	
Dieldrin	%	126			70-130	Pass	
Endosulfan I	%	112			70-130	Pass	
Endosulfan II	%	104			70-130	Pass	
Endosulfan sulphate	%	82			70-130	Pass	
Endrin	%	74			70-130	Pass	
Endrin aldehyde	%	116			70-130	Pass	
Endrin ketone	%	122			70-130	Pass	
g-HCH (Lindane)	%	110			70-130	Pass	
Heptachlor	%	88			70-130	Pass	
Heptachlor epoxide	%	116			70-130	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Hexachlorobenzene	%	119		70-130	Pass	
Methoxychlor	%	78		70-130	Pass	
LCS - % Recovery						
Organophosphorus Pesticides						
Diazinon	%	74		70-130	Pass	
Dimethoate	%	82		70-130	Pass	
Ethion	%	124		70-130	Pass	
Fenitrothion	%	106		70-130	Pass	
Methyl parathion	%	91		70-130	Pass	
Mevinphos	%	120		70-130	Pass	
LCS - % Recovery						
Organotins						
Tributyltin as Sn	%	113		60-140	Pass	
Dibutyltin as Sn	%	75		60-140	Pass	
Monobutyltin as Sn	%	89		60-140	Pass	
LCS - % Recovery						
Heavy Metals						
Arsenic	%	91		80-120	Pass	
Barium	%	95		80-120	Pass	
Beryllium	%	84		80-120	Pass	
Boron	%	85		80-120	Pass	
Cadmium	%	93		80-120	Pass	
Chromium	%	92		80-120	Pass	
Cobalt	%	93		80-120	Pass	
Copper	%	91		80-120	Pass	
Lead	%	91		80-120	Pass	
Manganese	%	92		80-120	Pass	
Mercury	%	113		80-120	Pass	
Nickel	%	92		80-120	Pass	
Vanadium	%	93		80-120	Pass	
Zinc	%	90		80-120	Pass	
LCS - % Recovery						
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	%	89		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	94		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	94		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	91		50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	93		50-150	Pass	
Perfluorononanoic acid (PFNA)	%	93		50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	94		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	98		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	95		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	%	99		50-150	Pass	
LCS - % Recovery						
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)	%	88		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	95		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	93		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	90		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	102		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	90		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	92		50-150	Pass	
LCS - % Recovery						
Perfluoroalkyl sulfonic acids (PFSAs)						

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Perfluorobutanesulfonic acid (PFBS)	%	91			50-150	Pass		
Perfluorononanesulfonic acid (PFNS)	%	96			50-150	Pass		
Perfluoropropanesulfonic acid (PFPrS)	%	85			50-150	Pass		
Perfluoropentanesulfonic acid (PFPeS)	%	84			50-150	Pass		
Perfluorohexanesulfonic acid (PFHxS)	%	94			50-150	Pass		
Perfluoroheptanesulfonic acid (PFHpS)	%	86			50-150	Pass		
Perfluorooctanesulfonic acid (PFOS)	%	89			50-150	Pass		
LCS - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)								
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	95			50-150	Pass		
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	99			50-150	Pass		
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	99			50-150	Pass		
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	97			50-150	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons				Result 1				
TRH C10-C14	M22-De0057797	NCP	%	112		70-130	Pass	
TRH >C10-C16	M22-De0057797	NCP	%	112		70-130	Pass	
Spike - % Recovery								
Organotins				Result 1				
Tributyltin as Sn	S22-No0070361	NCP	%	98		60-140	Pass	
Dibutyltin as Sn	S22-No0070361	NCP	%	90		60-140	Pass	
Monobutyltin as Sn	S22-No0070361	NCP	%	89		60-140	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	R22-De0043455	NCP	%	97		75-125	Pass	
Barium	R22-De0043455	NCP	%	98		75-125	Pass	
Beryllium	R22-De0043455	NCP	%	84		75-125	Pass	
Boron	S22-De0047087	NCP	%	102		75-125	Pass	
Cadmium	R22-De0043455	NCP	%	95		75-125	Pass	
Chromium	R22-De0043455	NCP	%	92		75-125	Pass	
Cobalt	R22-De0043455	NCP	%	90		75-125	Pass	
Copper	R22-De0043455	NCP	%	90		75-125	Pass	
Lead	R22-De0043455	NCP	%	88		75-125	Pass	
Manganese	R22-De0043455	NCP	%	94		75-125	Pass	
Mercury	R22-De0043455	NCP	%	105		75-125	Pass	
Nickel	R22-De0043455	NCP	%	88		75-125	Pass	
Vanadium	R22-De0043455	NCP	%	95		75-125	Pass	
Zinc	R22-De0043455	NCP	%	90		75-125	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	S22-De0049528	NCP	%	92		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S22-De0049528	NCP	%	95		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S22-De0049528	NCP	%	97		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S22-De0049528	NCP	%	97		50-150	Pass	
Perfluorooctanoic acid (PFOA)	S22-De0049528	NCP	%	94		50-150	Pass	
Perfluorononanoic acid (PFNA)	S22-De0049528	NCP	%	93		50-150	Pass	
Perfluorodecanoic acid (PFDA)	S22-De0049528	NCP	%	94		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S22-De0049528	NCP	%	100		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S22-De0049528	NCP	%	102		50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	S22-De0049528	NCP	%	108		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S22-De0049528	NCP	%	100		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Perfluoroalkyl sulfonamido substances				Result 1					
Perfluorooctane sulfonamide (FOSA)	S22-De0049528	NCP	%	92			50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-De0049528	NCP	%	98			50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-De0049528	NCP	%	99			50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-De0049528	NCP	%	98			50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-De0049528	NCP	%	98			50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-De0049528	NCP	%	96			50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-De0049528	NCP	%	101			50-150	Pass	
Spike - % Recovery									
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1					
Perfluorobutanesulfonic acid (PFBS)	S22-De0049528	NCP	%	92			50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S22-De0049528	NCP	%	100			50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S22-De0049528	NCP	%	88			50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S22-De0049528	NCP	%	91			50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S22-De0049528	NCP	%	87			50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S22-De0049528	NCP	%	90			50-150	Pass	
Spike - % Recovery									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)				Result 1					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-De0049528	NCP	%	98			50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-De0049528	NCP	%	102			50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-De0049528	NCP	%	101			50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-De0049528	NCP	%	100			50-150	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD			
TRH C10-C14	M22-De0056662	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH C15-C28	M22-De0056662	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH C29-C36	M22-De0056662	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C10-C16	M22-De0056662	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
TRH >C16-C34	M22-De0056662	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
TRH >C34-C40	M22-De0056662	NCP	mg/L	< 0.1	< 0.1	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Acenaphthylene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Anthracene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Benz(a)anthracene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	

Duplicate								
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD		
Benzo(a)pyrene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(b&j)fluoranthene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(g,h,i)perylene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Benzo(k)fluoranthene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Chrysene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Dibenz(a,h)anthracene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluoranthene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Fluorene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Indeno(1,2,3-cd)pyrene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Naphthalene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Phenanthrene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Pyrene	M22-De0046886	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
Chlordanes - Total	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
4,4'-DDD	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
4,4'-DDE	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
4,4'-DDT	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
a-HCH	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Aldrin	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
b-HCH	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
d-HCH	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Dieldrin	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan I	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan II	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endosulfan sulphate	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin aldehyde	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Endrin ketone	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
g-HCH (Lindane)	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Heptachlor	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Heptachlor epoxide	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Hexachlorobenzene	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Methoxychlor	M22-De0046886	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Toxaphene	M22-De0046886	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Bolstar	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorfenvinphos	M22-De0046886	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Chlorpyrifos	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Chlorpyrifos-methyl	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Coumaphos	M22-De0046886	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Demeton-S	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Demeton-O	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Diazinon	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dichlorvos	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Dimethoate	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Disulfoton	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
EPN	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethion	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethoprop	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ethyl parathion	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenitrothion	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass

Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Fensulfthion	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Fenthion	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Malathion	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Merphos	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Methyl parathion	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Mevinphos	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Monocrotophos	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Naled	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Omethoate	M22-De0046886	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Phorate	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Pirimiphos-methyl	M22-De0046886	NCP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Pyrazophos	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Ronnel	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Terbufos	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tetrachlorvinphos	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Tokuthion	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Trichloronate	M22-De0046886	NCP	mg/L	< 0.002	< 0.002	<1	30%	Pass
Duplicate								
Organotin				Result 1	Result 2	RPD		
Tributyltin	S22-De0036277	NCP	mg/L	< 0.0125	< 0.0125	<1	30%	Pass
Tributyltin as Sn	S22-De0036277	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Tributyltin Oxide	S22-De0036277	NCP	mg/L	< 0.0125	< 0.0125	<1	30%	Pass
Dibutyltin	S22-De0036277	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass
Dibutyltin as Sn	S22-De0036277	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Monobutyltin	S22-De0036277	NCP	mg/L	< 0.0075	< 0.0075	<1	30%	Pass
Monobutyltin as Sn	S22-De0036277	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S22-De0047126	NCP	mg/L	0.016	0.016	1.6	30%	Pass
Barium	S22-De0047126	NCP	mg/L	1.0	1.1	9.1	30%	Pass
Beryllium	S22-De0047126	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Boron	S22-De0047126	NCP	mg/L	0.07	0.06	<1	30%	Pass
Cadmium	S22-De0047126	NCP	mg/L	< 0.0002	< 0.0002	<1	30%	Pass
Chromium	S22-De0047126	NCP	mg/L	0.010	0.010	<1	30%	Pass
Cobalt	S22-De0047126	NCP	mg/L	0.007	0.007	<1	30%	Pass
Copper	S22-De0047126	NCP	mg/L	0.024	0.024	1.0	30%	Pass
Lead	S22-De0047126	NCP	mg/L	0.008	0.008	3.3	30%	Pass
Manganese	S22-De0047126	NCP	mg/L	0.42	0.43	<1	30%	Pass
Mercury	S22-De0047126	NCP	mg/L	< 0.0001	< 0.0001	<1	30%	Pass
Nickel	S22-De0047126	NCP	mg/L	0.008	0.009	8.3	30%	Pass
Vanadium	S22-De0047126	NCP	mg/L	0.017	0.016	8.3	30%	Pass
Zinc	S22-De0047126	NCP	mg/L	0.053	0.053	<1	30%	Pass
Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S22-De0050934	NCP	ug/L	0.02	0.02	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S22-De0050934	NCP	ug/L	0.02	0.02	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S22-De0050934	NCP	ug/L	0.02	0.02	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorotridecanoic acid (PFTrDA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFASs)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S22-De0050934	NCP	ug/L	0.02	0.02	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S22-De0050934	NCP	ug/L	0.05	0.04	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-De0050934	NCP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-De0050934	NCP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	S22-De0050134	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass
TRH C6-C10	S22-De0050134	CP	mg/L	< 0.02	< 0.02	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S22-De0050134	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Toluene	S22-De0050134	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
Ethylbenzene	S22-De0050134	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass
m&p-Xylenes	S22-De0050134	CP	mg/L	< 0.002	< 0.002	<1	30%	Pass

Duplicate									
BTEX				Result 1	Result 2	RPD			
o-Xylene	S22-De0050134	CP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Xylenes - Total*	S22-De0050134	CP	mg/L	< 0.003	< 0.003	<1	30%	Pass	
Duplicate									
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD			
Naphthalene	S22-De0050134	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
G01	The LORs have been raised due to matrix interference
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).

Authorised by:

Andrew Black	Analytical Services Manager
Dilani Samarakoon	Senior Analyst-Inorganic
Fang Yee Tan	Senior Analyst-Metal
Joseph Edouard	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Sample Receipt Advice

Company name:	ERM Sydney
Contact name:	Joseph Ferring
Project name:	KAMAY WHARF PROJECT
Project ID:	564417
Turnaround time:	10 Day
Date/Time received	Dec 22, 2022 7:07 PM
Eurofins reference	953157

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✓ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Samples LP-SED-TO1,2,3 sent to ALS.
Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Quinn Raw on phone : or by email: QuinnRaw@eurofins.com

Results will be delivered electronically via email to Joseph Ferring - Joseph.Ferring@erm.com.

Note: A copy of these results will also be delivered to the general ERM Sydney email address.

ERM Sydney
Level 15, 309 Kent St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: **Joseph Ferring**

Report **953157-S**
Project name **KAMAY WHARF PROJECT**
Project ID **0564417**
Received Date **Dec 22, 2022**

Client Sample ID			LP-SED01-0.0	LP-SED01-0.5	LP-SED01-1.0	LP-SED04-0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056924	S22-De0056925	S22-De0056926	S22-De0056927
Date Sampled			Dec 22, 2022	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	105	91	78	125
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.9

Client Sample ID			LP-SED01-0.0	LP-SED01-0.5	LP-SED01-1.0	LP-SED04-0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056924	S22-De0056925	S22-De0056926	S22-De0056927
Date Sampled			Dec 22, 2022	Not Provided ¹¹²	Not Provided ¹¹²	Not Provided ¹¹²
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.6
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	0.7
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	1.3
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	5.5
2-Fluorobiphenyl (surr.)	1	%	80	92	90	93
p-Terphenyl-d14 (surr.)	1	%	70	102	77	66
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	95	104	118	86
Tetrachloro-m-xylene (surr.)	1	%	81	95	98	91
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			LP-SED01-0.0	LP-SED01-0.5	LP-SED01-1.0	LP-SED04-0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056924	S22-De0056925	S22-De0056926	S22-De0056927
Date Sampled			Dec 22, 2022	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	81	85	92	69
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	131	126	126	137
Total Organic Carbon						
Total Organic Carbon	0.1	%	< 0.1	< 0.1	< 0.1	1.5
% Moisture						
% Moisture	1	%	19	17	20	24
Particle Size by Sieve analysis*						
<63 Micron	0.1	% w/w	7.7	1.0	5.6	7.5
>2000 Micron	0.1	% w/w	42	57	4.1	39
1000-2000 Micron	0.1	% w/w	12	7.2	8.4	13
125-250 Micron	0.1	% w/w	29	15	38	8.6
250-500 Micron	0.1	% w/w	5.7	6.3	23	13
500-1000 Micron	0.1	% w/w	2.5	8.0	15	18
63-125 Micron	0.1	% w/w	1.2	5.1	6.0	1.8

Client Sample ID			LP-SED01-0.0	LP-SED01-0.5	LP-SED01-1.0	LP-SED04-0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056924	S22-De0056925	S22-De0056926	S22-De0056927
Date Sampled			Dec 22, 2022	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Heavy Metals						
Arsenic	2	mg/kg	< 2	3.5	3.7	2.1
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	< 10	16	< 10	18
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	< 5	< 5	< 5	8.1
Manganese	5	mg/kg	8.4	12	< 5	15
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	2.2	< 2	< 2
Vanadium	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	8.0	6.5	< 5	19
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	53	63	55	57
13C5-PFPeA (surr.)	1	%	71	88	73	74
13C5-PFHxA (surr.)	1	%	71	73	70	75
13C4-PFHpA (surr.)	1	%	82	86	73	74
13C8-PFOA (surr.)	1	%	72	78	85	79
13C5-PFNA (surr.)	1	%	83	87	81	76
13C6-PFDA (surr.)	1	%	90	94	94	86
13C2-PFUnDA (surr.)	1	%	122	132	125	114
13C2-PFDoDA (surr.)	1	%	99	96	96	90
13C2-PFTeDA (surr.)	1	%	127	130	114	115
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	78	79	87	74

Client Sample ID			LP-SED01-0.0	LP-SED01-0.5	LP-SED01-1.0	LP-SED04-0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056924	S22-De0056925	S22-De0056926	S22-De0056927
Date Sampled			Dec 22, 2022	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D3-N-MeFOSA (surr.)	1	%	104	104	113	101
D5-N-EtFOSA (surr.)	1	%	87	84	76	64
D7-N-MeFOSE (surr.)	1	%	76	85	79	95
D9-N-EtFOSE (surr.)	1	%	96	96	96	105
D5-N-EtFOSAA (surr.)	1	%	48	49	48	51
D3-N-MeFOSAA (surr.)	1	%	61	63	61	59
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	90	94	87	90
18O2-PFHxS (surr.)	1	%	104	105	96	91
13C8-PFOS (surr.)	1	%	94	97	97	93
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	34	32	36	32
13C2-6:2 FTSA (surr.)	1	%	39	42	46	51
13C2-8:2 FTSA (surr.)	1	%	60	59	62	48
13C2-10:2 FTSA (surr.)	1	%	57	59	58	58
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			LP-SED04-0.5	LP-SED04-1	LP-SED05-0	LP-SED05-0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056928	S22-De0056929	S22-De0056930	S22-De0056931
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	100	110	89	107
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	91	95	85	85
p-Terphenyl-d14 (surr.)	1	%	68	94	70	72

Client Sample ID			LP-SED04-0.5	LP-SED04-1	LP-SED05-0	LP-SED05-0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056928	S22-De0056929	S22-De0056930	S22-De0056931
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	82	127	82	68
Tetrachloro-m-xylene (surr.)	1	%	89	104	88	87
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2

Client Sample ID			LP-SED04-0.5	LP-SED04-1	LP-SED05-0	LP-SED05-0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056928	S22-De0056929	S22-De0056930	S22-De0056931
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	62	96	58	53
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	133	128	126	125
Total Organic Carbon						
Total Organic Carbon	0.1	%	2.0	< 0.1	< 0.1	0.6
% Moisture						
% Moisture	1	%	23	12	26	26
Particle Size by Sieve analysis*						
<63 Micron	0.1	% w/w	< 0.1	2.4	1.7	0.9
>2000 Micron	0.1	% w/w	22	56	64	60
1000-2000 Micron	0.1	% w/w	18	2.6	10	9.5
125-250 Micron	0.1	% w/w	23	8.4	6.7	11
250-500 Micron	0.1	% w/w	19	13	7.6	9.3
500-1000 Micron	0.1	% w/w	10	13	5.9	6.6
63-125 Micron	0.1	% w/w	8.5	4.3	4.3	3.3
Heavy Metals						
Arsenic	2	mg/kg	3.3	< 2	< 2	< 2
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	2.5	< 2	< 2	< 2
Boron	10	mg/kg	18	14	15	17
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5	< 5
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	9.5	< 5	6.5	7.8
Manganese	5	mg/kg	17	9.1	13	14
Mercury	0.1	mg/kg	0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	3.4	< 2	< 2	< 2
Vanadium	10	mg/kg	< 10	< 10	< 10	< 10
Zinc	5	mg/kg	15	6.3	23	13

Client Sample ID			LP-SED04-0.5	LP-SED04-1	LP-SED05-0	LP-SED05-0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056928	S22-De0056929	S22-De0056930	S22-De0056931
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	58	57	48	46
13C5-PFPeA (surr.)	1	%	80	77	66	71
13C5-PFHxA (surr.)	1	%	75	68	69	72
13C4-PFHpA (surr.)	1	%	69	84	61	69
13C8-PFOA (surr.)	1	%	77	75	69	72
13C5-PFNA (surr.)	1	%	80	85	74	81
13C6-PFDA (surr.)	1	%	87	87	87	88
13C2-PFUnDA (surr.)	1	%	125	129	126	114
13C2-PFDoDA (surr.)	1	%	87	88	89	89
13C2-PFTeDA (surr.)	1	%	124	119	104	119
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	75	80	70	82
D3-N-MeFOSA (surr.)	1	%	90	99	99	99
D5-N-EtFOSA (surr.)	1	%	72	83	68	77
D7-N-MeFOSE (surr.)	1	%	90	85	84	87
D9-N-EtFOSE (surr.)	1	%	82	109	79	80
D5-N-EtFOSAA (surr.)	1	%	46	48	45	51
D3-N-MeFOSAA (surr.)	1	%	54	59	54	56
Perfluoroalkyl sulfonic acids (PFSA)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5

Client Sample ID			LP-SED04-0.5	LP-SED04-1	LP-SED05-0	LP-SED05-0.4
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056928	S22-De0056929	S22-De0056930	S22-De0056931
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonic acids (PFASs)						
13C3-PFBS (surr.)	1	%	73	95	79	76
18O2-PFHxS (surr.)	1	%	77	92	91	94
13C8-PFOS (surr.)	1	%	88	91	91	92
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	35	32	24	31
13C2-6:2 FTSA (surr.)	1	%	45	52	49	40
13C2-8:2 FTSA (surr.)	1	%	50	51	45	55
13C2-10:2 FTSA (surr.)	1	%	52	54	52	56
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			LP-SED05-0.75	LP-SED06-0	LP-SED06-0.5	LP-SED06-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056932	S22-De0056933	S22-De0056934	S22-De0056935
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons						
TRH C6-C9	20	mg/kg	< 20	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100	< 100
BTEX						
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	109	99	110	100

Client Sample ID			LP-SED05-0.75	LP-SED06-0	LP-SED06-0.5	LP-SED06-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056932	S22-De0056933	S22-De0056934	S22-De0056935
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons						
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.6	0.6
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Indeno(1.2.3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
2-Fluorobiphenyl (surr.)	1	%	90	95	92	86
p-Terphenyl-d14 (surr.)	1	%	84	80	81	74
Organochlorine Pesticides						
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
4,4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
4,4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			LP-SED05-0.75	LP-SED06-0	LP-SED06-0.5	LP-SED06-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056932	S22-De0056933	S22-De0056934	S22-De0056935
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Organochlorine Pesticides						
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Dibutylchlorendate (surr.)	1	%	87	119	118	99
Tetrachloro-m-xylene (surr.)	1	%	89	97	100	89
Organophosphorus Pesticides						
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	60	91	83	66
Organotins						
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	119	119	119	122

Client Sample ID			LP-SED05-0.75	LP-SED06-0	LP-SED06-0.5	LP-SED06-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056932	S22-De0056933	S22-De0056934	S22-De0056935
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Total Organic Carbon	0.1	%	< 0.1	0.8	1.5	0.3
% Moisture	1	%	25	18	21	18
Particle Size by Sieve analysis*						
<63 Micron	0.1	% w/w	18	3.4	7.3	2.4
>2000 Micron	0.1	% w/w	64	46	51	0.2
1000-2000 Micron	0.1	% w/w	6.3	1.3	13	3.4
125-250 Micron	0.1	% w/w	0.7	17	14	58
250-500 Micron	0.1	% w/w	5.5	17	3.6	29
500-1000 Micron	0.1	% w/w	2.9	15	5.4	4.2
63-125 Micron	0.1	% w/w	3.0	0.7	6.3	3.0
Heavy Metals						
Arsenic	2	mg/kg	< 2	4.3	2.4	5.8
Barium	10	mg/kg	< 10	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2	< 2
Boron	10	mg/kg	14	18	22	< 10
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	< 5	< 5	7.6
Copper	5	mg/kg	< 5	< 5	< 5	< 5
Lead	5	mg/kg	17	6.9	< 5	< 5
Manganese	5	mg/kg	8.3	14	12	< 5
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2	< 2
Vanadium	10	mg/kg	< 10	< 10	< 10	20
Zinc	5	mg/kg	13	8.8	5.8	< 5
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTeDA) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	50	52	54	53
13C5-PFPeA (surr.)	1	%	69	74	68	70
13C5-PFHxA (surr.)	1	%	61	76	66	64
13C4-PFHpA (surr.)	1	%	84	72	82	84
13C8-PFOA (surr.)	1	%	78	71	78	83
13C5-PFNA (surr.)	1	%	83	78	74	79
13C6-PFDA (surr.)	1	%	83	88	87	86
13C2-PFUnDA (surr.)	1	%	114	118	114	112
13C2-PFDoDA (surr.)	1	%	84	85	86	83
13C2-PFTeDA (surr.)	1	%	115	111	107	106

Client Sample ID			LP-SED05-0.75	LP-SED06-0	LP-SED06-0.5	LP-SED06-1
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			S22-De0056932	S22-De0056933	S22-De0056934	S22-De0056935
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	77	80	76	79
D3-N-MeFOSA (surr.)	1	%	106	95	104	105
D5-N-EtFOSA (surr.)	1	%	67	77	85	84
D7-N-MeFOSE (surr.)	1	%	79	85	90	90
D9-N-EtFOSE (surr.)	1	%	92	95	98	93
D5-N-EtFOSAA (surr.)	1	%	48	48	47	48
D3-N-MeFOSAA (surr.)	1	%	54	58	57	56
Perfluoroalkyl sulfonic acids (PFASs)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	84	78	89	84
18O2-PFHxS (surr.)	1	%	85	87	92	93
13C8-PFOS (surr.)	1	%	89	99	90	96
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)						
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H,1H,2H,2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10	< 10
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	23	24	28	35
13C2-6:2 FTSA (surr.)	1	%	37	26	37	50
13C2-8:2 FTSA (surr.)	1	%	41	56	53	50
13C2-10:2 FTSA (surr.)	1	%	49	50	49	51
PFASs Summations						
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50	< 50

Client Sample ID			LP-SED-D01-221222	LP-SED-D02-221222	LP-SED-D03-221222
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S22-De0056936	S22-De0056937	S22-De0056938
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Total Recoverable Hydrocarbons					
TRH C6-C9	20	mg/kg	< 20	< 20	< 20
TRH C10-C14	20	mg/kg	< 20	< 20	< 20
TRH C15-C28	50	mg/kg	< 50	< 50	< 50
TRH C29-C36	50	mg/kg	< 50	< 50	< 50
TRH C10-C36 (Total)	50	mg/kg	< 50	< 50	< 50
TRH C6-C10	20	mg/kg	< 20	< 20	< 20
TRH C6-C10 less BTEX (F1) ^{N04}	20	mg/kg	< 20	< 20	< 20
TRH >C10-C16	50	mg/kg	< 50	< 50	< 50
TRH >C10-C16 less Naphthalene (F2) ^{N01}	50	mg/kg	< 50	< 50	< 50
TRH >C16-C34	100	mg/kg	< 100	< 100	< 100
TRH >C34-C40	100	mg/kg	< 100	< 100	< 100
TRH >C10-C40 (total)*	100	mg/kg	< 100	< 100	< 100
BTEX					
Benzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Toluene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Ethylbenzene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
m&p-Xylenes	0.2	mg/kg	< 0.2	< 0.2	< 0.2
o-Xylene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Xylenes - Total*	0.3	mg/kg	< 0.3	< 0.3	< 0.3
4-Bromofluorobenzene (surr.)	1	%	95	103	79
Total Recoverable Hydrocarbons - 2013 NEPM Fractions					
Naphthalene ^{N02}	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Polycyclic Aromatic Hydrocarbons					
Benzo(a)pyrene TEQ (lower bound) *	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene TEQ (medium bound) *	0.5	mg/kg	0.6	0.6	0.7
Benzo(a)pyrene TEQ (upper bound) *	0.5	mg/kg	1.2	1.2	1.2
Acenaphthene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Acenaphthylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benz(a)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(a)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(b&j)fluoranthene ^{N07}	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(g,h,i)perylene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Benzo(k)fluoranthene	0.5	mg/kg	< 0.5	< 0.5	0.6
Chrysene	0.5	mg/kg	< 0.5	< 0.5	1.0
Dibenz(a,h)anthracene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Fluoranthene	0.5	mg/kg	< 0.5	< 0.5	1.0
Fluorene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Indeno(1,2,3-cd)pyrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Naphthalene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Phenanthrene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Pyrene	0.5	mg/kg	< 0.5	< 0.5	1.1
Total PAH*	0.5	mg/kg	< 0.5	< 0.5	3.7
2-Fluorobiphenyl (surr.)	1	%	80	79	87
p-Terphenyl-d14 (surr.)	1	%	69	74	64

Client Sample ID			LP-SED-D01-221222	LP-SED-D02-221222	LP-SED-D03-221222
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S22-De0056936	S22-De0056937	S22-De0056938
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Organochlorine Pesticides					
Chlordanes - Total	0.1	mg/kg	< 0.1	< 0.1	< 0.1
4.4'-DDD	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDE	0.05	mg/kg	< 0.05	< 0.05	< 0.05
4.4'-DDT	0.05	mg/kg	< 0.05	< 0.05	< 0.05
a-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Aldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
b-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05
d-HCH	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Dieldrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan I	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan II	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endosulfan sulphate	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin aldehyde	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Endrin ketone	0.05	mg/kg	< 0.05	< 0.05	< 0.05
g-HCH (Lindane)	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Heptachlor epoxide	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Hexachlorobenzene	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Methoxychlor	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Toxaphene	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Aldrin and Dieldrin (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05
DDT + DDE + DDD (Total)*	0.05	mg/kg	< 0.05	< 0.05	< 0.05
Vic EPA IWRG 621 OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Vic EPA IWRG 621 Other OCP (Total)*	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Dibutylchloroendate (surr.)	1	%	86	97	75
Tetrachloro-m-xylene (surr.)	1	%	83	85	87
Organophosphorus Pesticides					
Azinphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Bolstar	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorfenvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Chlorpyrifos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Coumaphos	2	mg/kg	< 2	< 2	< 2
Demeton-S	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Demeton-O	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Diazinon	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dichlorvos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Dimethoate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Disulfoton	0.2	mg/kg	< 0.2	< 0.2	< 0.2
EPN	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethoprop	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ethyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenitrothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fensulfothion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Fenthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Malathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2

Client Sample ID			LP-SED-D01-221222	LP-SED-D02-221222	LP-SED-D03-221222
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S22-De0056936	S22-De0056937	S22-De0056938
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Organophosphorus Pesticides					
Merphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Methyl parathion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Mevinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Monocrotophos	2	mg/kg	< 2	< 2	< 2
Naled	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Omethoate	2	mg/kg	< 2	< 2	< 2
Phorate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Pirimiphos-methyl	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Pyrazophos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Ronnel	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Terbufos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Tetrachlorvinphos	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Tokuthion	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Trichloronate	0.2	mg/kg	< 0.2	< 0.2	< 0.2
Triphenylphosphate (surr.)	1	%	67	61	60
Organotins					
Tributyltin	1.25	mg/kg	< 1.25	< 1.25	< 1.25
Tributyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Tributyltin Oxide	1.25	mg/kg	< 1.25	< 1.25	< 1.25
Dibutyltin	1	mg/kg	< 1	< 1	< 1
Dibutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Monobutyltin	0.75	mg/kg	< 0.75	< 0.75	< 0.75
Monobutyltin as Sn	0.5	mg/kg	< 0.5	< 0.5	< 0.5
Tripropyltin as Sn (surr.)	1	%	122	123	121
Total Organic Carbon					
Total Organic Carbon	0.1	%	0.8	< 0.1	0.6
% Moisture					
% Moisture	1	%	24	20	27
Particle Size by Sieve analysis*					
<63 Micron	0.1	% w/w	5.4	1.5	1.4
>2000 Micron	0.1	% w/w	75	66	70
1000-2000 Micron	0.1	% w/w	3.7	6.5	12
125-250 Micron	0.1	% w/w	1.0	3.1	4.7
250-500 Micron	0.1	% w/w	6.0	17	3.7
500-1000 Micron	0.1	% w/w	6.6	4.3	0.7
63-125 Micron	0.1	% w/w	1.9	1.1	7.4
Heavy Metals					
Arsenic	2	mg/kg	< 2	3.4	< 2
Barium	10	mg/kg	< 10	< 10	< 10
Beryllium	2	mg/kg	< 2	< 2	< 2
Boron	10	mg/kg	27	38	27
Cadmium	0.4	mg/kg	< 0.4	< 0.4	< 0.4
Chromium	5	mg/kg	< 5	5.1	< 5
Copper	5	mg/kg	< 5	< 5	< 5
Lead	5	mg/kg	5.1	< 5	< 5
Manganese	5	mg/kg	10	15	11
Mercury	0.1	mg/kg	< 0.1	< 0.1	< 0.1
Nickel	5	mg/kg	< 5	< 5	< 5
Selenium	2	mg/kg	< 2	< 2	< 2

Client Sample ID			LP-SED-D01-221222	LP-SED-D02-221222	LP-SED-D03-221222
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S22-De0056936	S22-De0056937	S22-De0056938
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Heavy Metals					
Vanadium	10	mg/kg	< 10	< 10	< 10
Zinc	5	mg/kg	6.0	7.1	7.4
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluoropentanoic acid (PFPeA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluorohexanoic acid (PFHxA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluoroheptanoic acid (PFHpA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluorooctanoic acid (PFOA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluorononanoic acid (PFNA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluorodecanoic acid (PFDA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluoroundecanoic acid (PFUnDA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluorododecanoic acid (PFDoDA) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluorotridecanoic acid (PFTTrDA) ^{N15}	5	ug/kg	< 5	< 5	< 5
Perfluorotetradecanoic acid (PFTTeDA) ^{N11}	5	ug/kg	< 5	< 5	< 5
13C4-PFBA (surr.)	1	%	45	52	49
13C5-PFPeA (surr.)	1	%	63	75	71
13C5-PFHxA (surr.)	1	%	62	73	71
13C4-PFHpA (surr.)	1	%	76	74	67
13C8-PFOA (surr.)	1	%	76	75	68
13C5-PFNA (surr.)	1	%	67	76	70
13C6-PFDA (surr.)	1	%	75	77	74
13C2-PFUnDA (surr.)	1	%	105	115	109
13C2-PFDoDA (surr.)	1	%	91	88	81
13C2-PFTTeDA (surr.)	1	%	108	110	103
Perfluoroalkyl sulfonamido substances					
Perfluorooctane sulfonamide (FOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	5	ug/kg	< 5	< 5	< 5
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	5	ug/kg	< 5	< 5	< 5
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	10	ug/kg	< 10	< 10	< 10
13C8-FOSA (surr.)	1	%	69	81	77
D3-N-MeFOSA (surr.)	1	%	107	100	113
D5-N-EtFOSA (surr.)	1	%	78	69	73
D7-N-MeFOSE (surr.)	1	%	84	87	90
D9-N-EtFOSE (surr.)	1	%	90	84	90
D5-N-EtFOSAA (surr.)	1	%	45	44	43
D3-N-MeFOSAA (surr.)	1	%	55	56	54
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluorononanesulfonic acid (PFNS) ^{N15}	5	ug/kg	< 5	< 5	< 5
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	5	ug/kg	< 5	< 5	< 5
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	5	ug/kg	< 5	< 5	< 5
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	5	ug/kg	< 5	< 5	< 5

Client Sample ID			LP-SED-D01-221222	LP-SED-D02-221222	LP-SED-DO3-221222
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			S22-De0056936	S22-De0056937	S22-De0056938
Date Sampled			Not Provided ¹²	Not Provided ¹²	Not Provided ¹²
Test/Reference	LOR	Unit			
Perfluoroalkyl sulfonic acids (PFASs)					
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	5	ug/kg	< 5	< 5	< 5
Perfluorooctanesulfonic acid (PFOS) ^{N11}	5	ug/kg	< 5	< 5	< 5
Perfluorodecanesulfonic acid (PFDS) ^{N15}	5	ug/kg	< 5	< 5	< 5
13C3-PFBS (surr.)	1	%	85	82	76
18O2-PFHxS (surr.)	1	%	91	89	85
13C8-PFOS (surr.)	1	%	88	85	92
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	10	ug/kg	< 10	< 10	< 10
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	5	ug/kg	< 5	< 5	< 5
13C2-4:2 FTSA (surr.)	1	%	25	28	22
13C2-6:2 FTSA (surr.)	1	%	27	54	46
13C2-8:2 FTSA (surr.)	1	%	50	46	52
13C2-10:2 FTSA (surr.)	1	%	48	47	37
PFASs Summations					
Sum (PFHxS + PFOS)*	5	ug/kg	< 5	< 5	< 5
Sum of US EPA PFAS (PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	5	ug/kg	< 5	< 5	< 5
Sum of WA DWER PFAS (n=10)*	10	ug/kg	< 10	< 10	< 10
Sum of PFASs (n=30)*	50	ug/kg	< 50	< 50	< 50

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins Suite B4			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Dec 29, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Dec 29, 2022	14 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Dec 29, 2022	14 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Dec 29, 2022	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Dec 29, 2022	14 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Dec 29, 2022	14 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Dec 29, 2022	14 Days
Organotins - Method: LTM-ORG-2400 Determination of organotins in solid & aqueous samples by LC-ICP-MS	Melbourne	Jan 05, 2023	14 Days
Total Organic Carbon - Method: LTM-INO-4060 Total Organic Carbon in water and soil	Melbourne	Jan 05, 2023	28 Days
Particle Size by Sieve analysis* - Method: AS1289.C6.1-1977 Determination of Particle Size by Sieving	Melbourne	Jan 05, 2023	28 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Dec 29, 2022	28 Days
% Moisture - Method: LTM-GEN-7080 Moisture	Sydney	Dec 28, 2022	14 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 29, 2022	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 29, 2022	28 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 29, 2022	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Dec 29, 2022	28 Days

Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 0564417

Order No.:
Report #: 953157
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Dec 22, 2022 7:07 PM
Due: Jan 10, 2023
Priority: 1 Day
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						Arsenic	Barium	Beryllium	Boron	Cadmium	Chromium	Copper	HOLD	Lead	Manganese	Mercury	Nickel	Selenium	Total Organic Carbon	Vanadium	Zinc	Particle Size by Sieve analysis*	Suite B14: OCP/OPP	Moisture Set	Eurofins Suite B4	Per- and Polyfluoroalkyl Substances (PFASs)	Organotins	
Melbourne Laboratory - NATA # 1261 Site # 1254																			X			X					X	
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	
External Laboratory																												
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID																							
1	LP-SED01-0.0	Dec 22, 2022		Soil	S22-De0056924	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
2	LP-SED01-0.5	Not Provided		Soil	S22-De0056925	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
3	LP-SED01-1.0	Not Provided		Soil	S22-De0056926	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
4	LP-SED04-0	Not Provided		Soil	S22-De0056927	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
5	LP-SED04-0.5	Not Provided		Soil	S22-De0056928	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
6	LP-SED04-1	Not Provided		Soil	S22-De0056929	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
7	LP-SED05-0	Not Provided		Soil	S22-De0056930	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
8	LP-SED05-0.4	Not Provided		Soil	S22-De0056931	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
9	LP-SED05-0.75	Not Provided		Soil	S22-De0056932	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
10	LP-SED06-0	Not Provided		Soil	S22-De0056933	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		
11	LP-SED06-0.5	Not Provided		Soil	S22-De0056934	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X		

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Melbourne Laboratory - NATA # 1261 Site # 1254																		X			X					X	
Sydney Laboratory - NATA # 1261 Site # 18217					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
12	LP-SED06-1	Not Provided		Soil	S22-De0056935	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
13	LP-SED-D01-221222	Not Provided		Soil	S22-De0056936	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
14	LP-SED-D02-221222	Not Provided		Soil	S22-De0056937	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
15	LP-SED-DO3-221222	Not Provided		Soil	S22-De0056938	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
16	LP-ELO1-0	Not Provided		Soil	S22-De0056939							X															
17	LP-ELO1-0.5	Not Provided		Soil	S22-De0056940							X															
18	LP-ELO1-1	Not Provided		Soil	S22-De0056941							X															
19	LP-ELO4-0	Not Provided		Soil	S22-De0056942							X															
20	LP-ELO4-0.5	Not Provided		Soil	S22-De0056943							X															
21	LP-ELO4-1	Not Provided		Soil	S22-De0056944							X															
22	LP-ELO5-0.0	Not Provided		Soil	S22-De0056945							X															
23	LP-ELO5-0.4	Not Provided		Soil	S22-De0056946							X															
24	LP-ELO5-0.75	Not Provided		Soil	S22-De0056947							X															

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Address: Level 15, 309 Kent St
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 NSW 2000

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Melbourne Laboratory - NATA # 1261 Site # 1254																			X			X					X	
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	
25	LP-ELO6-0	Not Provided		Soil	S22-De0056948								X															
26	LP-ELO6-0.5	Not Provided		Soil	S22-De0056949								X															
27	LP-ELO6-1.0	Not Provided		Soil	S22-De0056950								X															
Test Counts						15	15	15	15	15	15	15	12	15	15	15	15	15	15	15	15	15	15	15	15	15	15	

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/kg	< 20			20	Pass	
TRH C10-C14	mg/kg	< 20			20	Pass	
TRH C15-C28	mg/kg	< 50			50	Pass	
TRH C29-C36	mg/kg	< 50			50	Pass	
TRH C6-C10	mg/kg	< 20			20	Pass	
TRH >C10-C16	mg/kg	< 50			50	Pass	
TRH >C16-C34	mg/kg	< 100			100	Pass	
TRH >C34-C40	mg/kg	< 100			100	Pass	
Method Blank							
BTEX							
Benzene	mg/kg	< 0.1			0.1	Pass	
Toluene	mg/kg	< 0.1			0.1	Pass	
Ethylbenzene	mg/kg	< 0.1			0.1	Pass	
m&p-Xylenes	mg/kg	< 0.2			0.2	Pass	
o-Xylene	mg/kg	< 0.1			0.1	Pass	
Xylenes - Total*	mg/kg	< 0.3			0.3	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/kg	< 0.5			0.5	Pass	
Acenaphthylene	mg/kg	< 0.5			0.5	Pass	
Anthracene	mg/kg	< 0.5			0.5	Pass	
Benz(a)anthracene	mg/kg	< 0.5			0.5	Pass	
Benzo(a)pyrene	mg/kg	< 0.5			0.5	Pass	
Benzo(b&j)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Benzo(g,h,i)perylene	mg/kg	< 0.5			0.5	Pass	
Benzo(k)fluoranthene	mg/kg	< 0.5			0.5	Pass	
Chrysene	mg/kg	< 0.5			0.5	Pass	
Dibenz(a,h)anthracene	mg/kg	< 0.5			0.5	Pass	
Fluoranthene	mg/kg	< 0.5			0.5	Pass	
Fluorene	mg/kg	< 0.5			0.5	Pass	
Indeno(1,2,3-cd)pyrene	mg/kg	< 0.5			0.5	Pass	
Naphthalene	mg/kg	< 0.5			0.5	Pass	
Phenanthrene	mg/kg	< 0.5			0.5	Pass	
Pyrene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/kg	< 0.1			0.1	Pass	
4,4'-DDD	mg/kg	< 0.05			0.05	Pass	
4,4'-DDE	mg/kg	< 0.05			0.05	Pass	
4,4'-DDT	mg/kg	< 0.05			0.05	Pass	
a-HCH	mg/kg	< 0.05			0.05	Pass	
Aldrin	mg/kg	< 0.05			0.05	Pass	
b-HCH	mg/kg	< 0.05			0.05	Pass	
d-HCH	mg/kg	< 0.05			0.05	Pass	
Dieldrin	mg/kg	< 0.05			0.05	Pass	
Endosulfan I	mg/kg	< 0.05			0.05	Pass	
Endosulfan II	mg/kg	< 0.05			0.05	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan sulphate	mg/kg	< 0.05			0.05	Pass	
Endrin	mg/kg	< 0.05			0.05	Pass	
Endrin aldehyde	mg/kg	< 0.05			0.05	Pass	
Endrin ketone	mg/kg	< 0.05			0.05	Pass	
g-HCH (Lindane)	mg/kg	< 0.05			0.05	Pass	
Heptachlor	mg/kg	< 0.05			0.05	Pass	
Heptachlor epoxide	mg/kg	< 0.05			0.05	Pass	
Hexachlorobenzene	mg/kg	< 0.05			0.05	Pass	
Methoxychlor	mg/kg	< 0.05			0.05	Pass	
Toxaphene	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/kg	< 0.2			0.2	Pass	
Bolstar	mg/kg	< 0.2			0.2	Pass	
Chlorfenvinphos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos	mg/kg	< 0.2			0.2	Pass	
Chlorpyrifos-methyl	mg/kg	< 0.2			0.2	Pass	
Coumaphos	mg/kg	< 2			2	Pass	
Demeton-S	mg/kg	< 0.2			0.2	Pass	
Demeton-O	mg/kg	< 0.2			0.2	Pass	
Diazinon	mg/kg	< 0.2			0.2	Pass	
Dichlorvos	mg/kg	< 0.2			0.2	Pass	
Dimethoate	mg/kg	< 0.2			0.2	Pass	
Disulfoton	mg/kg	< 0.2			0.2	Pass	
EPN	mg/kg	< 0.2			0.2	Pass	
Ethion	mg/kg	< 0.2			0.2	Pass	
Ethoprop	mg/kg	< 0.2			0.2	Pass	
Ethyl parathion	mg/kg	< 0.2			0.2	Pass	
Fenitrothion	mg/kg	< 0.2			0.2	Pass	
Fensulfothion	mg/kg	< 0.2			0.2	Pass	
Fenthion	mg/kg	< 0.2			0.2	Pass	
Malathion	mg/kg	< 0.2			0.2	Pass	
Merphos	mg/kg	< 0.2			0.2	Pass	
Methyl parathion	mg/kg	< 0.2			0.2	Pass	
Mevinphos	mg/kg	< 0.2			0.2	Pass	
Monocrotophos	mg/kg	< 2			2	Pass	
Naled	mg/kg	< 0.2			0.2	Pass	
Omethoate	mg/kg	< 2			2	Pass	
Phorate	mg/kg	< 0.2			0.2	Pass	
Pirimiphos-methyl	mg/kg	< 0.2			0.2	Pass	
Pyrazophos	mg/kg	< 0.2			0.2	Pass	
Ronnel	mg/kg	< 0.2			0.2	Pass	
Terbufos	mg/kg	< 0.2			0.2	Pass	
Tetrachlorvinphos	mg/kg	< 0.2			0.2	Pass	
Tokuthion	mg/kg	< 0.2			0.2	Pass	
Trichloronate	mg/kg	< 0.2			0.2	Pass	
Method Blank							
Organotins							
Tributyltin	mg/kg	< 1.25			1.25	Pass	
Tributyltin as Sn	mg/kg	< 0.5			0.5	Pass	
Tributyltin Oxide	mg/kg	< 1.25			1.25	Pass	
Dibutyltin	mg/kg	< 1			1	Pass	
Dibutyltin as Sn	mg/kg	< 0.5			0.5	Pass	
Monobutyltin	mg/kg	< 0.75			0.75	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Monobutyltin as Sn	mg/kg	< 0.5			0.5	Pass	
Method Blank							
Total Organic Carbon	%	< 0.1			0.1	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/kg	< 2			2	Pass	
Barium	mg/kg	< 10			10	Pass	
Beryllium	mg/kg	< 2			2	Pass	
Boron	mg/kg	< 10			10	Pass	
Cadmium	mg/kg	< 0.4			0.4	Pass	
Chromium	mg/kg	< 5			5	Pass	
Copper	mg/kg	< 5			5	Pass	
Lead	mg/kg	< 5			5	Pass	
Manganese	mg/kg	< 5			5	Pass	
Mercury	mg/kg	< 0.1			0.1	Pass	
Nickel	mg/kg	< 5			5	Pass	
Selenium	mg/kg	< 2			2	Pass	
Vanadium	mg/kg	< 10			10	Pass	
Zinc	mg/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl carboxylic acids (PFCAs)							
Perfluorobutanoic acid (PFBA)	ug/kg	< 5			5	Pass	
Perfluoropentanoic acid (PFPeA)	ug/kg	< 5			5	Pass	
Perfluorohexanoic acid (PFHxA)	ug/kg	< 5			5	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/kg	< 5			5	Pass	
Perfluorooctanoic acid (PFOA)	ug/kg	< 5			5	Pass	
Perfluorononanoic acid (PFNA)	ug/kg	< 5			5	Pass	
Perfluorodecanoic acid (PFDA)	ug/kg	< 5			5	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/kg	< 5			5	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/kg	< 5			5	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/kg	< 5			5	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/kg	< 5			5	Pass	
Method Blank							
Perfluoroalkyl sulfonamido substances							
Perfluorooctane sulfonamide (FOSA)	ug/kg	< 5			5	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/kg	< 5			5	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/kg	< 5			5	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/kg	< 5			5	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/kg	< 5			5	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/kg	< 10			10	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/kg	< 10			10	Pass	
Method Blank							
Perfluoroalkyl sulfonic acids (PFSAs)							
Perfluorobutanesulfonic acid (PFBS)	ug/kg	< 5			5	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/kg	< 5			5	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/kg	< 5			5	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/kg	< 5			5	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/kg	< 5			5	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/kg	< 5			5	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/kg	< 5			5	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/kg	< 5			5	Pass	
Method Blank							
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)							
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/kg	< 5			5	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/kg	< 10		10	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/kg	< 5		5	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/kg	< 5		5	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons						
TRH C6-C9	%	82		70-130	Pass	
TRH C10-C14	%	102		70-130	Pass	
TRH C6-C10	%	87		70-130	Pass	
TRH >C10-C16	%	102		70-130	Pass	
LCS - % Recovery						
BTEX						
Benzene	%	109		70-130	Pass	
Toluene	%	123		70-130	Pass	
Ethylbenzene	%	108		70-130	Pass	
m&p-Xylenes	%	117		70-130	Pass	
o-Xylene	%	110		70-130	Pass	
Xylenes - Total*	%	114		70-130	Pass	
LCS - % Recovery						
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene	%	102		70-130	Pass	
LCS - % Recovery						
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	%	94		70-130	Pass	
Acenaphthylene	%	91		70-130	Pass	
Anthracene	%	92		70-130	Pass	
Benz(a)anthracene	%	82		70-130	Pass	
Benzo(a)pyrene	%	98		70-130	Pass	
Benzo(b&j)fluoranthene	%	77		70-130	Pass	
Benzo(g,h,i)perylene	%	92		70-130	Pass	
Benzo(k)fluoranthene	%	108		70-130	Pass	
Chrysene	%	115		70-130	Pass	
Dibenz(a,h)anthracene	%	92		70-130	Pass	
Fluoranthene	%	88		70-130	Pass	
Fluorene	%	91		70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	97		70-130	Pass	
Naphthalene	%	94		70-130	Pass	
Phenanthrene	%	79		70-130	Pass	
Pyrene	%	88		70-130	Pass	
LCS - % Recovery						
Organochlorine Pesticides						
Chlordanes - Total	%	84		70-130	Pass	
4,4'-DDD	%	81		70-130	Pass	
4,4'-DDE	%	81		70-130	Pass	
4,4'-DDT	%	93		70-130	Pass	
a-HCH	%	84		70-130	Pass	
Aldrin	%	86		70-130	Pass	
b-HCH	%	81		70-130	Pass	
d-HCH	%	78		70-130	Pass	
Dieldrin	%	89		70-130	Pass	
Endosulfan I	%	85		70-130	Pass	
Endosulfan II	%	77		70-130	Pass	
Endosulfan sulphate	%	87		70-130	Pass	
Endrin	%	87		70-130	Pass	
Endrin aldehyde	%	94		70-130	Pass	

Test	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Endrin ketone	%	87		70-130	Pass	
g-HCH (Lindane)	%	86		70-130	Pass	
Heptachlor	%	91		70-130	Pass	
Heptachlor epoxide	%	85		70-130	Pass	
Hexachlorobenzene	%	85		70-130	Pass	
Methoxychlor	%	86		70-130	Pass	
LCS - % Recovery						
Organophosphorus Pesticides						
Diazinon	%	129		70-130	Pass	
Dimethoate	%	83		70-130	Pass	
Ethion	%	129		70-130	Pass	
Mevinphos	%	107		70-130	Pass	
LCS - % Recovery						
Organotins						
Tributyltin as Sn	%	116		60-140	Pass	
Dibutyltin as Sn	%	117		60-140	Pass	
Monobutyltin as Sn	%	116		60-140	Pass	
LCS - % Recovery						
Total Organic Carbon	%	97		70-130	Pass	
LCS - % Recovery						
Heavy Metals						
Arsenic	%	95		80-120	Pass	
Barium	%	97		80-120	Pass	
Beryllium	%	90		80-120	Pass	
Boron	%	98		80-120	Pass	
Cadmium	%	101		80-120	Pass	
Chromium	%	98		80-120	Pass	
Copper	%	98		80-120	Pass	
Lead	%	100		80-120	Pass	
Manganese	%	96		80-120	Pass	
Mercury	%	101		80-120	Pass	
Nickel	%	97		80-120	Pass	
Selenium	%	105		80-120	Pass	
Vanadium	%	99		80-120	Pass	
Zinc	%	101		80-120	Pass	
LCS - % Recovery						
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA)	%	84		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	%	87		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	%	88		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	%	90		50-150	Pass	
Perfluorooctanoic acid (PFOA)	%	94		50-150	Pass	
Perfluorononanoic acid (PFNA)	%	107		50-150	Pass	
Perfluorodecanoic acid (PFDA)	%	110		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	%	80		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	%	93		50-150	Pass	
Perfluorotridecanoic acid (PFTTrDA)	%	64		50-150	Pass	
Perfluorotetradecanoic acid (PFTTeDA)	%	89		50-150	Pass	
LCS - % Recovery						
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA)	%	92		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	%	63		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	%	71		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	%	110		50-150	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	%	85			50-150	Pass		
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	%	90			50-150	Pass		
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	%	102			50-150	Pass		
LCS - % Recovery								
Perfluoroalkyl sulfonic acids (PFASs)								
Perfluorobutanesulfonic acid (PFBS)	%	91			50-150	Pass		
Perfluorononanesulfonic acid (PFNS)	%	97			50-150	Pass		
Perfluoropropanesulfonic acid (PFPrS)	%	103			50-150	Pass		
Perfluoropentanesulfonic acid (PFPeS)	%	94			50-150	Pass		
Perfluorohexanesulfonic acid (PFHxS)	%	91			50-150	Pass		
Perfluoroheptanesulfonic acid (PFHpS)	%	103			50-150	Pass		
Perfluorooctanesulfonic acid (PFOS)	%	98			50-150	Pass		
Perfluorodecanesulfonic acid (PFDS)	%	70			50-150	Pass		
LCS - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)								
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	%	86			50-150	Pass		
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	%	67			50-150	Pass		
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	%	99			50-150	Pass		
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	%	96			50-150	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery								
Total Recoverable Hydrocarbons				Result 1				
TRH C6-C9	S22-De0057909	NCP	%	80		70-130	Pass	
TRH C6-C10	S22-De0057909	NCP	%	91		70-130	Pass	
Spike - % Recovery								
Polycyclic Aromatic Hydrocarbons				Result 1				
Acenaphthene	S22-De0054949	NCP	%	84		70-130	Pass	
Acenaphthylene	S22-De0054949	NCP	%	89		70-130	Pass	
Anthracene	S22-De0054949	NCP	%	87		70-130	Pass	
Benz(a)anthracene	S22-De0054949	NCP	%	83		70-130	Pass	
Benzo(a)pyrene	S22-De0054949	NCP	%	95		70-130	Pass	
Benzo(b&i)fluoranthene	S22-De0054949	NCP	%	87		70-130	Pass	
Benzo(g,h,i)perylene	S22-De0054949	NCP	%	92		70-130	Pass	
Benzo(k)fluoranthene	S22-De0054949	NCP	%	81		70-130	Pass	
Chrysene	S22-De0054949	NCP	%	85		70-130	Pass	
Dibenz(a,h)anthracene	S22-De0054949	NCP	%	103		70-130	Pass	
Fluoranthene	S22-De0054949	NCP	%	91		70-130	Pass	
Fluorene	S22-De0054949	NCP	%	88		70-130	Pass	
Indeno(1.2.3-cd)pyrene	S22-De0054949	NCP	%	97		70-130	Pass	
Naphthalene	S22-De0054949	NCP	%	87		70-130	Pass	
Phenanthrene	S22-De0054949	NCP	%	95		70-130	Pass	
Pyrene	S22-De0054949	NCP	%	93		70-130	Pass	
Spike - % Recovery								
Organochlorine Pesticides				Result 1				
Chlordanes - Total	S22-No0009476	NCP	%	74		70-130	Pass	
4.4'-DDD	S22-No0009476	NCP	%	71		70-130	Pass	
4.4'-DDE	S22-No0009476	NCP	%	70		70-130	Pass	
4.4'-DDT	S22-No0009476	NCP	%	78		70-130	Pass	
a-HCH	S22-De0054915	NCP	%	77		70-130	Pass	
Aldrin	S22-No0009476	NCP	%	71		70-130	Pass	
b-HCH	S22-De0054915	NCP	%	72		70-130	Pass	
d-HCH	S22-De0054915	NCP	%	76		70-130	Pass	
Dieldrin	S22-No0009476	NCP	%	75		70-130	Pass	
Endosulfan I	S22-No0009476	NCP	%	72		70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan II	S22-De0054915	NCP	%	74		70-130	Pass	
Endosulfan sulphate	S22-De0054915	NCP	%	87		70-130	Pass	
Endrin	S22-No0009476	NCP	%	75		70-130	Pass	
Endrin aldehyde	S22-No0009476	NCP	%	79		70-130	Pass	
Endrin ketone	S22-No0009476	NCP	%	77		70-130	Pass	
g-HCH (Lindane)	S22-De0054915	NCP	%	84		70-130	Pass	
Heptachlor	S22-No0009476	NCP	%	74		70-130	Pass	
Heptachlor epoxide	S22-No0009476	NCP	%	74		70-130	Pass	
Hexachlorobenzene	S22-No0009476	NCP	%	72		70-130	Pass	
Methoxychlor	S22-No0009476	NCP	%	75		70-130	Pass	
Spike - % Recovery								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1				
Perfluorobutanoic acid (PFBA)	S22-De0050245	NCP	%	87		50-150	Pass	
Perfluoropentanoic acid (PFPeA)	S22-De0050245	NCP	%	86		50-150	Pass	
Perfluorohexanoic acid (PFHxA)	S22-De0050245	NCP	%	90		50-150	Pass	
Perfluoroheptanoic acid (PFHpA)	S22-De0050245	NCP	%	92		50-150	Pass	
Perfluorooctanoic acid (PFOA)	S22-De0050245	NCP	%	93		50-150	Pass	
Perfluorononanoic acid (PFNA)	S22-De0050245	NCP	%	108		50-150	Pass	
Perfluorodecanoic acid (PFDA)	S22-De0050245	NCP	%	107		50-150	Pass	
Perfluoroundecanoic acid (PFUnDA)	S22-De0050245	NCP	%	79		50-150	Pass	
Perfluorododecanoic acid (PFDoDA)	S22-De0050245	NCP	%	91		50-150	Pass	
Perfluorotridecanoic acid (PFTrDA)	S22-De0050245	NCP	%	71		50-150	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S22-De0050245	NCP	%	89		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonamido substances				Result 1				
Perfluorooctane sulfonamide (FOSA)	S22-De0050245	NCP	%	98		50-150	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-De0050245	NCP	%	61		50-150	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-De0050245	NCP	%	81		50-150	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-De0050245	NCP	%	92		50-150	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-De0050245	NCP	%	71		50-150	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-De0050245	NCP	%	97		50-150	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-De0050245	NCP	%	105		50-150	Pass	
Spike - % Recovery								
Perfluoroalkyl sulfonic acids (PFSA's)				Result 1				
Perfluorobutanesulfonic acid (PFBS)	S22-De0050245	NCP	%	91		50-150	Pass	
Perfluorononanesulfonic acid (PFNS)	S22-De0050245	NCP	%	107		50-150	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S22-De0050245	NCP	%	105		50-150	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S22-De0050245	NCP	%	91		50-150	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S22-De0050245	NCP	%	87		50-150	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S22-De0050245	NCP	%	101		50-150	Pass	
Perfluorooctanesulfonic acid (PFOS)	S22-De0050245	NCP	%	109		50-150	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code
Perfluorodecanesulfonic acid (PFDS)	S22-De0050245	NCP	%	85		50-150	Pass	
Spike - % Recovery								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-De0050245	NCP	%	100		50-150	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-De0050245	NCP	%	65		50-150	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-De0050245	NCP	%	83		50-150	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-De0050245	NCP	%	93		50-150	Pass	
Spike - % Recovery								
Heavy Metals				Result 1				
Arsenic	S22-De0056927	CP	%	119		75-125	Pass	
Barium	S22-De0056927	CP	%	118		75-125	Pass	
Beryllium	S22-De0056927	CP	%	114		75-125	Pass	
Boron	S22-De0056927	CP	%	110		75-125	Pass	
Cadmium	S22-De0056927	CP	%	115		75-125	Pass	
Chromium	S22-De0056927	CP	%	113		75-125	Pass	
Copper	S22-De0056927	CP	%	101		75-125	Pass	
Lead	S22-De0056927	CP	%	103		75-125	Pass	
Manganese	S22-De0056927	CP	%	111		75-125	Pass	
Mercury	S22-De0056927	CP	%	118		75-125	Pass	
Nickel	S22-De0056927	CP	%	107		75-125	Pass	
Selenium	S22-De0056927	CP	%	120		75-125	Pass	
Vanadium	S22-De0056927	CP	%	115		75-125	Pass	
Zinc	S22-De0056927	CP	%	104		75-125	Pass	
Spike - % Recovery								
Organophosphorus Pesticides				Result 1				
Diazinon	S22-De0056929	CP	%	108		70-130	Pass	
Ethion	S22-De0056929	CP	%	117		70-130	Pass	
Fenitrothion	S22-De0056929	CP	%	90		70-130	Pass	
Methyl parathion	S22-De0056929	CP	%	87		70-130	Pass	
Mevinphos	S22-De0056929	CP	%	78		70-130	Pass	
Spike - % Recovery								
BTEX				Result 1				
Benzene	S22-De0056930	CP	%	97		70-130	Pass	
Toluene	S22-De0056930	CP	%	97		70-130	Pass	
Ethylbenzene	S22-De0056930	CP	%	93		70-130	Pass	
m&p-Xylenes	S22-De0056930	CP	%	97		70-130	Pass	
o-Xylene	S22-De0056930	CP	%	95		70-130	Pass	
Xylenes - Total*	S22-De0056930	CP	%	96		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1				
Naphthalene	S22-De0056930	CP	%	84		70-130	Pass	
Spike - % Recovery								
Total Recoverable Hydrocarbons				Result 1				
TRH C10-C14	S22-De0056933	CP	%	95		70-130	Pass	
TRH >C10-C16	S22-De0056933	CP	%	96		70-130	Pass	
Spike - % Recovery								
Organotins				Result 1				
Tributyltin as Sn	S22-De0056937	CP	%	133		60-140	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Dibutyltin as Sn	S22-De0056937	CP	%	112			60-140	Pass	
Monobutyltin as Sn	S22-De0056937	CP	%	100			60-140	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD			
Perfluorobutanoic acid (PFBA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanoic acid (PFPeA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanoic acid (PFHxA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanoic acid (PFHpA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanoic acid (PFOA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanoic acid (PFNA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanoic acid (PFDA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroundecanoic acid (PFUnDA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorododecanoic acid (PFDoDA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotridecanoic acid (PFTrDA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorotetradecanoic acid (PFTeDA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD			
Perfluorooctane sulfonamide (FOSA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S22-De0055118	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S22-De0055118	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
Duplicate									
Perfluoroalkyl sulfonic acids (PFSAs)				Result 1	Result 2	RPD			
Perfluorobutanesulfonic acid (PFBS)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorononanesulfonic acid (PFNS)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropropanesulfonic acid (PFPrS)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoropentanesulfonic acid (PFPeS)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorohexanesulfonic acid (PFHxS)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorooctanesulfonic acid (PFOS)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Perfluorodecanesulfonic acid (PFDS)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	

Duplicate									
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD			
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S22-De0055118	NCP	ug/kg	< 10	< 10	<1	30%	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S22-De0055118	NCP	ug/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Total Organic Carbon	S22-De0056926	CP	%	< 0.1	0.3	200	30%	Fail	Q15
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S22-De0056926	CP	mg/kg	3.7	3.0	20	30%	Pass	
Barium	S22-De0056926	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Beryllium	S22-De0056926	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Boron	S22-De0056926	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Cadmium	S22-De0056926	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass	
Chromium	S22-De0056926	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Copper	S22-De0056926	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Lead	S22-De0056926	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Manganese	S22-De0056926	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Mercury	S22-De0056926	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
Nickel	S22-De0056926	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Selenium	S22-De0056926	CP	mg/kg	< 2	< 2	<1	30%	Pass	
Vanadium	S22-De0056926	CP	mg/kg	< 10	< 10	<1	30%	Pass	
Zinc	S22-De0056926	CP	mg/kg	< 5	< 5	<1	30%	Pass	
Duplicate									
Polycyclic Aromatic Hydrocarbons				Result 1	Result 2	RPD			
Acenaphthene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Acenaphthylene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Anthracene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benz(a)anthracene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(a)pyrene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(b&i)fluoranthene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(g,h,i)perylene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Benzo(k)fluoranthene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Chrysene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Dibenz(a,h)anthracene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluoranthene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Fluorene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Indeno(1.2.3-cd)pyrene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Naphthalene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Phenanthrene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Pyrene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass	
Duplicate									
Organochlorine Pesticides				Result 1	Result 2	RPD			
Chlordanes - Total	S22-De0056928	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass	
4.4'-DDD	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDE	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
4.4'-DDT	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
a-HCH	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	
Aldrin	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass	

Duplicate								
Organochlorine Pesticides				Result 1	Result 2	RPD		
b-HCH	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
d-HCH	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Dieldrin	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan I	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan II	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endosulfan sulphate	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin aldehyde	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Endrin ketone	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
g-HCH (Lindane)	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Heptachlor epoxide	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Hexachlorobenzene	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Methoxychlor	S22-De0056928	CP	mg/kg	< 0.05	< 0.05	<1	30%	Pass
Toxaphene	S22-De0056928	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
Organophosphorus Pesticides				Result 1	Result 2	RPD		
Azinphos-methyl	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Bolstar	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorfenvinphos	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Chlorpyrifos-methyl	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Coumaphos	S22-De0056928	CP	mg/kg	< 2	< 2	<1	30%	Pass
Demeton-S	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Demeton-O	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Diazinon	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dichlorvos	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Dimethoate	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Disulfoton	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
EPN	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethion	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethoprop	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ethyl parathion	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenitrothion	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fensulfthion	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Fenthion	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Malathion	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Merphos	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Methyl parathion	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Mevinphos	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Monocrotophos	S22-De0056928	CP	mg/kg	< 2	< 2	<1	30%	Pass
Naled	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Omethoate	S22-De0056928	CP	mg/kg	< 2	< 2	<1	30%	Pass
Phorate	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pirimiphos-methyl	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Pyrazophos	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Ronnel	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Terbufos	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tetrachlorvinphos	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Tokuthion	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Trichloronate	S22-De0056928	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Organic Carbon	S22-De0056928	CP	%	2.0	2.3	18	30%	Pass

Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C6-C9	S22-De0056929	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C6-C10	S22-De0056929	CP	mg/kg	< 20	< 20	<1	30%	Pass
Duplicate								
BTEX				Result 1	Result 2	RPD		
Benzene	S22-De0056929	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Toluene	S22-De0056929	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Ethylbenzene	S22-De0056929	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
m&p-Xylenes	S22-De0056929	CP	mg/kg	< 0.2	< 0.2	<1	30%	Pass
o-Xylene	S22-De0056929	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Xylenes - Total*	S22-De0056929	CP	mg/kg	< 0.3	< 0.3	<1	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				Result 1	Result 2	RPD		
Naphthalene	S22-De0056929	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
Total Organic Carbon	S22-De0056929	CP	%	< 0.1	< 0.1	<1	30%	Pass
Duplicate								
Heavy Metals				Result 1	Result 2	RPD		
Arsenic	S22-De0056929	CP	mg/kg	< 2	< 2	<1	30%	Pass
Barium	S22-De0056929	CP	mg/kg	< 10	< 10	<1	30%	Pass
Beryllium	S22-De0056929	CP	mg/kg	< 2	< 2	<1	30%	Pass
Boron	S22-De0056929	CP	mg/kg	14	15	10	30%	Pass
Cadmium	S22-De0056929	CP	mg/kg	< 0.4	< 0.4	<1	30%	Pass
Chromium	S22-De0056929	CP	mg/kg	< 5	< 5	<1	30%	Pass
Copper	S22-De0056929	CP	mg/kg	< 5	< 5	<1	30%	Pass
Lead	S22-De0056929	CP	mg/kg	< 5	< 5	<1	30%	Pass
Manganese	S22-De0056929	CP	mg/kg	9.1	7.1	24	30%	Pass
Mercury	S22-De0056929	CP	mg/kg	< 0.1	< 0.1	<1	30%	Pass
Nickel	S22-De0056929	CP	mg/kg	< 5	< 5	<1	30%	Pass
Selenium	S22-De0056929	CP	mg/kg	< 2	< 2	<1	30%	Pass
Vanadium	S22-De0056929	CP	mg/kg	< 10	< 10	<1	30%	Pass
Zinc	S22-De0056929	CP	mg/kg	6.3	5.8	9.7	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C10-C14	S22-De0056932	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S22-De0056932	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	S22-De0056932	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C10-C16	S22-De0056932	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S22-De0056932	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S22-De0056932	CP	mg/kg	< 100	< 100	<1	30%	Pass
Duplicate								
				Result 1	Result 2	RPD		
% Moisture	S22-De0056932	CP	%	25	24	5.6	30%	Pass
Duplicate								
Total Recoverable Hydrocarbons				Result 1	Result 2	RPD		
TRH C10-C14	S22-De0056935	CP	mg/kg	< 20	< 20	<1	30%	Pass
TRH C15-C28	S22-De0056935	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH C29-C36	S22-De0056935	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C10-C16	S22-De0056935	CP	mg/kg	< 50	< 50	<1	30%	Pass
TRH >C16-C34	S22-De0056935	CP	mg/kg	< 100	< 100	<1	30%	Pass
TRH >C34-C40	S22-De0056935	CP	mg/kg	< 100	< 100	<1	30%	Pass

Duplicate								
Organotins				Result 1	Result 2	RPD		
Tributyltin	S22-De0056936	CP	mg/kg	< 1.25	< 1.25	<1	30%	Pass
Tributyltin as Sn	S22-De0056936	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Tributyltin Oxide	S22-De0056936	CP	mg/kg	< 1.25	< 1.25	<1	30%	Pass
Dibutyltin	S22-De0056936	CP	mg/kg	< 1	< 1	<1	30%	Pass
Dibutyltin as Sn	S22-De0056936	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass
Monobutyltin	S22-De0056936	CP	mg/kg	< 0.75	< 0.75	<1	30%	Pass
Monobutyltin as Sn	S22-De0056936	CP	mg/kg	< 0.5	< 0.5	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	N/A
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
I12	Where sampling date has not been provided, Eurofins Environment Testing is not able to determine whether analysis has been performed within recommended holding times.
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Quinn Raw	Analytical Services Manager
Caitlin Breeze	Senior Analyst-Inorganic
Jonathon Angell	Senior Analyst-PFAS
Mickael Ros	Senior Analyst-Metal
Roopesh Rangarajan	Senior Analyst-Organic
Roopesh Rangarajan	Senior Analyst-Volatile
Scott Beddoes	Senior Analyst-Inorganic



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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From: Joseph Ferring <Joseph.Ferring@erm.com>
Sent: Tuesday, 20 December 2022 11:07 AM
To: Quinn Raw <QuinnRaw@eurofins.com>
Cc: Indiana Strachan <Indiana.Strachan@erm.com>; Ian Batterley <Ian.Batterley@erm.com>
Subject: RE: Esky pick up

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

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Hi Quinn, we've got a few adjustments/clarifications to make on the COCs for these samples.

- The Eurofins quote ID is 221129ERMN;
- Where "TRH" is listed in the analytes, this means C6-C40;
- Where "Heavy metals and metalloids (15)" is listed, this means As, Cd, Cr, Cu, Ni, Pb, Zn, Hg, B, Ba, Be, Co, Mn, Se, V;
- TBT = tributyltin;
- DBT = monobutyltin;
- MBT = monobutyltin;
- Please analyse the TS and TB for TRH C6-C10 and BTEXN;

Please analyse the following elutriate samples for TRH, BTEXN, Heavy metals and metalloids (15), PAHs, OC/OP, TBT, DBT, MBT, PFAS (30):

- K_EL02_0.0
- K_EL04_0.0
- K_EL06_0.0
- LP_EL02_0.0
- LP_EL03_0.0

The corresponding 20L water sample should be used for the elutriates (i.e. K_Seawater for the K_EL elutriates, LP_Seawater for LP_EL elutriates)

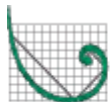
Let us know if you need clarification on anything.

cheers

Joe Ferring
Principal Environmental Scientist / Team Leader

ERM

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E Joseph.Ferring@erm.com | W www.erm.com



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From: Quinn Raw <QuinnRaw@eurofins.com>
Sent: Monday, December 19, 2022 2:58 PM
To: Indiana Strachan <Indiana.Strachan@erm.com>; #AU25_Despatch_SYD

<AU25_Despatch_SYD@eurofins.com>; #AU25_Enviro_Sample_NSW
<EnviroSampleNSW@eurofins.com>

Cc: Joseph Ferring <Joseph.Ferring@erm.com>

Subject: RE: Esky pick up

EXTERNAL MESSAGE

No worries, thanks Indi,

Absolutely, we'll make sure they're at least extracted in time.

Kind Regards,

Quinn Raw

Analytical Services Manager

Mobile: +61 459 786 036

From: Indiana Strachan <Indiana.Strachan@erm.com>

Sent: Monday, 19 December 2022 2:29 PM

To: Quinn Raw <QuinnRaw@eurofins.com>; #AU25_Despatch_SYD
<AU25_Despatch_SYD@eurofins.com>; #AU25_Enviro_Sample_NSW
<EnviroSampleNSW@eurofins.com>

Cc: Joseph Ferring <Joseph.Ferring@erm.com>

Subject: Re: Esky pick up

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

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Hi Quinn,

That's okay if results aren't in this year. I was more concerned about getting the analysis in within holding times.

Thanks,

Indi

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From: Quinn Raw <QuinnRaw@eurofins.com>

Sent: Monday, December 19, 2022 2:25:31 PM

To: #AU25_Despatch_SYD <AU25_Despatch_SYD@eurofins.com>; Indiana Strachan
<Indiana.Strachan@erm.com>; #AU25_Enviro_Sample_NSW <EnviroSampleNSW@eurofins.com>

Cc: Joseph Ferring <Joseph.Ferring@erm.com>

Subject: RE: Esky pick up

EXTERNAL MESSAGE

Thanks for the heads up, Indi.

Since this is a Std job, results won't be able to be finalised this year. I hope that's okay.

Kind Regards,

Quinn Raw

Analytical Services Manager

Mobile: +61 459 786 036

From: #AU25_Despatch_SYD <AU25_Despatch_SYD@eurofins.com>

Sent: Monday, 19 December 2022 2:17 PM

To: Indiana Strachan <Indiana.Strachan@erm.com>; Quinn Raw <QuinnRaw@eurofins.com>;

#AU25_Enviro_Sample_NSW <EnviroSampleNSW@eurofins.com>

Cc: Joseph Ferring <Joseph.Ferring@erm.com>

Subject: Re: Esky pick up

INFO: INTERNAL EMAIL - Sent from your own Eurofins email domain.

Dear Indiana,

This is booked under job no. 93559 on VIP.

We shut down at noon on Friday this week. More information on the following link:

https://mcusercontent.com/3d4ce4927474020161ac2c642/files/e29bbbf-2c77-4aff-e3a6-e3e37fd486c1/2022_23_Enviro_Note_Christmas_Closure_PROOF2_ALL.pdf

@#AU25_Enviro_Sample_NSW could please inform whether testing is possible before shut down?

Kind Regards,

Hannah.

Sydney Despatch.

Mobile: 0488 400 929

Hours: 08:00 - 16:00

Eurofins Environment Testing Australia Pty Ltd.

179 Magowar Road,
Girraween, NSW, 2145.



From: Indiana Strachan <Indiana.Strachan@erm.com>

Sent: Monday, 19 December 2022 2:00 PM

To: #AU25_Despatch_SYD <AU25_Despatch_SYD@eurofins.com>; Quinn Raw <QuinnRaw@eurofins.com>

Cc: Joseph Ferring <Joseph.Ferring@erm.com>

Subject: Esky pick up

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Quinn / Despatch,

Could I please have 4 eskies and 2 x 25L water drums picked up from 28A King St, Manly Vale.

The COC is attached here and inside the esky.

The 25L water drums are for future elutriate testing, could you please put them on hold for us.

We will be having more sediment samples with the same suite come in on Thursday, could you please confirm when your shut down period is / whether you'll be able to analyse within the holding times.

Thank you,
Indi

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From: #AU25_Despatch_SYD <AU25_Despatch_SYD@eurofins.com>

Sent: Tuesday, December 13, 2022 12:12:49 PM

To: Indiana Strachan <Indiana.Strachan@erm.com>; Quinn Raw <QuinnRaw@eurofins.com>

Cc: Joseph Ferring <Joseph.Ferring@erm.com>

Subject: Re: Bottle order - 0564417

You don't often get email from au25_despatch_syd@eurofins.com. [Learn why this is important](#)

EXTERNAL MESSAGE

Dear Indiana,

This is booked under job no. 57921.

Kind Regards,

Hannah.

Sydney Despatch.

Mobile: 0488 400 929

Hours: 08:00 - 16:00

Eurofins Environment Testing Australia Pty Ltd.
179 Magowar Road,

Girraween, NSW, 2145.



From: Indiana Strachan <Indiana.Strachan@erm.com>
Sent: Tuesday, 13 December 2022 12:05 PM
To: #AU25_Despatch_SYD <AU25_Despatch_SYD@eurofins.com>; Quinn Raw <QuinnRaw@eurofins.com>
Cc: Joseph Ferring <Joseph.Ferring@erm.com>
Subject: Re: Bottle order - 0564417

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.
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Hi Hannah,

I think I forgot to add please give me 4 large eskies with the order. Thank you!

Inid

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From: #AU25_Despatch_SYD <AU25_Despatch_SYD@eurofins.com>
Sent: Tuesday, December 13, 2022 10:44:04 AM
To: Indiana Strachan <Indiana.Strachan@erm.com>; Quinn Raw <QuinnRaw@eurofins.com>
Cc: Joseph Ferring <Joseph.Ferring@erm.com>
Subject: Re: Bottle order - 0564417

You don't often get email from au25_despatch_syd@eurofins.com. [Learn why this is important](#)

EXTERNAL MESSAGE

Dear Indiana,

I am working on this for you today.

Kind Regards,
Hannah.
Sydney Despatch.
Mobile: 0488 400 929
Hours: 08:00 - 16:00

Eurofins Environment Testing Australia Pty Ltd.
179 Magowar Road,
Girraween, NSW, 2145.



From: Indiana Strachan <Indiana.Strachan@erm.com>
Sent: Tuesday, 13 December 2022 8:53 AM
To: Quinn Raw <QuinnRaw@eurofins.com>; #AU25_Despatch_SYD
<AU25_Despatch_SYD@eurofins.com>
Cc: Joseph Ferring <Joseph.Ferring@erm.com>
Subject: Re: Bottle order - 0564417

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.
Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Quinn
Can I please have confirmation on this one

Thanks
Indi

Get [Outlook for Android](#)

From: Indiana Strachan
Sent: Friday, December 9, 2022 12:11:53 PM
To: Quinn Raw <QuinnRaw@eurofins.com>; #AU04_Despatch_SYD
<AU04_Despatch_SYD@eurofins.com>
Cc: Joseph Ferring <Joseph.Ferring@erm.com>
Subject: Bottle order - 0564417

Hi Quinn / Despatch,

I'd like to make the following bottle order, to be delivered no later than **Tuesday 13th Dec.**
Address: 28A King St, Manly Vale 2093.
Delivery Instructions: Leave in carport, do NOT knock on door of 28.

Analysis suite:
TRH, BTEXN, metals and metalloids (15), PAHs, OC/OP, TBT, DBT, MBT, TOC, grainsize, PFAS (30).

45 x sediment samples
45 x elutriate samples (please confirm if you need extra volume of sediment for this analysis, or if they are sampled in the same jars as general chem).
4 x water samples
TS/TB x 2 (soil)

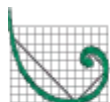
We will be collecting 2 x 20L drum (self supplied) of seawater to provide for elutriate sampling.

Please let me know any questions,

Thanks,
Indiana Strachan
Environmental Analyst

ERM

Lumley House | Level 14, 207 Kent Street | Sydney NSW 2000 Australia |
T +61 2 8584 8807 M +61 (0)402 229 288
E Indiana.Strachan@erm.com | W www.erm.com



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Eurofins Environment Testing Australia Pty Ltd

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179 Magowar Road
Girraween
NSW 2145
Tel: +61 2 9900 8400
NATA# 1261 Site# 18217

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Unit 1,2 Dacre Street
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Mayfield East NSW 2304
PO Box 60 Wickham 2293
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WA 6106
Tel: +61 8 6253 4444
NATA# 2377 Site# 2370

Eurofins Environment Testing NZ Ltd

NZBN: 9429046024954

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Penrose,
Auckland 1061
Tel: +64 9 526 45 51
IANZ# 1327

Christchurch
43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

Sample Receipt Advice

Company name: ERM Sydney
Contact name: Indiana Strachan
Project name: KAMAY WHARF PROJECT
Project ID: 0564417
Turnaround time: 3 Day
Date/Time received: Dec 22, 2022 7:07 PM
Eurofins reference: 954270

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- ✓ Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Parent reports 953157 and 952366 - elutriate testing.
 Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Quinn Raw on phone : or by email: QuinnRaw@eurofins.com

Results will be delivered electronically via email to Indiana Strachan - indiana.strachan@erm.com.

Note: A copy of these results will also be delivered to the general ERM Sydney email address.



Melbourne
6 Monterey Road
Dandenong South
VIC 3175
Tel: +61 3 8564 5000
NATA# 1261 Site# 1254

Geelong
19/8 Lewalan Street
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NATA# 1261 Site# 1254

Sydney
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NATA# 1261 Site# 18217

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NATA# 1261 Site# 20794

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IANZ# 1327

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43 Detroit Drive
Rolleston,
Christchurch 7675
Tel: 0800 856 450
IANZ# 1290

web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 0564417

Order No.:
Report #: 954270
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Dec 22, 2022 7:07 PM
Due: Jan 13, 2023
Priority: 3 Day
Contact Name: Indiana Strachan

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						Polyyclic Aromatic Hydrocarbons	AUS Leaching Procedure	Metals M8	Suite B14: OCP/OPP	AUS Leaching Procedure - ZHE	NEPM 1999 Metals : Metals M15	Eurofins Suite B1	Per- and Polyfluoroalkyl Substances (PFASs)	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254														X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X	X		
Brisbane Laboratory - NATA # 1261 Site # 20794													X	
External Laboratory														
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID									
1	LP-ELO5-0.0	Dec 16, 2022		AUS Leachate	S23-Ja0003538	X	X	X	X	X		X	X	X
2	K_EL02_0.0	Dec 16, 2022		AUS Leachate	S23-Ja0003540	X	X		X	X	X	X	X	X
3	K_EL04_0.0	Dec 16, 2022		AUS Leachate	S23-Ja0003541	X	X		X	X	X	X	X	X
4	K_EL06_0.0	Dec 16, 2022		AUS Leachate	S23-Ja0003542	X	X		X	X	X	X	X	X
5	LP_EL02_0.0	Dec 16, 2022		AUS Leachate	S23-Ja0003543	X	X		X	X	X	X	X	X
6	LP_EL03_0.0	Dec 16, 2022		AUS Leachate	S23-Ja0003544	X	X		X	X	X	X	X	X
Test Counts						6	6	1	6	6	5	6	6	6

ERM Sydney
Level 15, 309 Kent St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: **Indiana Strachan**

Report **954270-L**
Project name **KAMAY WHARF PROJECT**
Project ID **0564417**
Received Date **Dec 19, 2022**

Client Sample ID			LP-ELO5-0.0 AUS Leachate - Seawater S23-Ja0003538 Dec 16, 2022	K_EL02_0.0 AUS Leachate - Seawater S23-Ja0003540 Dec 16, 2022	K_EL04_0.0 AUS Leachate - Seawater S23-Ja0003541 Dec 16, 2022	K_EL06_0.0 AUS Leachate - Seawater S23-Ja0003542 Dec 16, 2022
Sample Matrix	LOR	Unit				
Eurofins Sample No.						
Date Sampled						
Test/Reference						
Total Recoverable Hydrocarbons						
TRH C6-C9	0.2	mg/L	< 0.2	< 0.2	< 0.2	< 0.2
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH C6-C10	0.2	mg/L	< 0.2	< 0.2	< 0.2	< 0.2
TRH C6-C10 less BTEX (F1) ^{N04}	0.2	mg/L	< 0.2	< 0.2	< 0.2	< 0.2
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
BTEX						
Benzene	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
m&p-Xylenes	0.002	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
o-Xylene	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Xylenes - Total*	0.003	mg/L	< 0.03	< 0.03	< 0.03	< 0.03
4-Bromofluorobenzene (surr.)	1	%	51	62	60	57
Total Recoverable Hydrocarbons - 2013 NEPM Fractions						
Naphthalene ^{N02}	0.1	mg/L	< 0.1	< 0.1	< 0.1	< 0.1
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			LP-ELO5-0.0 AUS Leachate - Seawater S23-Ja0003538 Dec 16, 2022	K_EL02_0.0 AUS Leachate - Seawater S23-Ja0003540 Dec 16, 2022	K_EL04_0.0 AUS Leachate - Seawater S23-Ja0003541 Dec 16, 2022	K_EL06_0.0 AUS Leachate - Seawater S23-Ja0003542 Dec 16, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Polycyclic Aromatic Hydrocarbons						
Fluorene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	61	70	96	66
p-Terphenyl-d14 (surr.)	1	%	^{Q09} INT	^{Q09} INT	^{Q09} INT	^{Q09} INT
Organochlorine Pesticides						
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
4.4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
4.4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dibutylchloroendate (surr.)	1	%	^{Q09} INT	^{Q09} INT	^{Q09} INT	^{Q09} INT
Tetrachloro-m-xylene (surr.)	1	%	^{Q09} INT	^{Q09} INT	144	^{Q09} INT
Organophosphorus Pesticides						
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002

Client Sample ID			LP-ELO5-0.0 AUS Leachate - Seawater S23-Ja0003538 Dec 16, 2022	K_EL02_0.0 AUS Leachate - Seawater S23-Ja0003540 Dec 16, 2022	K_EL04_0.0 AUS Leachate - Seawater S23-Ja0003541 Dec 16, 2022	K_EL06_0.0 AUS Leachate - Seawater S23-Ja0003542 Dec 16, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Organophosphorus Pesticides						
Disulfoton	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Tokuthion	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	⁰⁰⁹ INT	⁰⁰⁹ INT	⁰⁰⁹ INT	⁰⁰⁹ INT
Organotins						
Tributyltin	0.0125	mg/L	< 0.0125	< 0.0125	< 0.0125	< 0.0125
Tributyltin as Sn	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Tributyltin Oxide	0.0125	mg/L	< 0.0125	< 0.0125	< 0.0125	< 0.0125
Dibutyltin	0.01	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Dibutyltin as Sn	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Monobutyltin	0.0075	mg/L	< 0.0075	< 0.0075	< 0.0075	< 0.0075
Monobutyltin as Sn	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Tripropyltin as Sn (surr.)	1	%	117	122	118	100
Chromium						
Chromium (hexavalent)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Chromium (trivalent)	0.005	mg/L	< 0.005	< 0.005	< 0.005	< 0.005
Heavy Metals						
Arsenic	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Barium	0.02	mg/L	< 0.2	< 0.2	< 0.2	< 0.2
Beryllium	0.001	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Boron	0.05	mg/L	3.9	4.0	3.5	3.7
Cadmium	0.0002	mg/L	< 0.002	< 0.002	< 0.002	< 0.002
Chromium	0.001	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Cobalt	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Copper	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Lead	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Manganese	0.005	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Mercury	0.0001	mg/L	< 0.001	< 0.001	< 0.001	< 0.001

Client Sample ID			LP-ELO5-0.0 AUS Leachate - Seawater S23-Ja0003538 Dec 16, 2022	K_EL02_0.0 AUS Leachate - Seawater S23-Ja0003540 Dec 16, 2022	K_EL04_0.0 AUS Leachate - Seawater S23-Ja0003541 Dec 16, 2022	K_EL06_0.0 AUS Leachate - Seawater S23-Ja0003542 Dec 16, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Heavy Metals						
Nickel	0.001	mg/L	< 0.01	< 0.01	< 0.01	< 0.01
Vanadium	0.005	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
Zinc	0.005	mg/L	< 0.05	< 0.05	< 0.05	< 0.05
AUS Leaching Procedure						
Leachate Fluid ^{C01}		comment	5.0	5.0	5.0	5.0
pH (initial)	0.1	pH Units	9.2	8.9	9.3	8.9
pH (Leachate fluid)	0.1	pH Units	7.9	7.7	7.7	7.7
pH (off)	0.1	pH Units	7.3	7.6	7.8	7.9
AUS Leaching Procedure - ZHE						
Leachate Fluid		comment	5.0	5.0	5.0	5.0
pH (AUS ZHE - off)	0.1	pH Units	7.9	7.7	7.9	8.0
pH (Leachate Fluid)	0.1	pH Units	7.9	7.7	7.7	7.7
Perfluoroalkyl carboxylic acids (PFCAs)						
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	77	83	80	79
13C5-PFPeA (surr.)	1	%	70	71	75	64
13C5-PFHxA (surr.)	1	%	93	87	96	89
13C4-PFHpA (surr.)	1	%	68	57	63	62
13C8-PFOA (surr.)	1	%	101	109	105	97
13C5-PFNA (surr.)	1	%	78	88	84	77
13C6-PFDA (surr.)	1	%	73	87	83	74
13C2-PFUnDA (surr.)	1	%	59	69	65	61
13C2-PFDoDA (surr.)	1	%	54	67	61	60
13C2-PFTeDA (surr.)	1	%	56	75	56	61
Perfluoroalkyl sulfonamido substances						
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-ethylperfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	59	71	67	67
D3-N-MeFOSA (surr.)	1	%	74	92	87	90
D5-N-EtFOSA (surr.)	1	%	84	123	105	106

Client Sample ID			LP-ELO5-0.0 AUS Leachate - Seawater S23-Ja0003538 Dec 16, 2022	K_EL02_0.0 AUS Leachate - Seawater S23-Ja0003540 Dec 16, 2022	K_EL04_0.0 AUS Leachate - Seawater S23-Ja0003541 Dec 16, 2022	K_EL06_0.0 AUS Leachate - Seawater S23-Ja0003542 Dec 16, 2022
Sample Matrix						
Eurofins Sample No.						
Date Sampled						
Test/Reference	LOR	Unit				
Perfluoroalkyl sulfonamido substances						
D7-N-MeFOSE (surr.)	1	%	112	109	119	107
D9-N-EtFOSE (surr.)	1	%	110	119	113	120
D5-N-EtFOSAA (surr.)	1	%	57	77	70	64
D3-N-MeFOSAA (surr.)	1	%	53	61	58	56
Perfluoroalkyl sulfonic acids (PFSA's)						
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	73	61	64	67
18O2-PFHxS (surr.)	1	%	101	105	107	94
13C8-PFOS (surr.)	1	%	71	79	77	67
n:2 Fluorotelomer sulfonic acids (n:2 FTSA's)						
1H,1H,2H,2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H,1H,2H,2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
1H,1H,2H,2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
1H,1H,2H,2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	62	57	59	48
13C2-6:2 FTSA (surr.)	1	%	132	121	103	127
13C2-8:2 FTSA (surr.)	1	%	126	94	89	89
13C2-10:2 FTSA (surr.)	1	%	95	105	96	93
PFASs Summations						
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	< 0.1	< 0.1	< 0.1

Client Sample ID			LP_EL02_0.0 AUS Leachate - Seawater S23-Ja0003543 Dec 16, 2022	LP_EL03_0.0 AUS Leachate - Seawater S23-Ja0003544 Dec 16, 2022
Sample Matrix				
Eurofins Sample No.				
Date Sampled				
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C9	0.2	mg/L	< 0.2	< 0.2
TRH C10-C14	0.05	mg/L	< 0.05	< 0.05
TRH C15-C28	0.1	mg/L	< 0.1	< 0.1
TRH C29-C36	0.1	mg/L	< 0.1	< 0.1
TRH C10-C36 (Total)	0.1	mg/L	< 0.1	< 0.1
TRH C6-C10	0.2	mg/L	< 0.2	< 0.2

Client Sample ID			LP_EL02_0.0	LP_EL03_0.0
Sample Matrix			AUS Leachate - Seawater	AUS Leachate - Seawater
Eurofins Sample No.			S23-Ja0003543	S23-Ja0003544
Date Sampled			Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit		
Total Recoverable Hydrocarbons				
TRH C6-C10 less BTEX (F1) ^{N04}	0.2	mg/L	< 0.2	< 0.2
TRH >C10-C16	0.05	mg/L	< 0.05	< 0.05
TRH >C10-C16 less Naphthalene (F2) ^{N01}	0.05	mg/L	< 0.05	< 0.05
TRH >C16-C34	0.1	mg/L	< 0.1	< 0.1
TRH >C34-C40	0.1	mg/L	< 0.1	< 0.1
TRH >C10-C40 (total)*	0.1	mg/L	< 0.1	< 0.1
BTEX				
Benzene	0.001	mg/L	< 0.01	< 0.01
Toluene	0.001	mg/L	< 0.01	< 0.01
Ethylbenzene	0.001	mg/L	< 0.01	< 0.01
m&p-Xylenes	0.002	mg/L	< 0.02	< 0.02
o-Xylene	0.001	mg/L	< 0.01	< 0.01
Xylenes - Total*	0.003	mg/L	< 0.03	< 0.03
4-Bromofluorobenzene (surr.)	1	%	56	57
Total Recoverable Hydrocarbons - 2013 NEPM Fractions				
Naphthalene ^{N02}	0.1	mg/L	< 0.1	< 0.1
Polycyclic Aromatic Hydrocarbons				
Acenaphthene	0.001	mg/L	< 0.001	< 0.001
Acenaphthylene	0.001	mg/L	< 0.001	< 0.001
Anthracene	0.001	mg/L	< 0.001	< 0.001
Benz(a)anthracene	0.001	mg/L	< 0.001	< 0.001
Benzo(a)pyrene	0.001	mg/L	< 0.001	< 0.001
Benzo(b&j)fluoranthene ^{N07}	0.001	mg/L	< 0.001	< 0.001
Benzo(g,h,i)perylene	0.001	mg/L	< 0.001	< 0.001
Benzo(k)fluoranthene	0.001	mg/L	< 0.001	< 0.001
Chrysene	0.001	mg/L	< 0.001	< 0.001
Dibenz(a,h)anthracene	0.001	mg/L	< 0.001	< 0.001
Fluoranthene	0.001	mg/L	< 0.001	< 0.001
Fluorene	0.001	mg/L	< 0.001	< 0.001
Indeno(1.2.3-cd)pyrene	0.001	mg/L	< 0.001	< 0.001
Naphthalene	0.001	mg/L	< 0.001	< 0.001
Phenanthrene	0.001	mg/L	< 0.001	< 0.001
Pyrene	0.001	mg/L	< 0.001	< 0.001
Total PAH*	0.001	mg/L	< 0.001	< 0.001
2-Fluorobiphenyl (surr.)	1	%	51	64
p-Terphenyl-d14 (surr.)	1	%	^{Q09} INT	^{Q09} INT
Organochlorine Pesticides				
Chlordanes - Total	0.002	mg/L	< 0.002	< 0.002
4,4'-DDD	0.0002	mg/L	< 0.0002	< 0.0002
4,4'-DDE	0.0002	mg/L	< 0.0002	< 0.0002
4,4'-DDT	0.0002	mg/L	< 0.0002	< 0.0002
a-HCH	0.0002	mg/L	< 0.0002	< 0.0002
Aldrin	0.0002	mg/L	< 0.0002	< 0.0002
b-HCH	0.0002	mg/L	< 0.0002	< 0.0002
d-HCH	0.0002	mg/L	< 0.0002	< 0.0002
Dieldrin	0.0002	mg/L	< 0.0002	< 0.0002
Endosulfan I	0.0002	mg/L	< 0.0002	< 0.0002
Endosulfan II	0.0002	mg/L	< 0.0002	< 0.0002

Client Sample ID			LP_EL02_0.0	LP_EL03_0.0
Sample Matrix			AUS Leachate - Seawater	AUS Leachate - Seawater
Eurofins Sample No.			S23-Ja0003543	S23-Ja0003544
Date Sampled			Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit		
Organochlorine Pesticides				
Endosulfan sulphate	0.0002	mg/L	< 0.0002	< 0.0002
Endrin	0.0002	mg/L	< 0.0002	< 0.0002
Endrin aldehyde	0.0002	mg/L	< 0.0002	< 0.0002
Endrin ketone	0.0002	mg/L	< 0.0002	< 0.0002
g-HCH (Lindane)	0.0002	mg/L	< 0.0002	< 0.0002
Heptachlor	0.0002	mg/L	< 0.0002	< 0.0002
Heptachlor epoxide	0.0002	mg/L	< 0.0002	< 0.0002
Hexachlorobenzene	0.0002	mg/L	< 0.0002	< 0.0002
Methoxychlor	0.0002	mg/L	< 0.0002	< 0.0002
Toxaphene	0.005	mg/L	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.0002	mg/L	< 0.0002	< 0.0002
DDT + DDE + DDD (Total)*	0.0002	mg/L	< 0.0002	< 0.0002
Vic EPA IWRG 621 OCP (Total)*	0.002	mg/L	< 0.002	< 0.002
Vic EPA IWRG 621 Other OCP (Total)*	0.002	mg/L	< 0.002	< 0.002
Dibutylchlorendate (surr.)	1	%	⁰⁰⁹ INT	⁰⁰⁹ INT
Tetrachloro-m-xylene (surr.)	1	%	144	⁰⁰⁹ INT
Organophosphorus Pesticides				
Azinphos-methyl	0.002	mg/L	< 0.002	< 0.002
Bolstar	0.002	mg/L	< 0.002	< 0.002
Chlorfenvinphos	0.02	mg/L	< 0.02	< 0.02
Chlorpyrifos	0.002	mg/L	< 0.002	< 0.002
Chlorpyrifos-methyl	0.002	mg/L	< 0.002	< 0.002
Coumaphos	0.02	mg/L	< 0.02	< 0.02
Demeton-S	0.002	mg/L	< 0.002	< 0.002
Demeton-O	0.002	mg/L	< 0.002	< 0.002
Diazinon	0.002	mg/L	< 0.002	< 0.002
Dichlorvos	0.002	mg/L	< 0.002	< 0.002
Dimethoate	0.002	mg/L	< 0.002	< 0.002
Disulfoton	0.002	mg/L	< 0.002	< 0.002
EPN	0.002	mg/L	< 0.002	< 0.002
Ethion	0.002	mg/L	< 0.002	< 0.002
Ethoprop	0.002	mg/L	< 0.002	< 0.002
Ethyl parathion	0.002	mg/L	< 0.002	< 0.002
Fenitrothion	0.002	mg/L	< 0.002	< 0.002
Fensulfothion	0.002	mg/L	< 0.002	< 0.002
Fenthion	0.002	mg/L	< 0.002	< 0.002
Malathion	0.002	mg/L	< 0.002	< 0.002
Merphos	0.002	mg/L	< 0.002	< 0.002
Methyl parathion	0.002	mg/L	< 0.002	< 0.002
Mevinphos	0.002	mg/L	< 0.002	< 0.002
Monocrotophos	0.002	mg/L	< 0.002	< 0.002
Naled	0.002	mg/L	< 0.002	< 0.002
Omethoate	0.02	mg/L	< 0.02	< 0.02
Phorate	0.002	mg/L	< 0.002	< 0.002
Pirimiphos-methyl	0.02	mg/L	< 0.02	< 0.02
Pyrazophos	0.002	mg/L	< 0.002	< 0.002
Ronnel	0.002	mg/L	< 0.002	< 0.002
Terbufos	0.002	mg/L	< 0.002	< 0.002
Tetrachlorvinphos	0.002	mg/L	< 0.002	< 0.002

Client Sample ID			LP_EL02_0.0	LP_EL03_0.0
Sample Matrix			AUS Leachate - Seawater	AUS Leachate - Seawater
Eurofins Sample No.			S23-Ja0003543	S23-Ja0003544
Date Sampled			Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit		
Organophosphorus Pesticides				
Tokuthion	0.002	mg/L	< 0.002	< 0.002
Trichloronate	0.002	mg/L	< 0.002	< 0.002
Triphenylphosphate (surr.)	1	%	^{Q09} INT	^{Q09} INT
Organotins				
Tributyltin	0.0125	mg/L	< 0.0125	< 0.0125
Tributyltin as Sn	0.005	mg/L	< 0.005	< 0.005
Tributyltin Oxide	0.0125	mg/L	< 0.0125	< 0.0125
Dibutyltin	0.01	mg/L	< 0.01	< 0.01
Dibutyltin as Sn	0.005	mg/L	< 0.005	< 0.005
Monobutyltin	0.0075	mg/L	< 0.0075	< 0.0075
Monobutyltin as Sn	0.005	mg/L	< 0.005	< 0.005
Tripopyltin as Sn (surr.)	1	%	106	118
Chromium				
Chromium (hexavalent)	0.005	mg/L	< 0.005	< 0.005
Chromium (trivalent)	0.005	mg/L	< 0.005	< 0.005
Heavy Metals				
Arsenic	0.001	mg/L	< 0.01	< 0.01
Barium	0.02	mg/L	< 0.2	< 0.2
Beryllium	0.001	mg/L	< 0.05	< 0.05
Boron	0.05	mg/L	3.8	3.8
Cadmium	0.0002	mg/L	< 0.002	< 0.002
Chromium	0.001	mg/L	< 0.05	< 0.05
Cobalt	0.001	mg/L	< 0.01	< 0.01
Copper	0.001	mg/L	< 0.01	< 0.01
Lead	0.001	mg/L	< 0.01	< 0.01
Manganese	0.005	mg/L	< 0.05	< 0.05
Mercury	0.0001	mg/L	< 0.001	< 0.001
Nickel	0.001	mg/L	< 0.01	< 0.01
Vanadium	0.005	mg/L	< 0.05	< 0.05
Zinc	0.005	mg/L	< 0.05	< 0.05
AUS Leaching Procedure				
Leachate Fluid ^{C01}		comment	5.0	5.0
pH (initial)	0.1	pH Units	8.4	8.9
pH (Leachate fluid)	0.1	pH Units	7.9	7.9
pH (off)	0.1	pH Units	7.8	7.8
AUS Leaching Procedure - ZHE				
Leachate Fluid		comment	5.0	5.0
pH (AUS ZHE - off)	0.1	pH Units	7.9	8.0
pH (Leachate Fluid)	0.1	pH Units	7.9	7.9
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorobutanoic acid (PFBA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
Perfluoropentanoic acid (PFPeA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanoic acid (PFHxA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanoic acid (PFHpA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanoic acid (PFOA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorononanoic acid (PFNA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanoic acid (PFDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluoroundecanoic acid (PFUnDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01

Client Sample ID			LP_EL02_0.0	LP_EL03_0.0
Sample Matrix			AUS Leachate - Seawater	AUS Leachate - Seawater
Eurofins Sample No.			S23-Ja0003543	S23-Ja0003544
Date Sampled			Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit		
Perfluoroalkyl carboxylic acids (PFCAs)				
Perfluorododecanoic acid (PFDoDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorotridecanoic acid (PFTrDA) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorotetradecanoic acid (PFTeDA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
13C4-PFBA (surr.)	1	%	96	81
13C5-PFPeA (surr.)	1	%	78	62
13C5-PFHxA (surr.)	1	%	106	77
13C4-PFHpA (surr.)	1	%	71	61
13C8-PFOA (surr.)	1	%	120	109
13C5-PFNA (surr.)	1	%	95	83
13C6-PFDA (surr.)	1	%	92	81
13C2-PFUnDA (surr.)	1	%	73	64
13C2-PFDoDA (surr.)	1	%	73	62
13C2-PFTeDA (surr.)	1	%	70	57
Perfluoroalkyl sulfonamido substances				
Perfluorooctane sulfonamide (FOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
13C8-FOSA (surr.)	1	%	79	68
D3-N-MeFOSA (surr.)	1	%	103	97
D5-N-EtFOSA (surr.)	1	%	131	113
D7-N-MeFOSE (surr.)	1	%	124	114
D9-N-EtFOSE (surr.)	1	%	127	124
D5-N-EtFOSAA (surr.)	1	%	79	69
D3-N-MeFOSAA (surr.)	1	%	66	55
Perfluoroalkyl sulfonic acids (PFSA)				
Perfluorobutanesulfonic acid (PFBS) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorononanesulfonic acid (PFNS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluoropropanesulfonic acid (PFPrS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluoropentanesulfonic acid (PFPeS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorohexanesulfonic acid (PFHxS) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluoroheptanesulfonic acid (PFHpS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
Perfluorooctanesulfonic acid (PFOS) ^{N11}	0.01	ug/L	< 0.01	< 0.01
Perfluorodecanesulfonic acid (PFDS) ^{N15}	0.01	ug/L	< 0.01	< 0.01
13C3-PFBS (surr.)	1	%	69	67
18O2-PFHxS (surr.)	1	%	113	104
13C8-PFOS (surr.)	1	%	82	75

Client Sample ID			LP_EL02_0.0	LP_EL03_0.0
Sample Matrix			AUS Leachate - Seawater	AUS Leachate - Seawater
Eurofins Sample No.			S23-Ja0003543	S23-Ja0003544
Date Sampled			Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit		
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA) ^{N11}	0.05	ug/L	< 0.05	< 0.05
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA) ^{N11}	0.01	ug/L	< 0.01	< 0.01
13C2-4:2 FTSA (surr.)	1	%	67	57
13C2-6:2 FTSA (surr.)	1	%	140	128
13C2-8:2 FTSA (surr.)	1	%	121	91
13C2-10:2 FTSA (surr.)	1	%	106	91
PFASs Summations				
Sum (PFHxS + PFOS)*	0.01	ug/L	< 0.01	< 0.01
Sum of US EPA PFAS (PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of enHealth PFAS (PFHxS + PFOS + PFOA)*	0.01	ug/L	< 0.01	< 0.01
Sum of WA DWER PFAS (n=10)*	0.05	ug/L	< 0.05	< 0.05
Sum of PFASs (n=30)*	0.1	ug/L	< 0.1	< 0.1

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Eurofins Suite B1			
Total Recoverable Hydrocarbons - 1999 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Jan 09, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Jan 09, 2023	7 Days
Total Recoverable Hydrocarbons - 2013 NEPM Fractions - Method: LTM-ORG-2010 TRH C6-C40	Sydney	Jan 09, 2023	7 Days
BTEX - Method: LTM-ORG-2010 BTEX and Volatile TRH	Sydney	Jan 09, 2023	14 Days
Polycyclic Aromatic Hydrocarbons - Method: LTM-ORG-2130 PAH and Phenols in Soil and Water	Sydney	Jan 09, 2023	7 Days
Organotins - Method: LTM-ORG-2400 Determination of organotins in solid & aqueous samples by LC-ICP-MS	Melbourne	Jan 12, 2023	7 Days
AUS Leaching Procedure - Method: LTM-GEN-7010 Leaching Procedure for Soils & Solid Wastes	Sydney	Jan 09, 2023	7 Days
Organochlorine Pesticides - Method: LTM-ORG-2220 OCP & PCB in Soil and Water	Sydney	Jan 09, 2023	7 Days
Organophosphorus Pesticides - Method: LTM-ORG-2200 Organophosphorus Pesticides by GC-MS	Sydney	Jan 09, 2023	7 Days
Chromium (hexavalent) - Method: In-house method E057.1	Sydney	Jan 10, 2023	28 Days
Chromium (trivalent) - Method: E043 /E057 Total Speciated Chromium	Sydney	Jan 10, 2023	28 Days
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Jan 10, 2023	28 Days
Per- and Polyfluoroalkyl Substances (PFASs)			
Perfluoroalkyl carboxylic acids (PFCAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jan 09, 2023	28 Days
Perfluoroalkyl sulfonamido substances - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jan 09, 2023	28 Days
Perfluoroalkyl sulfonic acids (PFASs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jan 12, 2023	28 Days
n:2 Fluorotelomer sulfonic acids (n:2 FTSAs) - Method: LTM-ORG-2100 Per- and Polyfluoroalkyl Substances (PFAS)	Brisbane	Jan 12, 2023	28 Days

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Company Name:	ERM Sydney	Order No.:		Received:	Dec 22, 2022 7:07 PM
Address:	Level 15, 309 Kent St Sydney NSW 2000	Report #:	954270	Due:	Jan 13, 2023
Project Name:	KAMAY WHARF PROJECT	Phone:	02 8584 8888	Priority:	3 Day
Project ID:	0564417	Fax:	02 8584 8800	Contact Name:	Indiana Strachan

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						Polyyclic Aromatic Hydrocarbons	AUS Leaching Procedure	Suite B14: OCP/OPP	AUS Leaching Procedure - ZHE	NEPM 1999 Metals : Metals M15	Eurofins Suite B1	Per- and Polyfluoroalkyl Substances (PFASs)	Organotins
Melbourne Laboratory - NATA # 1261 Site # 1254													X
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X	X	X		
Brisbane Laboratory - NATA # 1261 Site # 20794												X	
External Laboratory													
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID								
1	LP-ELO5-0.0	Dec 16, 2022		AUS Leachate - Seawater	S23-Ja0003538	X	X	X	X	X	X	X	X
2	K_EL02_0.0	Dec 16, 2022		AUS Leachate - Seawater	S23-Ja0003540	X	X	X	X	X	X	X	X
3	K_EL04_0.0	Dec 16, 2022		AUS Leachate - Seawater	S23-Ja0003541	X	X	X	X	X	X	X	X
4	K_EL06_0.0	Dec 16, 2022		AUS Leachate - Seawater	S23-Ja0003542	X	X	X	X	X	X	X	X
5	LP_EL02_0.0	Dec 16, 2022		AUS Leachate - Seawater	S23-Ja0003543	X	X	X	X	X	X	X	X
6	LP_EL03_0.0	Dec 16, 2022		AUS Leachate - Seawater	S23-Ja0003544	X	X	X	X	X	X	X	X
Test Counts						6	6	6	6	6	6	6	6

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPaA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Method Blank							
Total Recoverable Hydrocarbons							
TRH C6-C9	mg/L	< 0.2			0.2	Pass	
TRH C6-C10	mg/L	< 0.2			0.2	Pass	
Method Blank							
BTEX							
Benzene	mg/L	< 0.001			0.001	Pass	
Toluene	mg/L	< 0.001			0.001	Pass	
Ethylbenzene	mg/L	< 0.001			0.001	Pass	
m&p-Xylenes	mg/L	< 0.002			0.002	Pass	
o-Xylene	mg/L	< 0.001			0.001	Pass	
Xylenes - Total*	mg/L	< 0.003			0.003	Pass	
Method Blank							
Total Recoverable Hydrocarbons - 2013 NEPM Fractions							
Naphthalene	mg/L	< 0.1			0.1	Pass	
Method Blank							
Polycyclic Aromatic Hydrocarbons							
Acenaphthene	mg/L	< 0.001			0.001	Pass	
Acenaphthylene	mg/L	< 0.001			0.001	Pass	
Anthracene	mg/L	< 0.001			0.001	Pass	
Benz(a)anthracene	mg/L	< 0.001			0.001	Pass	
Benzo(a)pyrene	mg/L	< 0.001			0.001	Pass	
Benzo(b&j)fluoranthene	mg/L	< 0.001			0.001	Pass	
Benzo(g,h,i)perylene	mg/L	< 0.001			0.001	Pass	
Benzo(k)fluoranthene	mg/L	< 0.001			0.001	Pass	
Chrysene	mg/L	< 0.001			0.001	Pass	
Dibenz(a,h)anthracene	mg/L	< 0.001			0.001	Pass	
Fluoranthene	mg/L	< 0.001			0.001	Pass	
Fluorene	mg/L	< 0.001			0.001	Pass	
Indeno(1,2,3-cd)pyrene	mg/L	< 0.001			0.001	Pass	
Naphthalene	mg/L	< 0.001			0.001	Pass	
Phenanthrene	mg/L	< 0.001			0.001	Pass	
Pyrene	mg/L	< 0.001			0.001	Pass	
Method Blank							
Organochlorine Pesticides							
Chlordanes - Total	mg/L	< 0.002			0.002	Pass	
4,4'-DDD	mg/L	< 0.0002			0.0002	Pass	
4,4'-DDE	mg/L	< 0.0002			0.0002	Pass	
4,4'-DDT	mg/L	< 0.0002			0.0002	Pass	
a-HCH	mg/L	< 0.0002			0.0002	Pass	
Aldrin	mg/L	< 0.0002			0.0002	Pass	
b-HCH	mg/L	< 0.0002			0.0002	Pass	
d-HCH	mg/L	< 0.0002			0.0002	Pass	
Dieldrin	mg/L	< 0.0002			0.0002	Pass	
Endosulfan I	mg/L	< 0.0002			0.0002	Pass	
Endosulfan II	mg/L	< 0.0002			0.0002	Pass	
Endosulfan sulphate	mg/L	< 0.0002			0.0002	Pass	
Endrin	mg/L	< 0.0002			0.0002	Pass	
Endrin aldehyde	mg/L	< 0.0002			0.0002	Pass	
Endrin ketone	mg/L	< 0.0002			0.0002	Pass	
g-HCH (Lindane)	mg/L	< 0.0002			0.0002	Pass	
Heptachlor	mg/L	< 0.0002			0.0002	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Heptachlor epoxide	mg/L	< 0.0002			0.0002	Pass	
Hexachlorobenzene	mg/L	< 0.0002			0.0002	Pass	
Methoxychlor	mg/L	< 0.0002			0.0002	Pass	
Toxaphene	mg/L	< 0.005			0.005	Pass	
Method Blank							
Organophosphorus Pesticides							
Azinphos-methyl	mg/L	< 0.002			0.002	Pass	
Bolstar	mg/L	< 0.002			0.002	Pass	
Chlorfenvinphos	mg/L	< 0.02			0.02	Pass	
Chlorpyrifos	mg/L	< 0.002			0.002	Pass	
Chlorpyrifos-methyl	mg/L	< 0.002			0.002	Pass	
Coumaphos	mg/L	< 0.02			0.02	Pass	
Demeton-S	mg/L	< 0.002			0.002	Pass	
Demeton-O	mg/L	< 0.002			0.002	Pass	
Diazinon	mg/L	< 0.002			0.002	Pass	
Dichlorvos	mg/L	< 0.002			0.002	Pass	
Dimethoate	mg/L	< 0.002			0.002	Pass	
Disulfoton	mg/L	< 0.002			0.002	Pass	
EPN	mg/L	< 0.002			0.002	Pass	
Ethion	mg/L	< 0.002			0.002	Pass	
Ethoprop	mg/L	< 0.002			0.002	Pass	
Ethyl parathion	mg/L	< 0.002			0.002	Pass	
Fenitrothion	mg/L	< 0.002			0.002	Pass	
Fensulfothion	mg/L	< 0.002			0.002	Pass	
Fenthion	mg/L	< 0.002			0.002	Pass	
Malathion	mg/L	< 0.002			0.002	Pass	
Merphos	mg/L	< 0.002			0.002	Pass	
Methyl parathion	mg/L	< 0.002			0.002	Pass	
Mevinphos	mg/L	< 0.002			0.002	Pass	
Monocrotophos	mg/L	< 0.002			0.002	Pass	
Naled	mg/L	< 0.002			0.002	Pass	
Omethoate	mg/L	< 0.02			0.02	Pass	
Phorate	mg/L	< 0.002			0.002	Pass	
Pirimiphos-methyl	mg/L	< 0.02			0.02	Pass	
Pyrazophos	mg/L	< 0.002			0.002	Pass	
Ronnel	mg/L	< 0.002			0.002	Pass	
Terbufos	mg/L	< 0.002			0.002	Pass	
Tetrachlorvinphos	mg/L	< 0.002			0.002	Pass	
Tokuthion	mg/L	< 0.002			0.002	Pass	
Trichloronate	mg/L	< 0.002			0.002	Pass	
Method Blank							
Organotins							
Tributyltin	mg/L	< 0.0125			0.0125	Pass	
Tributyltin as Sn	mg/L	< 0.005			0.005	Pass	
Tributyltin Oxide	mg/L	< 0.0125			0.0125	Pass	
Dibutyltin	mg/L	< 0.01			0.01	Pass	
Dibutyltin as Sn	mg/L	< 0.005			0.005	Pass	
Monobutyltin	mg/L	< 0.0075			0.0075	Pass	
Monobutyltin as Sn	mg/L	< 0.005			0.005	Pass	
Method Blank							
Heavy Metals							
Arsenic	mg/L	< 0.001			0.001	Pass	
Barium	mg/L	< 0.02			0.02	Pass	
Beryllium	mg/L	< 0.001			0.001	Pass	

Test	Units	Result 1	Acceptance Limits	Pass Limits	Qualifying Code
Boron	mg/L	< 0.05	0.05	Pass	
Cadmium	mg/L	< 0.0002	0.0002	Pass	
Chromium	mg/L	< 0.001	0.001	Pass	
Cobalt	mg/L	< 0.001	0.001	Pass	
Copper	mg/L	< 0.001	0.001	Pass	
Lead	mg/L	< 0.001	0.001	Pass	
Manganese	mg/L	< 0.005	0.005	Pass	
Mercury	mg/L	< 0.0001	0.0001	Pass	
Nickel	mg/L	< 0.001	0.001	Pass	
Vanadium	mg/L	< 0.005	0.005	Pass	
Zinc	mg/L	< 0.005	0.005	Pass	
Method Blank					
Perfluoroalkyl carboxylic acids (PFCAs)					
Perfluorobutanoic acid (PFBA)	ug/L	< 0.05	0.05	Pass	
Perfluoropentanoic acid (PFPeA)	ug/L	< 0.01	0.01	Pass	
Perfluorohexanoic acid (PFHxA)	ug/L	< 0.01	0.01	Pass	
Perfluoroheptanoic acid (PFHpA)	ug/L	< 0.01	0.01	Pass	
Perfluorooctanoic acid (PFOA)	ug/L	< 0.01	0.01	Pass	
Perfluorononanoic acid (PFNA)	ug/L	< 0.01	0.01	Pass	
Perfluorodecanoic acid (PFDA)	ug/L	< 0.01	0.01	Pass	
Perfluoroundecanoic acid (PFUnDA)	ug/L	< 0.01	0.01	Pass	
Perfluorododecanoic acid (PFDoDA)	ug/L	< 0.01	0.01	Pass	
Perfluorotridecanoic acid (PFTrDA)	ug/L	< 0.01	0.01	Pass	
Perfluorotetradecanoic acid (PFTeDA)	ug/L	< 0.01	0.01	Pass	
Method Blank					
Perfluoroalkyl sulfonamido substances					
Perfluorooctane sulfonamide (FOSA)	ug/L	< 0.05	0.05	Pass	
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	ug/L	< 0.05	0.05	Pass	
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	ug/L	< 0.05	0.05	Pass	
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	ug/L	< 0.05	0.05	Pass	
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	ug/L	< 0.05	0.05	Pass	
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	ug/L	< 0.05	0.05	Pass	
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	ug/L	< 0.05	0.05	Pass	
Method Blank					
Perfluoroalkyl sulfonic acids (PFSAs)					
Perfluorobutanesulfonic acid (PFBS)	ug/L	< 0.01	0.01	Pass	
Perfluorononanesulfonic acid (PFNS)	ug/L	< 0.01	0.01	Pass	
Perfluoropropanesulfonic acid (PFPrS)	ug/L	< 0.01	0.01	Pass	
Perfluoropentanesulfonic acid (PFPeS)	ug/L	< 0.01	0.01	Pass	
Perfluorohexanesulfonic acid (PFHxS)	ug/L	< 0.01	0.01	Pass	
Perfluoroheptanesulfonic acid (PFHpS)	ug/L	< 0.01	0.01	Pass	
Perfluorooctanesulfonic acid (PFOS)	ug/L	< 0.01	0.01	Pass	
Perfluorodecanesulfonic acid (PFDS)	ug/L	< 0.01	0.01	Pass	
Method Blank					
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)					
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	ug/L	< 0.01	0.01	Pass	
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	ug/L	< 0.05	0.05	Pass	
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	ug/L	< 0.01	0.01	Pass	
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	ug/L	< 0.01	0.01	Pass	
LCS - % Recovery					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene	%	88	70-130	Pass	
Acenaphthylene	%	98	70-130	Pass	
Anthracene	%	77	70-130	Pass	

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Benz(a)anthracene	%	73			70-130	Pass	
Benzo(a)pyrene	%	79			70-130	Pass	
Benzo(b&i)fluoranthene	%	77			70-130	Pass	
Benzo(g,h,i)perylene	%	73			70-130	Pass	
Benzo(k)fluoranthene	%	73			70-130	Pass	
Chrysene	%	78			70-130	Pass	
Dibenz(a,h)anthracene	%	70			70-130	Pass	
Fluoranthene	%	77			70-130	Pass	
Fluorene	%	80			70-130	Pass	
Indeno(1,2,3-cd)pyrene	%	72			70-130	Pass	
Naphthalene	%	75			70-130	Pass	
Phenanthrene	%	89			70-130	Pass	
Pyrene	%	80			70-130	Pass	
LCS - % Recovery							
Organochlorine Pesticides							
Chlordanes - Total	%	92			70-130	Pass	
4,4'-DDD	%	103			70-130	Pass	
4,4'-DDE	%	79			70-130	Pass	
4,4'-DDT	%	94			70-130	Pass	
a-HCH	%	80			70-130	Pass	
Aldrin	%	95			70-130	Pass	
b-HCH	%	88			70-130	Pass	
d-HCH	%	85			70-130	Pass	
Dieldrin	%	87			70-130	Pass	
Endosulfan I	%	88			70-130	Pass	
Endosulfan II	%	84			70-130	Pass	
Endosulfan sulphate	%	87			70-130	Pass	
Endrin	%	89			70-130	Pass	
Endrin aldehyde	%	84			70-130	Pass	
Endrin ketone	%	100			70-130	Pass	
g-HCH (Lindane)	%	78			70-130	Pass	
Heptachlor	%	98			70-130	Pass	
Heptachlor epoxide	%	70			70-130	Pass	
Hexachlorobenzene	%	78			70-130	Pass	
Methoxychlor	%	104			70-130	Pass	
LCS - % Recovery							
Organophosphorus Pesticides							
Diazinon	%	83			70-130	Pass	
Dimethoate	%	75			70-130	Pass	
Ethion	%	83			70-130	Pass	
Fenitrothion	%	90			70-130	Pass	
Methyl parathion	%	91			70-130	Pass	
Mevinphos	%	81			70-130	Pass	
LCS - % Recovery							
Organotins							
Tributyltin as Sn	%	113			60-140	Pass	
Dibutyltin as Sn	%	82			60-140	Pass	
Monobutyltin as Sn	%	107			60-140	Pass	
LCS - % Recovery							
Heavy Metals							
Arsenic	%	106			80-120	Pass	
Barium	%	101			80-120	Pass	
Beryllium	%	93			80-120	Pass	
Boron	%	84			80-120	Pass	

Test		Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code	
Cadmium		%	97			80-120	Pass		
Chromium		%	105			80-120	Pass		
Cobalt		%	104			80-120	Pass		
Copper		%	104			80-120	Pass		
Lead		%	104			80-120	Pass		
Manganese		%	102			80-120	Pass		
Mercury		%	109			80-120	Pass		
Nickel		%	103			80-120	Pass		
Vanadium		%	107			80-120	Pass		
Zinc		%	106			80-120	Pass		
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Spike - % Recovery									
Heavy Metals				Result 1					
Arsenic	S23-Ja0004528	NCP	%	80			75-125	Pass	
Barium	S23-Ja0004528	NCP	%	100			75-125	Pass	
Beryllium	S23-Ja0004528	NCP	%	91			75-125	Pass	
Boron	B23-Ja0000277	NCP	%	119			75-125	Pass	
Cadmium	S23-Ja0004528	NCP	%	100			75-125	Pass	
Chromium	S23-Ja0004528	NCP	%	102			75-125	Pass	
Cobalt	S23-Ja0004528	NCP	%	103			75-125	Pass	
Copper	S23-Ja0004528	NCP	%	102			75-125	Pass	
Lead	S23-Ja0004528	NCP	%	95			75-125	Pass	
Manganese	S23-Ja0004528	NCP	%	100			75-125	Pass	
Mercury	S23-Ja0004528	NCP	%	84			75-125	Pass	
Nickel	S23-Ja0004528	NCP	%	104			75-125	Pass	
Vanadium	S23-Ja0004528	NCP	%	98			75-125	Pass	
Zinc	S23-Ja0004528	NCP	%	93			75-125	Pass	
Spike - % Recovery									
Polycyclic Aromatic Hydrocarbons				Result 1					
Acenaphthene	S23-Ja0003540	CP	%	72			70-130	Pass	
Anthracene	S23-Ja0003540	CP	%	85			70-130	Pass	
Benz(a)anthracene	S23-Ja0003540	CP	%	72			70-130	Pass	
Benzo(a)pyrene	S23-Ja0003540	CP	%	85			70-130	Pass	
Benzo(b&i)fluoranthene	S23-Ja0003540	CP	%	81			70-130	Pass	
Benzo(g,h,i)perylene	S23-Ja0003540	CP	%	73			70-130	Pass	
Benzo(k)fluoranthene	S23-Ja0003540	CP	%	74			70-130	Pass	
Chrysene	S23-Ja0003540	CP	%	78			70-130	Pass	
Dibenz(a,h)anthracene	S23-Ja0003540	CP	%	73			70-130	Pass	
Fluoranthene	S23-Ja0003540	CP	%	93			70-130	Pass	
Fluorene	S23-Ja0003540	CP	%	76			70-130	Pass	
Indeno(1,2,3-cd)pyrene	S23-Ja0003540	CP	%	76			70-130	Pass	
Phenanthrene	S23-Ja0003540	CP	%	83			70-130	Pass	
Pyrene	S23-Ja0003540	CP	%	91			70-130	Pass	
Spike - % Recovery									
Organochlorine Pesticides				Result 1					
Chlordanes - Total	S23-Ja0003540	CP	%	112			70-130	Pass	
4,4'-DDD	S23-Ja0003540	CP	%	102			70-130	Pass	
4,4'-DDE	S23-Ja0003540	CP	%	88			70-130	Pass	
4,4'-DDT	S23-Ja0003540	CP	%	100			70-130	Pass	
a-HCH	S23-Ja0003540	CP	%	82			70-130	Pass	
Aldrin	S23-Ja0003540	CP	%	91			70-130	Pass	
b-HCH	S23-Ja0003540	CP	%	84			70-130	Pass	
d-HCH	S23-Ja0003540	CP	%	98			70-130	Pass	
Dieldrin	S23-Ja0003540	CP	%	99			70-130	Pass	

Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Endosulfan I	S23-Ja0003540	CP	%	100			70-130	Pass	
Endosulfan II	S23-Ja0003540	CP	%	83			70-130	Pass	
Endosulfan sulphate	S23-Ja0003540	CP	%	95			70-130	Pass	
Endrin	S23-Ja0003540	CP	%	107			70-130	Pass	
Endrin aldehyde	S23-Ja0003540	CP	%	85			70-130	Pass	
Endrin ketone	S23-Ja0003540	CP	%	121			70-130	Pass	
g-HCH (Lindane)	S23-Ja0003540	CP	%	80			70-130	Pass	
Heptachlor	S23-Ja0003540	CP	%	87			70-130	Pass	
Heptachlor epoxide	S23-Ja0003540	CP	%	81			70-130	Pass	
Hexachlorobenzene	S23-Ja0003540	CP	%	82			70-130	Pass	
Methoxychlor	S23-Ja0003540	CP	%	130			70-130	Pass	
Spike - % Recovery									
Organophosphorus Pesticides				Result 1					
Diazinon	S23-Ja0003540	CP	%	83			70-130	Pass	
Dimethoate	S23-Ja0003540	CP	%	87			70-130	Pass	
Ethion	S23-Ja0003540	CP	%	73			70-130	Pass	
Fenitrothion	S23-Ja0003540	CP	%	79			70-130	Pass	
Methyl parathion	S23-Ja0003540	CP	%	78			70-130	Pass	
Mevinphos	S23-Ja0003540	CP	%	87			70-130	Pass	
Spike - % Recovery									
				Result 1					
Chromium (hexavalent)	S23-Ja0003540	CP	%	106			70-130	Pass	
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
Organotins				Result 1	Result 2	RPD			
Tributyltin	S23-Ja0003538	CP	mg/L	< 0.0125	< 0.0125	<1	30%	Pass	
Tributyltin as Sn	S23-Ja0003538	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Tributyltin Oxide	S23-Ja0003538	CP	mg/L	< 0.0125	< 0.0125	<1	30%	Pass	
Dibutyltin	S23-Ja0003538	CP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Dibutyltin as Sn	S23-Ja0003538	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Monobutyltin	S23-Ja0003538	CP	mg/L	< 0.0075	< 0.0075	<1	30%	Pass	
Monobutyltin as Sn	S23-Ja0003538	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
				Result 1	Result 2	RPD			
Chromium (hexavalent)	S23-Ja0003538	CP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Duplicate									
Heavy Metals				Result 1	Result 2	RPD			
Arsenic	S23-Ja0004524	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Barium	S23-Ja0004524	NCP	mg/L	0.03	0.03	2.5	30%	Pass	
Beryllium	S23-Ja0004524	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Cadmium	S23-Ja0004524	NCP	mg/L	< 0.005	< 0.005	<1	30%	Pass	
Chromium	S23-Ja0004524	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Cobalt	S23-Ja0004524	NCP	mg/L	< 0.001	0.001	14	30%	Pass	
Copper	S23-Ja0004524	NCP	mg/L	< 0.05	< 0.05	<1	30%	Pass	
Lead	S23-Ja0004524	NCP	mg/L	0.08	0.08	2.0	30%	Pass	
Manganese	S23-Ja0004524	NCP	mg/L	0.044	0.046	3.3	30%	Pass	
Mercury	S23-Ja0004524	NCP	mg/L	< 0.001	< 0.001	<1	30%	Pass	
Nickel	S23-Ja0004524	NCP	mg/L	< 0.01	< 0.01	<1	30%	Pass	
Vanadium	S23-Ja0004524	NCP	mg/L	0.073	0.091	22	30%	Pass	
Zinc	S23-Ja0004524	NCP	mg/L	0.22	0.22	<1	30%	Pass	

Duplicate								
Perfluoroalkyl carboxylic acids (PFCAs)				Result 1	Result 2	RPD		
Perfluorobutanoic acid (PFBA)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Perfluoropentanoic acid (PFPeA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanoic acid (PFHxA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanoic acid (PFHpA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanoic acid (PFOA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanoic acid (PFNA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanoic acid (PFDA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroundecanoic acid (PFUnDA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorododecanoic acid (PFDoDA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotridecanoic acid (PFTrDA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorotetradecanoic acid (PFTeDA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonamido substances				Result 1	Result 2	RPD		
Perfluorooctane sulfonamide (FOSA)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methylperfluoro-1-octane sulfonamide (N-MeFOSA)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethylperfluoro-1-octane sulfonamide (N-EtFOSA)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-methylperfluoro-1-octane sulfonamido)-ethanol(N-MeFOSE)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
2-(N-ethylperfluoro-1-octane sulfonamido)-ethanol(N-EtFOSE)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-ethyl-perfluorooctanesulfonamidoacetic acid (N-EtFOSAA)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
N-methyl-perfluorooctanesulfonamidoacetic acid (N-MeFOSAA)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
Duplicate								
Perfluoroalkyl sulfonic acids (PFSA)				Result 1	Result 2	RPD		
Perfluorobutanesulfonic acid (PFBS)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorononanesulfonic acid (PFNS)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropropanesulfonic acid (PFPrS)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoropentanesulfonic acid (PFPeS)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorohexanesulfonic acid (PFHxS)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluoroheptanesulfonic acid (PFHpS)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorooctanesulfonic acid (PFOS)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Perfluorodecanesulfonic acid (PFDS)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
Duplicate								
n:2 Fluorotelomer sulfonic acids (n:2 FTSA)				Result 1	Result 2	RPD		
1H.1H.2H.2H-perfluorohexanesulfonic acid (4:2 FTSA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorooctanesulfonic acid(6:2 FTSA)	S23-Ja0003538	CP	ug/L	< 0.05	< 0.05	<1	30%	Pass
1H.1H.2H.2H-perfluorodecanesulfonic acid (8:2 FTSA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass
1H.1H.2H.2H-perfluorododecanesulfonic acid (10:2 FTSA)	S23-Ja0003538	CP	ug/L	< 0.01	< 0.01	<1	30%	Pass

Duplicate										
Total Recoverable Hydrocarbons					Result 1	Result 2	RPD			
TRH C10-C14	S23-Ja0003541	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass		
TRH C15-C28	S23-Ja0003541	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass		
TRH C29-C36	S23-Ja0003541	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass		
TRH >C10-C16	S23-Ja0003541	CP	mg/L	< 0.05	< 0.05	<1	30%	Pass		
TRH >C16-C34	S23-Ja0003541	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass		
TRH >C34-C40	S23-Ja0003541	CP	mg/L	< 0.1	< 0.1	<1	30%	Pass		
Duplicate										
Heavy Metals					Result 1	Result 2	RPD			
Boron	S23-Ja0003544	CP	mg/L	3.8	4.0	4.6	30%	Pass		

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	Yes
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
C01	Leachate Fluid Key: 1 - pH 5.0; 2 - pH 2.9; 3 - pH 9.2; 4 - Reagent (DI) water; 5 - Client sample, 6 - other
N01	F2 is determined by arithmetically subtracting the "naphthalene" value from the ">C10-C16" value. The naphthalene value used in this calculation is obtained from volatiles (Purge & Trap analysis).
N02	Where we have reported both volatile (P&T GCMS) and semivolatile (GCMS) naphthalene data, results may not be identical. Provided correct sample handling protocols have been followed, any observed differences in results are likely to be due to procedural differences within each methodology. Results determined by both techniques have passed all QAQC acceptance criteria, and are entirely technically valid.
N04	F1 is determined by arithmetically subtracting the "Total BTEX" value from the "C6-C10" value. The "Total BTEX" value is obtained by summing the concentrations of BTEX analytes. The "C6-C10" value is obtained by quantitating against a standard of mixed aromatic/aliphatic analytes.
N07	Please note:- These two PAH isomers closely co-elute using the most contemporary analytical methods and both the reported concentration (and the TEQ) apply specifically to the total of the two co-eluting PAHs
N11	Isotope dilution is used for calibration of each native compound for which an exact labelled analogue is available (Isotope Dilution Quantitation). The isotopically labelled analogues allow identification and recovery correction of the concentration of the associated native PFAS compounds.
N15	Where the native PFAS compound does not have labelled analogue then the quantification is made using the Extracted Internal Standard Analyte with the closest retention time to the analyte and no recovery correction has been made (Internal Standard Quantitation).
Q09	The Surrogate recovery is outside of the recommended acceptance criteria due to matrix interference. Acceptance criteria were met for all other QC

Authorised by:

Andrew Black	Analytical Services Manager
Fang Yee Tan	Senior Analyst-Metal
Jonathon Angell	Senior Analyst-PFAS
Joseph Edouard	Senior Analyst-Organic
Raymond Siu	Senior Analyst-Volatile
Roopesh Rangarajan	Senior Analyst-Inorganic
Roopesh Rangarajan	Senior Analyst-Organic



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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#AU_CAU001_EnviroSampleVic

From: Andrew Black
Sent: Thursday, 12 January 2023 6:29 PM
To: #AU_CAU001_EnviroSampleVic
Subject: 1 DAY TAT ADDITIONAL ANALYSIS: FW: Eurofins Test Results, Invoice - Report 952366 : Site KAMAY WHARF PROJECT (0564417)

Importance: High

INFO: INTERNAL EMAIL - Sent from your own Eurofins email domain.

Hi Team

For the below list of samples we need Melbourne to do trace level OCPs please if enough sample remains on them

Andrew Black
Analytical Services Manager

Eurofins | Environment Testing Australia Pty Ltd
Phone: +61 2 9900 8490
Mobile: +61 410 220 750
Email: AndrewBlack@eurofins.com
Website: eurofins.com.au/environmental-testing

955181
12/01/23
F



PLEASE NOTE: As of the 19th of December, please ensure all samples are delivered to our new site at:
Building 1 / 2 Frost Drive, Mayfield West.



This e-mail including its attachments may contain confidential and proprietary information. Any unauthorized disclosure or use of this e-mail including its attachments is prohibited and may be prosecuted. If you are not the intended recipient, please inform the sender by an e-mail reply and delete the message. Transmission by e-mail is not secure and can result in errors or omissions in the content of the message. Despite state-of-the-art precautions we cannot guarantee that e-mails and attachments are free from viruses. We accept no liability for viruses or any transmission-related errors and omissions. You need to always virus-check any e-mails and attachments.
Eurofins companies are independent legal entities that are bound only by members of their management bodies. No other persons have representation power unless specifically authorised by proxy or other legal means.

For sample receipt enquiries (eg. SRAs, changes to analysis) please contact EnvirosampleNSW@eurofins.com or 02 9900 8421 (7am – 9pm).

For despatch enquiries (eg. courier bookings, bottle orders) please contact AU04_Despatch_SYD@eurofins.com or 0488 400 929 (8am – 4pm).

From: Joseph Ferring <Joseph.Ferring@erm.com>
Sent: Thursday, 12 January 2023 6:06 PM
To: Andrew Black <AndrewBlack@eurofins.com>
Cc: Ian Batterley <Ian.Batterley@erm.com>; Indiana Strachan <Indiana.Strachan@erm.com>

Subject: FW: Eurofins Test Results, Invoice - Report 952366 : Site KAMAY WHARF PROJECT (0564417)

Importance: High

CAUTION: EXTERNAL EMAIL - Sent from an email domain that is not formally trusted by Eurofins.

Do not click on links or open attachments unless you recognise the sender and are certain that the content is safe.

Hi Andrew, I've just received Quinn's autoreply saying she was away sick. Would anyone else be able to help with my request below?

As usual, this is quite urgent. Sorry for the rush.

Cheers,
Joe

Joe Ferring
Principal Environmental Scientist / Team Leader

ERM

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#955181
12/01/23
J

From: Joseph Ferring

Sent: Thursday, January 12, 2023 5:51 PM

To: Quinn Raw <QuinnRaw@eurofins.com>

Cc: Ian Batterley <Ian.Batterley@erm.com>; Indiana Strachan <Indiana.Strachan@erm.com>

Subject: RE: Eurofins Test Results, Invoice - Report 952366 : Site KAMAY WHARF PROJECT (0564417)

Importance: High

Hi Quinn, we've realized that LORs for some analytes in this work order were not as low as we need them to be. We didn't request ultra-trace level on the COC, but we were hoping that there was enough sample volume left to run these at lower LORs now. If not, we may choose to analyse other samples which were placed on hold if we haven't already exceeded holding times.

The relevant samples, analytes and required LORs are below. This will likely also apply to the sediment results for 953157 (not yet reported).

Let me know what you think is possible. We'll need results with LORs to match below on the fastest turnaround time possible – sorry for the rush.

	Organotins	
	Tributyltin as Sn	
	mg/kg	m
Current LOR	0.5	(
Required LOR	0.009	0.

ERM Field_ID	Sampled_Date-Time	Sample_Type	Lab_Report_Number	SampleCode		
K_SED01_0.0	16/12/2022	Normal	952366	S22-De0050127	<0.5	<
K_SED01_0.5	16/12/2022	Normal	952366	S22-De0050128	<0.5	<
K_SED01_1.0	16/12/2022	Normal	952366	S22-De0050129	<0.5	<
K_SED_D01_22126	16/12/2022	Field_D	952366	S22-De0050130	<0.5	<
K_SED02_0.0	16/12/2022	Normal	952366	S22-De0050118	<0.5	<
K_SED02_0.5	16/12/2022	Normal	952366	S22-De0050119	<0.5	<
K_SED02_1.0	16/12/2022	Normal	952366	S22-De0050120	<0.5	<
K_SED03_0.0	16/12/2022	Normal	952366	S22-De0050124	<0.5	<
K_SED03_0.5	16/12/2022	Normal	952366	S22-De0050125	<0.5	<
K_SED03_1.0	16/12/2022	Normal	952366	S22-De0050126	<0.5	<
K_SED_D02_22126	16/12/2022	Field_D	952366	S22-De0050131	<0.5	<
K_SED_D03_22126	16/12/2022	Field_D	952366	S22-De0050132	<0.5	<
K_SED04_0.0	16/12/2022	Normal	952366	S22-De0050121	<0.5	<
K_SED04_0.5	16/12/2022	Normal	952366	S22-De0050122	<0.5	<
K_SED04_1.0	16/12/2022	Normal	952366	S22-De0050123	<0.5	<
K_SED05_0.0	16/12/2022	Normal	952366	S22-De0050115	<0.5	<
K_SED05_0.4	16/12/2022	Normal	952366	S22-De0050116	<0.5	<
K_SED05_0.75	16/12/2022	Normal	952366	S22-De0050117	<0.5	<
K_SED06_0.0	16/12/2022	Normal	952366	S22-De0050106	<0.5	<
K_SED06_0.5	16/12/2022	Normal	952366	S22-De0050107	<0.5	<
K_SED06_1.0	16/12/2022	Normal	952366	S22-De0050108	<0.5	<
LP_SED02_0.0	15/12/2022	Normal	952366	S22-De0050109	<0.5	<
LP_SED02_0.5	15/12/2022	Normal	952366	S22-De0050110	<0.5	<
LP_SED02_1.0	15/12/2022	Normal	952366	S22-De0050111	<0.5	<
LP_SED03_0.0	15/12/2022	Normal	952366	S22-De0050112	<0.5	<
LP_SED03_0.5	15/12/2022	Normal	952366	S22-De0050113	<0.5	<
LP_SED03_1.0	15/12/2022	Normal	952366	S22-De0050114	<0.5	<

Cheers,
Joe

Joe Ferring
Principal Environmental Scientist / Team Leader

955181
12/01/23
J

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From: AndrewBlack@eurofins.com <AndrewBlack@eurofins.com>
Sent: Thursday, January 12, 2023 3:48 PM
To: [Joseph Ferring <Joseph.Ferring@erm.com>](mailto:Joseph.Ferring@erm.com)

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Tel: 0800 856 450
IANZ# 1290

Sample Receipt Advice

Company name: ERM Sydney
Contact name: Joseph Ferring
Project name: KAMAY WHARF PROJECT
Project ID: 564417
Turnaround time: Overnight
Date/Time received: Jan 12, 2023 6:29 PM
Eurofins reference: 955181

Sample Information

- ✓ A detailed list of analytes logged into our LIMS, is included in the attached summary table.
- ✓ All samples have been received as described on the above COC.
- ✓ COC has been completed correctly.
- N/A Attempt to chill was evident.
- ✓ Appropriately preserved sample containers have been used.
- ✓ All samples were received in good condition.
- ✓ Samples have been provided with adequate time to commence analysis in accordance with the relevant holding times.
- ✓ Appropriate sample containers have been used.
- ✓ Sample containers for volatile analysis received with zero headspace.
- ✗ Split sample sent to requested external lab.
- ✗ Some samples have been subcontracted.
- N/A Custody Seals intact (if used).

Notes

Samples received by the laboratory after 5.30pm are deemed to have been received the following working day.

Contact

If you have any questions with respect to these samples, please contact your Analytical Services Manager:

Quinn Raw on phone : or by email: QuinnRaw@eurofins.com

Results will be delivered electronically via email to Joseph Ferring - Joseph.Ferring@erm.com.

Note: A copy of these results will also be delivered to the general ERM Sydney email address.



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web: www.eurofins.com.au
email: EnviroSales@eurofins.com

Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 564417

Order No.:
Report #: 955181
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Jan 12, 2023 6:29 PM
Due: Jan 13, 2023
Priority: Overnight
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						Moisture Set	Organochlorine Pesticides (Trace level)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	K_SED01_0.0	Dec 16, 2022		Soil	M23-Ja0010228	X	X
2	K_SED01_05	Dec 16, 2022		Soil	M23-Ja0010229	X	X
3	K_SED01_1.0	Dec 16, 2022		Soil	M23-Ja0010230	X	X
4	K_SED_D01_22126	Dec 16, 2022		Soil	M23-Ja0010231	X	X
5	K_SED02_0.0	Dec 16, 2022		Soil	M23-Ja0010232	X	X
6	K_SED02_0.5	Dec 16, 2022		Soil	M23-Ja0010233	X	X
7	K_SED02_1.0	Dec 16, 2022		Soil	M23-Ja0010234	X	X
8	K_SED03_0.0	Dec 16, 2022		Soil	M23-Ja0010235	X	X
9	K_SED03_0.5	Dec 16, 2022		Soil	M23-Ja0010236	X	X
10	K_SED03_1.0	Dec 16, 2022		Soil	M23-Ja0010237	X	X
11	K_SED_D02_22126	Dec 16, 2022		Soil	M23-Ja0010238	X	X
12	K_SED_D03_	Dec 16, 2022		Soil	M23-Ja0010239	X	X



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Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 564417

Order No.:
Report #: 955181
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Jan 12, 2023 6:29 PM
Due: Jan 13, 2023
Priority: Overnight
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						Moisture Set	Organochlorine Pesticides (Trace level)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
	22126						
13	K_SED04_0.0	Dec 16, 2022		Soil	M23-Ja0010240	X	X
14	K_SED04_0.5	Dec 16, 2022		Soil	M23-Ja0010241	X	X
15	K_SED04_1.0	Dec 16, 2022		Soil	M23-Ja0010242	X	X
16	K_SED05_0.0	Dec 16, 2022		Soil	M23-Ja0010243	X	X
17	K_SED05_0.4	Dec 16, 2022		Soil	M23-Ja0010244	X	X
18	K_SED05_0.75	Dec 16, 2022		Soil	M23-Ja0010245	X	X
19	K_SED06_0.0	Dec 16, 2022		Soil	M23-Ja0010246	X	X
20	K_SED06_0.5	Dec 16, 2022		Soil	M23-Ja0010247	X	X
21	K_SED06_1.0	Dec 16, 2022		Soil	M23-Ja0010248	X	X
22	LP_SED02_0.0	Dec 16, 2022		Soil	M23-Ja0010249	X	X
23	LP_SED02_0.5	Dec 16, 2022		Soil	M23-Ja0010250	X	X
24	LP_SED02_1.0	Dec 16, 2022		Soil	M23-Ja0010251	X	X



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NATA# 2377 Site# 2370

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Tel: 0800 856 450
IANZ# 1290

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email: EnviroSales@eurofins.com

Company Name:	ERM Sydney	Order No.:		Received:	Jan 12, 2023 6:29 PM
Address:	Level 15, 309 Kent St Sydney NSW 2000	Report #:	955181	Due:	Jan 13, 2023
Project Name:	KAMAY WHARF PROJECT	Phone:	02 8584 8888	Priority:	Overnight
Project ID:	564417	Fax:	02 8584 8800	Contact Name:	Joseph Ferring
Eurofins Analytical Services Manager : Quinn Raw					

Sample Detail						Moisture Set	Organochlorine Pesticides (Trace level)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
25	LP_SED03_0_0	Dec 16, 2022		Soil	M23-Ja0010252	X	X
26	LP_SED03_0_5	Dec 16, 2022		Soil	M23-Ja0010253	X	X
27	LP_SED03_1_0	Dec 16, 2022		Soil	M23-Ja0010254	X	X
Test Counts						27	27

ERM Sydney
Level 15, 309 Kent St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 1254

Accredited for compliance with ISO/IEC 17025 – Testing
NATA is a signatory to the ILAC Mutual Recognition
Arrangement for the mutual recognition of the
equivalence of testing, medical testing, calibration,
inspection, proficiency testing scheme providers and
reference materials producers reports and certificates.

Attention: Joseph Ferring

Report 955181-S
Project name KAMAY WHARF PROJECT
Project ID 564417
Received Date Jan 12, 2023

Client Sample ID			K_SED01_0.0	K_SED01_05	K_SED01_1.0	K_SED_D01_2 2126
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23- Ja0010228	M23- Ja0010229	M23- Ja0010230	M23- Ja0010231
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides (Trace level)						
4.4'-DDD	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
a-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
b-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
g-HCH (Lindane)	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Methoxychlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
DDT + DDE + DDD (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Vic EPA IWRG 621 Other OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
% Moisture	1	%	26	30	28	28

Client Sample ID			K_SED02_0.0	K_SED02_0.5	K_SED02_1.0	K_SED03_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23- Ja0010232	M23- Ja0010233	M23- Ja0010234	M23- Ja0010235
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides (Trace level)						
4.4'-DDD	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
a-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
b-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
g-HCH (Lindane)	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Methoxychlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
DDT + DDE + DDD (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Vic EPA IWRG 621 Other OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
% Moisture	1	%	23	23	28	26

Client Sample ID			K_SED03_0.5	K_SED03_1.0	K_SED_D02_2 2126	K_SED_D03_2 2126
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23- Ja0010236	M23- Ja0010237	M23- Ja0010238	M23- Ja0010239
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides (Trace level)						
4.4'-DDD	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
a-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
b-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005

Client Sample ID			K_SED03_0.5	K_SED03_1.0	K_SED_D02_2 2126	K_SED_D03_2 2126
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23- Ja0010236	M23- Ja0010237	M23- Ja0010238	M23- Ja0010239
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides (Trace level)						
Endrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
g-HCH (Lindane)	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Methoxychlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
DDT + DDE + DDD (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Vic EPA IWRG 621 Other OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
% Moisture	1	%	26	30	27	31

Client Sample ID			K_SED04_0.0	K_SED04_0.5	K_SED04_1.0	K_SED05_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23- Ja0010240	M23- Ja0010241	M23- Ja0010242	M23- Ja0010243
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides (Trace level)						
4,4'-DDD	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDE	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4,4'-DDT	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
a-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
b-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
g-HCH (Lindane)	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Methoxychlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
DDT + DDE + DDD (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Vic EPA IWRG 621 Other OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			K_SED04_0.0	K_SED04_0.5	K_SED04_1.0	K_SED05_0.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23-Ja0010240	M23-Ja0010241	M23-Ja0010242	M23-Ja0010243
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
% Moisture	1	%	27	29	34	28

Client Sample ID			K_SED05_0.4	K_SED05_0.75	K_SED06_0.0	K_SED06_0.5
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23-Ja0010244	M23-Ja0010245	M23-Ja0010246	M23-Ja0010247
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides (Trace level)						
4.4'-DDD	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
a-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
b-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
g-HCH (Lindane)	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Methoxychlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
DDT + DDE + DDD (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Vic EPA IWRG 621 Other OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
% Moisture	1	%	27	27	28	26

Client Sample ID			K_SED06_1.0	LP_SED02_0.0	LP_SED02_0.5	LP_SED02_1.0
Sample Matrix			Soil	Soil	Soil	Soil
Eurofins Sample No.			M23-Ja0010248	M23-Ja0010249	M23-Ja0010250	M23-Ja0010251
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit				
Organochlorine Pesticides (Trace level)						
4.4'-DDD	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
a-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
b-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
d-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin aldehyde	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
g-HCH (Lindane)	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Methoxychlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1	< 0.1
DDT + DDE + DDD (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
Vic EPA IWRG 621 Other OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01
% Moisture	1	%	25	28	30	17

Client Sample ID			LP_SED03_0.0	LP_SED03_0.5	LP_SED03_1.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M23-Ja0010252	M23-Ja0010253	M23-Ja0010254
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit			
Organochlorine Pesticides (Trace level)					
4.4'-DDD	0.005	mg/kg	< 0.005	< 0.005	< 0.005
4.4'-DDE	0.005	mg/kg	< 0.005	< 0.005	< 0.005
4.4'-DDT	0.005	mg/kg	< 0.005	< 0.005	< 0.005
a-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Aldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005
b-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Chlordanes - Total	0.01	mg/kg	< 0.01	< 0.01	< 0.01
d-HCH	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Dieldrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Endosulfan I	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Endosulfan II	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Endosulfan sulphate	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Endrin	0.005	mg/kg	< 0.005	< 0.005	< 0.005

Client Sample ID			LP_SED03_0.0	LP_SED03_0.5	LP_SED03_1.0
Sample Matrix			Soil	Soil	Soil
Eurofins Sample No.			M23- Ja0010252	M23- Ja0010253	M23- Ja0010254
Date Sampled			Dec 16, 2022	Dec 16, 2022	Dec 16, 2022
Test/Reference	LOR	Unit			
Organochlorine Pesticides (Trace level)					
Endrin aldehyde	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Endrin ketone	0.005	mg/kg	< 0.005	< 0.005	< 0.005
g-HCH (Lindane)	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Heptachlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Heptachlor epoxide	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Hexachlorobenzene	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Methoxychlor	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Toxaphene	0.1	mg/kg	< 0.1	< 0.1	< 0.1
DDT + DDE + DDD (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Aldrin and Dieldrin (Total)*	0.005	mg/kg	< 0.005	< 0.005	< 0.005
Vic EPA IWRG 621 OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
Vic EPA IWRG 621 Other OCP (Total)*	0.01	mg/kg	< 0.01	< 0.01	< 0.01
% Moisture					
	1	%	23	23	22

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description

Organochlorine Pesticides (Trace level)

- Method: LTM-ORG-2220 OCP & PCB in Soil and Water (USEPA 8270) trace

% Moisture

- Method: LTM-GEN-7080 Moisture

Testing Site

Melbourne

Melbourne

Extracted

Jan 12, 2023

Jan 12, 2023

Holding Time

14 Days

14 Days

Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 564417

Order No.:
Report #: 955181
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Jan 12, 2023 6:29 PM
Due: Jan 13, 2023
Priority: Overnight
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						Moisture Set	Organochlorine Pesticides (Trace level)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
External Laboratory							
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID		
1	K_SED01_0.0	Dec 16, 2022		Soil	M23-Ja0010228	X	X
2	K_SED01_05	Dec 16, 2022		Soil	M23-Ja0010229	X	X
3	K_SED01_1.0	Dec 16, 2022		Soil	M23-Ja0010230	X	X
4	K_SED_D01_22126	Dec 16, 2022		Soil	M23-Ja0010231	X	X
5	K_SED02_0.0	Dec 16, 2022		Soil	M23-Ja0010232	X	X
6	K_SED02_0.5	Dec 16, 2022		Soil	M23-Ja0010233	X	X
7	K_SED02_1.0	Dec 16, 2022		Soil	M23-Ja0010234	X	X
8	K_SED03_0.0	Dec 16, 2022		Soil	M23-Ja0010235	X	X
9	K_SED03_0.5	Dec 16, 2022		Soil	M23-Ja0010236	X	X
10	K_SED03_1.0	Dec 16, 2022		Soil	M23-Ja0010237	X	X
11	K_SED_D02_22126	Dec 16, 2022		Soil	M23-Ja0010238	X	X
12	K_SED_D03_	Dec 16, 2022		Soil	M23-Ja0010239	X	X

Company Name: ERM Sydney
Address: Level 15, 309 Kent St
Sydney
NSW 2000

Project Name: KAMAY WHARF PROJECT
Project ID: 564417

Order No.:
Report #: 955181
Phone: 02 8584 8888
Fax: 02 8584 8800

Received: Jan 12, 2023 6:29 PM
Due: Jan 13, 2023
Priority: Overnight
Contact Name: Joseph Ferring

Eurofins Analytical Services Manager : Quinn Raw

Sample Detail						Moisture Set	Organochlorine Pesticides (Trace level)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
	22126						
13	K_SED04_0.0	Dec 16, 2022		Soil	M23-Ja0010240	X	X
14	K_SED04_0.5	Dec 16, 2022		Soil	M23-Ja0010241	X	X
15	K_SED04_1.0	Dec 16, 2022		Soil	M23-Ja0010242	X	X
16	K_SED05_0.0	Dec 16, 2022		Soil	M23-Ja0010243	X	X
17	K_SED05_0.4	Dec 16, 2022		Soil	M23-Ja0010244	X	X
18	K_SED05_0.75	Dec 16, 2022		Soil	M23-Ja0010245	X	X
19	K_SED06_0.0	Dec 16, 2022		Soil	M23-Ja0010246	X	X
20	K_SED06_0.5	Dec 16, 2022		Soil	M23-Ja0010247	X	X
21	K_SED06_1.0	Dec 16, 2022		Soil	M23-Ja0010248	X	X
22	LP_SED02_0.0	Dec 16, 2022		Soil	M23-Ja0010249	X	X
23	LP_SED02_0.5	Dec 16, 2022		Soil	M23-Ja0010250	X	X
24	LP_SED02_1.0	Dec 16, 2022		Soil	M23-Ja0010251	X	X

Company Name:	ERM Sydney	Order No.:		Received:	Jan 12, 2023 6:29 PM
Address:	Level 15, 309 Kent St Sydney NSW 2000	Report #:	955181	Due:	Jan 13, 2023
Project Name:	KAMAY WHARF PROJECT	Phone:	02 8584 8888	Priority:	Overnight
Project ID:	564417	Fax:	02 8584 8800	Contact Name:	Joseph Ferring
Eurofins Analytical Services Manager : Quinn Raw					

Sample Detail						Moisture Set	Organochlorine Pesticides (Trace level)
Melbourne Laboratory - NATA # 1261 Site # 1254						X	X
25	LP_SED03_0_0	Dec 16, 2022		Soil	M23-Ja0010252	X	X
26	LP_SED03_0_5	Dec 16, 2022		Soil	M23-Ja0010253	X	X
27	LP_SED03_1_0	Dec 16, 2022		Soil	M23-Ja0010254	X	X
Test Counts						27	27

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram	mg/L: milligrams per litre	µg/L: micrograms per litre
ppm: parts per million	ppb: parts per billion	%: Percentage
org/100 mL: Organisms per 100 millilitres	NTU: Nephelometric Turbidity Units	MPN/100 mL: Most Probable Number of organisms per 100 millilitres
CFU: Colony forming unit		

Terms

APHA	American Public Health Association
COC	Chain of Custody
CP	Client Parent - QC was performed on samples pertaining to this report
CRM	Certified Reference Material (ISO17034) - reported as percent recovery.
Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
LOR	Limit of Reporting.
LCS	Laboratory Control Sample - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
SRA	Sample Receipt Advice
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
TBTO	Tributyltin oxide (<i>bis</i> -tributyltin oxide) - individual tributyltin compounds cannot be identified separately in the environment however free tributyltin was measured and its values were converted stoichiometrically into tributyltin oxide for comparison with regulatory limits.
TCLP	Toxicity Characteristic Leaching Procedure
TEQ	Toxic Equivalency Quotient or Total Equivalence
QSM	US Department of Defense Quality Systems Manual Version 5.4
US EPA	United States Environmental Protection Agency
WA DWER	Sum of PFBA, PFPaA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable:

Results <10 times the LOR: No Limit

Results between 10-20 times the LOR: RPD must lie between 0-50%

Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

Surrogate Recoveries: Recoveries must lie between 20-130% for Speciated Phenols & 50-150% for PFAS

PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM 5.4 where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

- Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.
- Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples.
- pH and Free Chlorine analysed in the laboratory - Analysis on this test must begin within 30 minutes of sampling. Therefore, laboratory analysis is unlikely to be completed within holding time. Analysis will begin as soon as possible after sample receipt.
- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code		
Method Blank									
Organochlorine Pesticides (Trace level)									
4.4'-DDD	mg/kg	< 0.005			0.005	Pass			
4.4'-DDE	mg/kg	< 0.005			0.005	Pass			
4.4'-DDT	mg/kg	< 0.005			0.005	Pass			
a-HCH	mg/kg	< 0.005			0.005	Pass			
Aldrin	mg/kg	< 0.005			0.005	Pass			
b-HCH	mg/kg	< 0.005			0.005	Pass			
Chlordanes - Total	mg/kg	< 0.01			0.01	Pass			
d-HCH	mg/kg	< 0.005			0.005	Pass			
Dieldrin	mg/kg	< 0.005			0.005	Pass			
Endosulfan I	mg/kg	< 0.005			0.005	Pass			
Endosulfan II	mg/kg	< 0.005			0.005	Pass			
Endosulfan sulphate	mg/kg	< 0.005			0.005	Pass			
Endrin	mg/kg	< 0.005			0.005	Pass			
Endrin aldehyde	mg/kg	< 0.005			0.005	Pass			
Endrin ketone	mg/kg	< 0.005			0.005	Pass			
g-HCH (Lindane)	mg/kg	< 0.005			0.005	Pass			
Heptachlor	mg/kg	< 0.005			0.005	Pass			
Heptachlor epoxide	mg/kg	< 0.005			0.005	Pass			
Hexachlorobenzene	mg/kg	< 0.005			0.005	Pass			
Methoxychlor	mg/kg	< 0.005			0.005	Pass			
Toxaphene	mg/kg	< 0.1			0.1	Pass			
LCS - % Recovery									
Organochlorine Pesticides (Trace level)									
4.4'-DDD	%	122			70-130	Pass			
4.4'-DDE	%	70			70-130	Pass			
4.4'-DDT	%	89			70-130	Pass			
a-HCH	%	113			70-130	Pass			
Aldrin	%	73			70-130	Pass			
b-HCH	%	121			70-130	Pass			
Chlordanes - Total	%	93			70-130	Pass			
d-HCH	%	112			70-130	Pass			
Dieldrin	%	78			70-130	Pass			
Endosulfan I	%	93			70-130	Pass			
Endosulfan II	%	128			70-130	Pass			
Endosulfan sulphate	%	103			70-130	Pass			
Endrin	%	92			70-130	Pass			
Endrin aldehyde	%	105			70-130	Pass			
Endrin ketone	%	115			70-130	Pass			
g-HCH (Lindane)	%	75			70-130	Pass			
Heptachlor	%	128			70-130	Pass			
Heptachlor epoxide	%	120			70-130	Pass			
Hexachlorobenzene	%	80			70-130	Pass			
Methoxychlor	%	108			70-130	Pass			
Test	Lab Sample ID	QA Source	Units	Result 1	Result 2	RPD	Acceptance Limits	Pass Limits	Qualifying Code
Duplicate									
				Result 1	Result 2	RPD			
% Moisture	M23-Ja0010000	NCP	%	6.0	6.7	11	30%	Pass	

Duplicate								
Organochlorine Pesticides (Trace level)				Result 1	Result 2	RPD		
4.4'-DDD	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
4.4'-DDE	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
4.4'-DDT	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
a-HCH	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Aldrin	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
b-HCH	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Chlordanes - Total	B22-De0058406	NCP	mg/kg	< 0.01	< 0.01	<1	30%	Pass
d-HCH	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Dieldrin	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Endosulfan I	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Endosulfan II	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Endosulfan sulphate	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Endrin	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Endrin aldehyde	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Endrin ketone	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
g-HCH (Lindane)	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Heptachlor	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Heptachlor epoxide	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Hexachlorobenzene	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Methoxychlor	B22-De0058406	NCP	mg/kg	< 0.005	< 0.005	<1	30%	Pass
Toxaphene	B22-De0058406	NCP	mg/kg	< 0.1	< 0.1	<1	30%	Pass

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Andrew Black	Analytical Services Manager
Joseph Edouard	Senior Analyst-Organic
Mary Makarios	Senior Analyst-Sample Properties



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: Environmental Resources Management Australia Pty Ltd
NMI QA Report No: ENVI194/230113 **Sample Matrix:** Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section								
OC Pesticides				N23/000750				N23/000750
HCB	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Heptachlor	NR19	0.001	< 0.001	< 0.001	< 0.001	-	119	107
Heptachlor epoxide	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Aldrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	109	102
gamma-BHC (Lindane)	NR19	0.0009	< 0.0009	< 0.0009	< 0.0009	-	120	103
alpha-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
beta-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
delta-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
trans-Chlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
cis-Chlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Oxychlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Dieldrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	98	101
pp-DDE	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
pp-DDD	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
pp-DDT	NR19	0.001	< 0.001	< 0.001	< 0.001	-	92	116
Endrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	103	104
Endrin Aldehyde	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Endrin Ketone	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
alpha-Endosulfan	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
beta-Endosulfan	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Endosulfan Sulfate	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Methoxychlor	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Surrogate : DF-DDE	NR19	-	-	101	98	3.0	108	96
PCB Compounds								
PCB	NR19	0.002	< 0.002	< 0.002	< 0.002	-	91	96

Results expressed in percentage (%) or mg/kg wherever appropriate.

Acceptable Spike recovery is 50-150%

Acceptable RPDs on spikes and duplicates is 40%.

RPD= Relative Percentage Difference.

This report shall not be reproduced except in full.

Signed:

Danny Slee
Organics Manager, NMI-North Ryde
25/01/2023

Date:



Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: Environmental Resources Management Australia Pty Ltd
NMI QA Report No: ENVI194/230113 **Sample Matrix:** Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section								
OC Pesticides				N23/000760			N23/000760	
HCB	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Heptachlor	NR19	0.001	< 0.001	< 0.001	< 0.001	-	119	117
Heptachlor epoxide	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Aldrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	109	115
gamma-BHC (Lindane)	NR19	0.0009	< 0.0009	< 0.0009	< 0.0009	-	120	100
alpha-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
beta-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
delta-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
trans-Chlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
cis-Chlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Oxychlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Dieldrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	98	106
pp-DDE	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
pp-DDD	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
pp-DDT	NR19	0.001	< 0.001	< 0.001	< 0.001	-	92	128
Endrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	103	91
Endrin Aldehyde	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Endrin Ketone	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
alpha-Endosulfan	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
beta-Endosulfan	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Endosulfan Sulfate	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Methoxychlor	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Surrogate : DF-DDE	NR19	-	-	105	92	13	108	95
PCB Compounds								
PCB	NR19	0.002	< 0.002	< 0.002	< 0.002	-	91	87

Results expressed in percentage (%) or mg/kg wherever appropriate.

Acceptable Spike recovery is 50-150%

Acceptable RPDs on spikes and duplicates is 40%.

RPD= Relative Percentage Difference.

This report shall not be reproduced except in full.

Signed:

Danny Slee
Organics Manager, NMI-North Ryde
25/01/2023

Date:



QUALITY ASSURANCE REPORT

Client: Environmental Resources Management Australia Pty Ltd
NMI QA Report No: ENVI194/230113 **Sample Matrix:** Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample ng/g	Duplicate ng/g	RPD %	LCS %	Matrix Spike %
Organics Section								
Organotin				N23/000750				N23/000750
Monobutyltin	NR_35	0.5	< 0.5	0.40	0.71	55	104	92
Dibutyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	102	90
Tributyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	98	97
Organotin Surrogate								
Tripopyltin (%Rec)	NR_35	-	-	94	116	21	94	104

Results expressed in percentage (%) or ng/g wherever appropriate.
 Acceptable Spike recovery is 30-150% (monobutyltin and Tripopyltin); 40-160% (dibutyltin and tributyltin)
 Maximum acceptable RPDs on spikes and duplicates is 60%.
 'NA' = Not Applicable.
 RPD= Relative Percentage Difference, LCS= Laboratory Control Spike, LOR= Limit of Reporting.
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Signed:

Danny Slee
Organics Manager, NMI-North Ryde
25/01/2023

Date:



QUALITY ASSURANCE REPORT

Client: Environmental Resources Management Australia Pty Ltd

NMI QA Report No: ENVI194/230113

Sample Matrix: Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample ng/g	Duplicate ng/g	RPD %	LCS %	Matrix Spike %
Organics Section								
Organotin				N23/000760				N23/000760
Monobutyltin	NR_35	0.5	< 0.5	0.78	0.97	23	125	96
Dibutyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	108	107
Tributyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	97	107
Organotin Surrogate								
Tripopyltin (%Rec)	NR_35	-	-	105	110	4.4	92	109

Results expressed in percentage (%) or ng/g wherever appropriate.

Acceptable Spike recovery is 30-150% (monobutyltin and Tripopyltin); 40-160% (dibutyltin and tributyltin)

Maximum acceptable RPDs on spikes and duplicates is 60%.

'NA' = Not Applicable.

RPD= Relative Percentage Difference, LCS= Laboratory Control Spike, LOR= Limit of Reporting.

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Organics Manager, NMI-North Ryde
25/01/2023

Date:



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National Measurement Institute

QUALITY ASSURANCE REPORT

Client: Environmental Resources Management Australia Pty Ltd
NMI QA Report No: ENVI194/230113 **Sample Matrix:** Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample ng/g	Duplicate ng/g	RPD %	LCS %	Matrix Spike %
Organics Section								
Organotin				N23/000770				N23/000770
Monobutyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	121	98
Dibutyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	95	93
Tributyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	101	97
Organotin Surrogate								
Tripopyltin (%Rec)	NR_35	-	-	104	99	4.4	95	106

Results expressed in percentage (%) or ng/g wherever appropriate.
Acceptable Spike recovery is 30-150% (monobutyltin and Tripopyltin); 40-160% (dibutyltin and tributyltin)
Maximum acceptable RPDs on spikes and duplicates is 60%.
'NA' = Not Applicable.
RPD= Relative Percentage Difference, LCS= Laboratory Control Spike, LOR= Limit of Reporting.
This report shall not be reproduced except in full.

Signed:

Danny Slee
Organics Manager, NMI-North Ryde
25/01/2023

Date:



Australian Government
National Measurement Institute

QUALITY ASSURANCE REPORT

Client: Environmental Resources Management Australia Pty Ltd
NMI QA Report No: ENVI194/230116 **Sample Matrix:** Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample	Duplicate	RPD	LCS	Matrix Spike
		mg/kg	mg/kg	mg/kg	mg/kg	%	%	%
Organics Section								
OC Pesticides				N23/000820				N23/000820
HCB	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Heptachlor	NR19	0.001	< 0.001	< 0.001	< 0.001	-	140	109
Heptachlor epoxide	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Aldrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	86	75
gamma-BHC (Lindane)	NR19	0.0009	< 0.0009	< 0.0009	< 0.0009	-	127	102
alpha-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
beta-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
delta-BHC	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
trans-Chlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
cis-Chlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Oxychlordane	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Dieldrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	100	66
pp-DDE	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
pp-DDD	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
pp-DDT	NR19	0.001	< 0.001	< 0.001	< 0.001	-	138	65
Endrin	NR19	0.001	< 0.001	< 0.001	< 0.001	-	106	61
Endrin Aldehyde	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Endrin Ketone	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
alpha-Endosulfan	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
beta-Endosulfan	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Endosulfan Sulfate	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Methoxychlor	NR19	0.001	< 0.001	< 0.001	< 0.001	-	-	-
Surrogate : DF-DDE	NR19	-	-	135	141	4.3	93	88
PCB Compounds								
PCB	NR19	0.002	< 0.002	< 0.002	< 0.002	-	121	111

Results expressed in percentage (%) or mg/kg wherever appropriate.

Acceptable Spike recovery is 50-150%

Acceptable RPDs on spikes and duplicates is 40%.

RPD= Relative Percentage Difference.

This report shall not be reproduced except in full.

Signed:

Danny Slee
Organics Manager, NMI-North Ryde
25/01/2023

Date:



QUALITY ASSURANCE REPORT

Client: Environmental Resources Management Australia Pty Ltd
NMI QA Report No: ENVI194/230116 **Sample Matrix:** Solid

Analyte	Method	LOR	Blank	Sample Duplicates			Recoveries	
				Sample ng/g	Duplicate ng/g	RPD %	LCS %	Matrix Spike %
Organics Section								
Organotin				N23/000820				N23/000820
Monobutyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	89	112
Dibutyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	90	109
Tributyltin	NR_35	0.5	< 0.5	< 0.5	< 0.5	-	94	122
Organotin Surrogate								
Tripropyltin (%Rec)	NR_35	-	-	113	155	31	91	111

Results expressed in percentage (%) or ng/g wherever appropriate.
Acceptable Spike recovery is 30-150% (monobutyltin and Tripropyltin); 40-160% (dibutyltin and tributyltin)
Maximum acceptable RPDs on spikes and duplicates is 60%.
'NA' = Not Applicable.
RPD= Relative Percentage Difference, LCS= Laboratory Control Spike, LOR= Limit of Reporting.
This report shall not be reproduced except in full.

Signed:

Danny Slee
Organics Manager, NMI-North Ryde
25/01/2023

Date:

CERTIFICATE OF ANALYSIS

Work Order : ES2246581 Client : ENVIRONMENTAL RESOURCES MANAGEMENT (ERM) Contact : INDIANA STRACHAN Address : LEVEL 15 309 KENT STREET SYDNEY NSW AUSTRALIA 2000 Telephone : ---- Project : 0564417 Kamay Wharf Project Order number : ---- C-O-C number : ---- Sampler : ---- Site : ---- Quote number : EN/114 No. of samples received : 3 No. of samples analysed : 3	Page : 1 of 9 Laboratory : Environmental Division Sydney Contact : Sarah Mathew Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 Telephone : +61-2-8784 8555 Date Samples Received : 22-Dec-2022 17:20 Date Analysis Commenced : 23-Dec-2022 Issue Date : 10-Jan-2023 13:23
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	K_SED_T01_221216	K_SED_T02_221216	K_SED_T03_221216	----	----
Sampling date / time				16-Dec-2022 00:00	16-Dec-2022 00:00	16-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246581-001	ES2246581-002	ES2246581-003	-----	-----	
				Result	Result	Result	----	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	29.6	30.5	30.5	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----	
Barium	7440-39-3	10	mg/kg	<10	<10	<10	----	----	
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----	
Boron	7440-42-8	50	mg/kg	<50	<50	<50	----	----	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----	
Chromium	7440-47-3	2	mg/kg	9	6	11	----	----	
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	----	----	
Copper	7440-50-8	5	mg/kg	<5	<5	5	----	----	
Lead	7439-92-1	5	mg/kg	11	7	11	----	----	
Manganese	7439-96-5	5	mg/kg	42	42	44	----	----	
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	----	----	
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----	
Vanadium	7440-62-2	5	mg/kg	8	7	8	----	----	
Zinc	7440-66-6	5	mg/kg	22	16	24	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	0.1	<0.1	0.2	----	----	
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon	----	0.02	%	1.00	0.73	0.60	----	----	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	K_SED_T01_221216	K_SED_T02_221216	K_SED_T03_221216	----	----
Sampling date / time				16-Dec-2022 00:00	16-Dec-2022 00:00	16-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246581-001	ES2246581-002	ES2246581-003	-----	-----	
				Result	Result	Result	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/50-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	K_SED_T01_221216	K_SED_T02_221216	K_SED_T03_221216	----	----
Sampling date / time				16-Dec-2022 00:00	16-Dec-2022 00:00	16-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246581-001	ES2246581-002	ES2246581-003	-----	-----	
				Result	Result	Result	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----	
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----	
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----	
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----	
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----	
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----	
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	K_SED_T01_221216	K_SED_T02_221216	K_SED_T03_221216	----	----
Sampling date / time				16-Dec-2022 00:00	16-Dec-2022 00:00	16-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246581-001	ES2246581-002	ES2246581-003	-----	-----	
				Result	Result	Result	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----	
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	----	----	
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	----	----	
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	<0.5	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	K_SED_T01_221216	K_SED_T02_221216	K_SED_T03_221216	----	----
Sampling date / time				16-Dec-2022 00:00	16-Dec-2022 00:00	16-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246581-001	ES2246581-002	ES2246581-003	-----	-----	
				Result	Result	Result	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	K_SED_T01_221216	K_SED_T02_221216	K_SED_T03_221216	----	----
Sampling date / time				16-Dec-2022 00:00	16-Dec-2022 00:00	16-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246581-001	ES2246581-002	ES2246581-003	-----	-----	
				Result	Result	Result	----	----	
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	60.4	65.2	68.4	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	58.5	57.3	63.4	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	83.0	80.2	81.5	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	81.4	85.2	80.4	----	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	63.4	59.3	60.4	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	89.6	87.7	89.1	----	----	
Anthracene-d10	1719-06-8	0.5	%	84.1	80.9	82.4	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	91.7	91.3	91.9	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	85.0	89.9	94.0	----	----	
Toluene-D8	2037-26-5	0.2	%	87.8	92.0	95.5	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	97.4	99.6	100	----	----	
EP090S: Organotin Surrogate									
Tripopyltin	----	0.5	%	82.5	86.6	78.9	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	91.0	102	104	----	----	
13C8-PFOA	----	0.0002	%	105	104	103	----	----	



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EP090: Organotin Compounds

(SOIL) EP090S: Organotin Surrogate

(SOIL) EP003: Total Organic Carbon (TOC) in Soil

QUALITY CONTROL REPORT

Work Order	: ES2246581	Page	: 1 of 16
Client	: ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)	Laboratory	: Environmental Division Sydney
Contact	: INDIANA STRACHAN	Contact	: Sarah Mathew
Address	: LEVEL 15 309 KENT STREET SYDNEY NSW AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: ----	Telephone	: +61-2-8784 8555
Project	: 0564417 Kamay Wharf Project	Date Samples Received	: 22-Dec-2022
Order number	: ----	Date Analysis Commenced	: 23-Dec-2022
C-O-C number	: ----	Issue Date	: 10-Jan-2023
Sampler	: ----		
Site	: ----		
Quote number	: EN/114		
No. of samples received	: 3		
No. of samples analysed	: 3		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Kim McCabe	Senior Inorganic Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4795603)									
ES2245995-026	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	10	20	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	4	4	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	6	6	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	24	30	20.9	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	9	13	41.0	No Limit
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	10	9	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	35	43	21.2	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES2246444-002	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	190	120	47.7	0% - 50%
		EG005T: Chromium	7440-47-3	2	mg/kg	11	7	40.9	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	18	8	81.5	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	48	53	10.1	0% - 50%
		EG005T: Lead	7439-92-1	5	mg/kg	31	31	0.0	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	71	54	26.4	0% - 50%



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4795603) - continued									
ES2246444-002	Anonymous	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	40	20	65.3	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	78	63	21.3	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4795606)									
ES2246034-002	Anonymous	EA055: Moisture Content	----	0.1	%	21.0	20.3	3.3	0% - 20%
ES2246730-001	Anonymous	EA055: Moisture Content	----	0.1	%	8.9	9.6	7.4	No Limit
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4795604)									
ES2245995-026	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2246444-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 4798787)									
EB2238680-002	Anonymous	EP003: Total Organic Carbon	----	0.02	%	1.44	1.33	7.6	0% - 20%
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4795480)									
ES2246581-003	K_SED_T03_221216	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4,4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
ES2246444-001	Anonymous	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4795480) - continued									
ES2246444-001	Anonymous	EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4795480)									
ES2246581-003	K_SED_T03_221216	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		ES2246444-001	Anonymous	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05
EP068: Demeton-S-methyl	919-86-8			0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068: Dimethoate	60-51-5			0.05	mg/kg	<0.05	<0.05	0.0	No Limit
EP068: Diazinon	333-41-5			0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4795480) - continued									
ES2246444-001	Anonymous	EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4795478)									
ES2246581-003	K_SED_T03_221216	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit		
ES2246444-001	Anonymous	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4795478) - continued									
ES2246444-001	Anonymous	EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenzo(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4791052)									
ES2245957-001	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
ES2246361-003	Anonymous	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4795479)									
ES2246581-003	K_SED_T03_221216	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2246444-001	Anonymous	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4791052)									
ES2245957-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
ES2246361-003	Anonymous	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4795479)									
ES2246581-003	K_SED_T03_221216	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
ES2246444-001	Anonymous	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080: BTEXN (QC Lot: 4791052)									
ES2245957-001	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080: BTEXN (QC Lot: 4791052) - continued									
ES2245957-001	Anonymous	EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
ES2246361-003	Anonymous	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP090: Organotin Compounds (QC Lot: 4795723)									
EP2217321-063	Anonymous	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.0	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EP2217321-068	Anonymous	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.0	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4805106)									
ES2246486-021	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	0.0007	0.0006	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0003	0.0004	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
ES2246588-004	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4805106)									
ES2246486-021	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4805106) - continued									
ES2246486-021	Anonymous	EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2246588-004	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
		EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4805106)							
ES2246486-021	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2246588-004	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4805106) - continued									
ES2246588-004	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4805106)									
ES2246486-021	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2246588-004	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4795603)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	99.7	88.0	113	
EG005T: Barium	7440-39-3	10	mg/kg	<10	90.5 mg/kg	97.7	65.0	136	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.5 mg/kg	130	70.0	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	84.0	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	110	68.0	132	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	10.4 mg/kg	92.4	83.0	117	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	106	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	93.7	82.0	119	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	534 mg/kg	98.0	83.0	117	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	94.4	80.0	120	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	58.6 mg/kg	109	75.0	125	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	85.4	66.0	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4795604)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	102	70.0	125	
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 4798787)									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.55 %	99.5	80.0	120	
				<0.02	27.5 %	102	80.0	120	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4795480)									
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	69.0	113	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.8	65.0	117	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	67.0	119	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.5	68.0	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	84.5	65.0	117	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	90.9	67.0	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	92.2	69.0	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	62.0	118	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	90.6	63.0	117	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	88.3	66.0	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	90.4	64.0	116	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	87.2	66.0	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	88.0	67.0	115	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	95.2	67.0	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4795480) - continued									
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.2	69.0	115	
EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	91.5	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	75.0	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	96.5	62.0	124	
EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	84.5	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	90.1	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	101	54.0	130	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4795480)									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	92.4	59.0	119	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	87.0	62.0	128	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	83.1	54.0	126	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	85.7	67.0	119	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.5	70.0	120	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	87.9	72.0	120	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	86.9	68.0	120	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	87.3	68.0	122	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	89.0	69.0	117	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	76.0	118	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	86.9	64.0	122	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	88.6	70.0	116	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.0	69.0	121	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.7	66.0	118	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	90.5	68.0	124	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	89.4	62.0	112	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	88.2	68.0	120	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	80.6	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	87.4	41.0	123	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4795478)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	94.8	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	95.0	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	91.4	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	94.4	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	89.8	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	94.6	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	88.9	73.0	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	90.0	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	92.3	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	92.2	75.0	127	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4795478) - continued									
EP075(SIM): Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	97.5	68.0	116	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	99.9	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	88.9	70.0	126	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	75.4	61.0	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	74.7	62.0	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	72.8	63.0	121	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4791052)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	110	68.4	128	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4795479)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	100	75.0	129	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	103	77.0	131	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	104	71.0	129	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4791052)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	113	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4795479)									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	104	77.0	125	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	102	74.0	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	105	63.0	131	
EP080: BTEXN (QCLot: 4791052)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	112	62.0	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	110	67.0	121	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	113	65.0	117	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	112	66.0	118	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	111	68.0	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	118	63.0	119	
EP090: Organotin Compounds (QCLot: 4795723)									
EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	1.25 µgSn/kg	60.5	36.0	128	
EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	1.25 µgSn/kg	67.2	42.0	132	
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	73.7	52.0	139	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4805106)									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	79.6	72.0	128	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.8	73.0	123	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.8	67.0	130	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	70.0	132	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.8	68.0	136	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	90.4	59.0	134	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4805106)									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	87.0	71.0	135	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.0	69.0	132	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.4	70.0	132	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	95.2	71.0	131	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	96.0	69.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	99.2	72.0	129	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	69.0	133	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	100	64.0	136	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	69.0	135	
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.2	66.0	139	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.5	69.0	133	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4805106)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	98.0	67.0	137	
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.5	71.6	129	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	90.2	69.8	131	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.0	68.7	130	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	92.0	65.1	134	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	92.4	63.0	144	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	94.4	61.0	139	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4805106)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	96.0	62.0	145	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	82.4	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	91.2	65.0	137	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	94.4	69.2	143	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	Spike Recovery (%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4795603)							
ES2245995-026	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	111	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	106	70.0	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4795603) - continued							
ES2245995-026	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	110	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	108	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	112	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	105	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	114	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4795604)							
ES2245995-026	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	94.7	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4795480)							
ES2246444-001	Anonymous	EP068: gamma-BHC	58-89-9	0.5 mg/kg	95.8	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	93.3	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	103	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	99.6	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	88.9	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	94.4	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4795480)							
ES2246444-001	Anonymous	EP068: Diazinon	333-41-5	0.5 mg/kg	79.5	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	95.5	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	85.5	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	96.8	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	89.2	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4795478)							
ES2246444-001	Anonymous	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	89.5	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	91.0	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4791052)							
ES2245957-001	Anonymous	EP080: C6 - C9 Fraction	----	32.5 mg/kg	92.4	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4795479)							
ES2246444-001	Anonymous	EP071: C10 - C14 Fraction	----	480 mg/kg	121	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	109	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	119	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4791052)							
ES2245957-001	Anonymous	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	91.6	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4795479)							
ES2246444-001	Anonymous	EP071: >C10 - C16 Fraction	----	860 mg/kg	127	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	109	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	112	52.0	132
EP080: BTEXN (QCLot: 4791052)							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike	SpikeRecovery(%)	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080: BTEXN (QCLot: 4791052) - continued								
ES2245957-001	Anonymous	EP080: Benzene	71-43-2	2.5 mg/kg	95.8	70.0	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	96.5	70.0	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	99.2	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	98.2	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	99.9	70.0	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	89.2	70.0	130		
EP090: Organotin Compounds (QCLot: 4795723)								
EP2217321-068	Anonymous	EP090: Monobutyltin	78763-54-9	1.25 µgSn/kg	49.6	20.0	130	
		EP090: Dibutyltin	1002-53-5	1.25 µgSn/kg	55.4	20.0	130	
		EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	72.2	20.0	130	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4805106)								
ES2246486-021	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	86.0	72.0	128	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	102	73.0	123	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	69.6	67.0	130	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	96.8	70.0	132	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	129	68.0	136	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	101	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4805106)								
ES2246486-021	Anonymous	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	93.4	71.0	135	
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	102	69.0	132	
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	103	70.0	132	
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	104	71.0	131	
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	104	69.0	133	
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	102	72.0	129	
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	105	69.0	133	
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	102	64.0	136	
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	103	69.0	135	
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	92.8	66.0	139	
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	98.6	69.0	133	
		EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4805106)						
ES2246486-021	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	98.8	67.0	137	
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	103	71.6	129	
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	94.2	69.8	131	
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	110	68.7	130	



Sub-Matrix: **SOIL**

				<i>Matrix Spike (MS) Report</i>			
				<i>Spike</i>	<i>SpikeRecovery(%)</i>	<i>Acceptable Limits (%)</i>	
<i>Laboratory sample ID</i>	<i>Sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Concentration</i>	<i>MS</i>	<i>Low</i>	<i>High</i>
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4805106) - continued							
ES2246486-021	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	98.9	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	90.8	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	102	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4805106)							
ES2246486-021	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	89.6	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	95.2	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	101	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	84.4	69.2	143

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2246581	Page	: 1 of 7
Client	: ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)	Laboratory	: Environmental Division Sydney
Contact	: INDIANA STRACHAN	Telephone	: +61-2-8784 8555
Project	: 0564417 Kamay Wharf Project	Date Samples Received	: 22-Dec-2022
Site	: ----	Issue Date	: 10-Jan-2023
Sampler	: ----	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **NO Matrix Spike outliers occur.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**



Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	----	----	----	29-Dec-2022	30-Dec-2022	✓
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	03-Jan-2023	14-Jun-2023	✓	04-Jan-2023	14-Jun-2023	✓
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	03-Jan-2023	13-Jan-2023	✓	04-Jan-2023	13-Jan-2023	✓
EP003: Total Organic Carbon (TOC) in Soil								
Pulp Bag (EP003) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	03-Jan-2023	13-Jan-2023	✓	04-Jan-2023	13-Jan-2023	✓
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	29-Dec-2022	30-Dec-2022	✓	09-Jan-2023	07-Feb-2023	✓
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	29-Dec-2022	30-Dec-2022	✓	09-Jan-2023	07-Feb-2023	✓
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	29-Dec-2022	30-Dec-2022	✓	09-Jan-2023	07-Feb-2023	✓



Matrix: SOIL

Evaluation: * = Holding time breach ; ✓ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	23-Dec-2022	30-Dec-2022	✓	24-Dec-2022	30-Dec-2022	✓
Soil Glass Jar - Unpreserved (EP071) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	29-Dec-2022	30-Dec-2022	✓	09-Jan-2023	07-Feb-2023	✓
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	23-Dec-2022	30-Dec-2022	✓	24-Dec-2022	30-Dec-2022	✓
Soil Glass Jar - Unpreserved (EP071) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	29-Dec-2022	30-Dec-2022	✓	09-Jan-2023	07-Feb-2023	✓
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	23-Dec-2022	30-Dec-2022	✓	24-Dec-2022	30-Dec-2022	✓
EP090: Organotin Compounds								
Soil Glass Jar - Unpreserved (EP090) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	29-Dec-2022	30-Dec-2022	✓	04-Jan-2023	07-Feb-2023	✓
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	09-Jan-2023	14-Jun-2023	✓	10-Jan-2023	18-Feb-2023	✓
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	09-Jan-2023	14-Jun-2023	✓	10-Jan-2023	18-Feb-2023	✓
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	09-Jan-2023	14-Jun-2023	✓	10-Jan-2023	18-Feb-2023	✓
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	09-Jan-2023	14-Jun-2023	✓	10-Jan-2023	18-Feb-2023	✓
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X) K_SED_T01_221216, K_SED_T03_221216	K_SED_T02_221216,	16-Dec-2022	09-Jan-2023	14-Jun-2023	✓	10-Jan-2023	18-Feb-2023	✓



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	2	16	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	2	18	11.11	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	14	14.29	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	1	8	12.50	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	2	19	10.53	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Organotin Analysis	EP090	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	2	8	25.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Organotin Analysis	EP090	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	1	8	12.50	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	5.26	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organotin Analysis	EP090	1	16	6.25	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	18	5.56	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	14	7.14	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **SOIL** Evaluation: ✖ = Quality Control frequency not within specification ; ✔ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
Matrix Spikes (MS) - Continued							
Total Metals by ICP-AES	EG005T	1	14	7.14	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	19	5.26	5.00	✔	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	20	5.00	5.00	✔	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP003	SOIL	In house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO ₂) is automatically measured by infra-red detector.
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Organotin Analysis	EP090	SOIL	In house: Referenced to USEPA SW 846 - 8270 Prepared sample extracts are analysed by GC/MS coupled with high volume injection, and quantified against an established calibration curve.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
---------------------	--------	--------	---------------------



<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Dry and Pulverise (up to 100g)	GEO30	SOIL	#
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Organotin Sample Preparation	ORG35	SOIL	In house: 20g sample is spiked with surrogate and leached in a methanol:acetic acid:UHP water mix and vacuum filtered. Reagents and solvents are added to the sample and the mixture tumbled. The butyltin compounds are simultaneously derivatised and extracted. The extract is further extracted with petroleum ether. The resultant extracts are combined and concentrated for analysis.
QuEChERS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES2246581

Client	: ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)	Laboratory	: Environmental Division Sydney
Contact	: INDIANA STRACHAN	Contact	: Sarah Mathew
Address	: LEVEL 15 309 KENT STREET SYDNEY NSW AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: indiana.strachan@erm.com	E-mail	: sarah.mathew@alsglobal.com
Telephone	: ----	Telephone	: +61-2-8784 8555
Facsimile	: ----	Facsimile	: +61-2-8784 8500
Project	: 0564417 Kamay Wharf Project	Page	: 1 of 2
Order number	: ----	Quote number	: EP2020ENVRES0018 (EN/114)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 22-Dec-2022 17:20	Issue Date	: 23-Dec-2022
Client Requested Due Date	: 09-Jan-2023	Scheduled Reporting Date	: 09-Jan-2023

Delivery Details

Mode of Delivery	: Carrier	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 18.3°C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Unable to perform Particle Size analysis as separate bag/container was not provided.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **TOC and Organotin analysis will be conducted by ALS Brisbane.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.

CERTIFICATE OF ANALYSIS

Work Order : ES2246795 Client : ENVIRONMENTAL RESOURCES MANAGEMENT (ERM) Contact : MR JOSEPH FERRING Address : LEVEL 15 309 KENT STREET SYDNEY NSW AUSTRALIA 2000 Telephone : +61 02 8584 8888 Project : 0564417 Kamay Wharf Project Order number : ---- C-O-C number : ---- Sampler : ---- Site : ---- Quote number : EN/114 No. of samples received : 3 No. of samples analysed : 3	Page : 1 of 9 Laboratory : Environmental Division Sydney Contact : Sarah Mathew Address : 277-289 Woodpark Road Smithfield NSW Australia 2164 Telephone : +61-2-8784 8555 Date Samples Received : 29-Dec-2022 11:30 Date Analysis Commenced : 05-Jan-2023 Issue Date : 16-Jan-2023 11:37
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This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results
- Surrogate Control Limits

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contract for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting
ø = ALS is not NATA accredited for these tests.
~ = Indicates an estimated value.

- Benzo(a)pyrene Toxicity Equivalent Quotient (TEQ) per the NEPM (2013) is the sum total of the concentration of the eight carcinogenic PAHs multiplied by their Toxicity Equivalence Factor (TEF) relative to Benzo(a)pyrene. TEF values are provided in brackets as follows: Benz(a)anthracene (0.1), Chrysene (0.01), Benzo(b+j) & Benzo(k)fluoranthene (0.1), Benzo(a)pyrene (1.0), Indeno(1.2.3.cd)pyrene (0.1), Dibenz(a,h)anthracene (1.0), Benzo(g,h,i)perylene (0.01). Less than LOR results for 'TEQ Zero' are treated as zero, for 'TEQ 1/2LOR' are treated as half the reported LOR, and for 'TEQ LOR' are treated as being equal to the reported LOR. Note: TEQ 1/2LOR and TEQ LOR will calculate as 0.6mg/Kg and 1.2mg/Kg respectively for samples with non-detects for all of the eight TEQ PAHs.
- EP080: Where reported, Total Xylenes is the sum of the reported concentrations of m&p-Xylene and o-Xylene at or above the LOR.
- EP068: Where reported, Total Chlordane (sum) is the sum of the reported concentrations of cis-Chlordane and trans-Chlordane at or above the LOR.
- EP068: Where reported, Total OCP is the sum of the reported concentrations of all Organochlorine Pesticides at or above LOR.
- EP075(SIM): Where reported, Total Cresol is the sum of the reported concentrations of 2-Methylphenol and 3- & 4-Methylphenol at or above the LOR.
- EG035: Poor matrix spike recovery was obtained for Mercury on sample ES2246639 - #001 due to matrix interference. Results have been confirmed by redigestion and reanalysis.
- EP231: Stable isotope enriched internal standards are added to samples prior to extraction. Target compounds have a direct analogous internal standard with the exception of PFPeS, PFHpA, PFDS, PFTrDA and 10:2 FTS. These compounds use an internal standard that is chemically related and has a retention time close to that of the target compound. The DQO for internal standard response is 50-150% of that established at initial calibration. PFOS is quantified using a certified, traceable standard consisting of linear and branched PFOS isomers. These practices are in line with recommendations in the National Environmental Management Plan for PFAS (Australian HEPA) and also conform to QSM 5.3 (US DoD) requirements.



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	LP_SED_T01_221222	LP_SED_T02_221222	LP_SED_T03_221222	----	----
Sampling date / time				22-Dec-2022 00:00	22-Dec-2022 00:00	22-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246795-001	ES2246795-002	ES2246795-003	-----	-----	
				Result	Result	Result	----	----	
EA055: Moisture Content (Dried @ 105-110°C)									
Moisture Content	----	1.0	%	22.8	19.9	22.0	----	----	
EG005(ED093)T: Total Metals by ICP-AES									
Arsenic	7440-38-2	5	mg/kg	<5	<5	<5	----	----	
Barium	7440-39-3	10	mg/kg	<10	<10	<10	----	----	
Beryllium	7440-41-7	1	mg/kg	<1	<1	<1	----	----	
Boron	7440-42-8	50	mg/kg	<50	<50	<50	----	----	
Cadmium	7440-43-9	1	mg/kg	<1	<1	<1	----	----	
Chromium	7440-47-3	2	mg/kg	3	3	3	----	----	
Cobalt	7440-48-4	2	mg/kg	<2	<2	<2	----	----	
Copper	7440-50-8	5	mg/kg	<5	<5	<5	----	----	
Lead	7439-92-1	5	mg/kg	6	<5	5	----	----	
Manganese	7439-96-5	5	mg/kg	10	7	10	----	----	
Nickel	7440-02-0	2	mg/kg	<2	<2	<2	----	----	
Selenium	7782-49-2	5	mg/kg	<5	<5	<5	----	----	
Vanadium	7440-62-2	5	mg/kg	6	<5	<5	----	----	
Zinc	7440-66-6	5	mg/kg	47	<5	7	----	----	
EG035T: Total Recoverable Mercury by FIMS									
Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	<0.1	----	----	
EP003: Total Organic Carbon (TOC) in Soil									
Total Organic Carbon	----	0.02	%	0.14	0.12	0.37	----	----	
EP068A: Organochlorine Pesticides (OC)									
alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Total Chlordane (sum)	----	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	LP_SED_T01_221222	LP_SED_T02_221222	LP_SED_T03_221222	----	----
Sampling date / time				22-Dec-2022 00:00	22-Dec-2022 00:00	22-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246795-001	ES2246795-002	ES2246795-003	-----	-----	
				Result	Result	Result	----	----	
EP068A: Organochlorine Pesticides (OC) - Continued									
4.4`-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Endosulfan (sum)	115-29-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
4.4`-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
4.4`-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
^ Sum of Aldrin + Dieldrin	309-00-2/60-57-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
^ Sum of DDD + DDE + DDT	72-54-8/72-55-9/5 0-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
EP068B: Organophosphorus Pesticides (OP)									
Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	<0.05	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons									
Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	LP_SED_T01_221222	LP_SED_T02_221222	LP_SED_T03_221222	----	----
Sampling date / time				22-Dec-2022 00:00	22-Dec-2022 00:00	22-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246795-001	ES2246795-002	ES2246795-003	-----	-----	
				Result	Result	Result	----	----	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons - Continued									
Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benzo(b+j)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Dibenz(a.h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Benzo(g.h.i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
^ Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
^ Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
^ Benzo(a)pyrene TEQ (half LOR)	----	0.5	mg/kg	0.6	0.6	0.6	----	----	
^ Benzo(a)pyrene TEQ (LOR)	----	0.5	mg/kg	1.2	1.2	1.2	----	----	
EP080/071: Total Petroleum Hydrocarbons									
C6 - C9 Fraction	----	10	mg/kg	<10	<10	<10	----	----	
C10 - C14 Fraction	----	50	mg/kg	<50	<50	<50	----	----	
C15 - C28 Fraction	----	100	mg/kg	<100	<100	<100	----	----	
C29 - C36 Fraction	----	100	mg/kg	<100	<100	<100	----	----	
^ C10 - C36 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions									
C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	<10	----	----	
^ C6 - C10 Fraction minus BTEX (F1)	C6_C10-BTEX	10	mg/kg	<10	<10	<10	----	----	
>C10 - C16 Fraction	----	50	mg/kg	<50	<50	<50	----	----	
>C16 - C34 Fraction	----	100	mg/kg	<100	<100	<100	----	----	
>C34 - C40 Fraction	----	100	mg/kg	<100	<100	<100	----	----	
^ >C10 - C40 Fraction (sum)	----	50	mg/kg	<50	<50	<50	----	----	
^ >C10 - C16 Fraction minus Naphthalene (F2)	----	50	mg/kg	<50	<50	<50	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	LP_SED_T01_221222	LP_SED_T02_221222	LP_SED_T03_221222	----	----
Sampling date / time				22-Dec-2022 00:00	22-Dec-2022 00:00	22-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246795-001	ES2246795-002	ES2246795-003	-----	-----	
				Result	Result	Result	----	----	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions - Continued									
EP080: BTEXN									
Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
^ Sum of BTEX	----	0.2	mg/kg	<0.2	<0.2	<0.2	----	----	
^ Total Xylenes	----	0.5	mg/kg	<0.5	<0.5	<0.5	----	----	
Naphthalene	91-20-3	1	mg/kg	<1	<1	<1	----	----	
EP090: Organotin Compounds									
Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	<1	----	----	
Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	<1	----	----	
Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	<0.5	----	----	
EP231A: Perfluoroalkyl Sulfonic Acids									
Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0004	<0.0002	<0.0002	----	----	
Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids									
Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	<0.001	----	----	
Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	LP_SED_T01_221222	LP_SED_T02_221222	LP_SED_T03_221222	----	----
Sampling date / time				22-Dec-2022 00:00	22-Dec-2022 00:00	22-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246795-001	ES2246795-002	ES2246795-003	-----	-----	
				Result	Result	Result	----	----	
EP231B: Perfluoroalkyl Carboxylic Acids - Continued									
Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
EP231C: Perfluoroalkyl Sulfonamides									
Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	<0.0002	----	----	
EP231D: (n:2) Fluorotelomer Sulfonic Acids									
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	<0.0005	----	----	
EP231P: PFAS Sums									
Sum of PFAS	----	0.0002	mg/kg	0.0004	<0.0002	<0.0002	----	----	



Analytical Results

Sub-Matrix: SOIL (Matrix: SOIL)				Sample ID	LP_SED_T01_221222	LP_SED_T02_221222	LP_SED_T03_221222	----	----
Sampling date / time				22-Dec-2022 00:00	22-Dec-2022 00:00	22-Dec-2022 00:00	----	----	
Compound	CAS Number	LOR	Unit	ES2246795-001	ES2246795-002	ES2246795-003	-----	-----	
				Result	Result	Result	----	----	
EP231P: PFAS Sums - Continued									
Sum of PFHxS and PFOS	355-46-4/1763-23-1	0.0002	mg/kg	0.0004	<0.0002	<0.0002	----	----	
Sum of PFAS (WA DER List)	----	0.0002	mg/kg	0.0004	<0.0002	<0.0002	----	----	
EP068S: Organochlorine Pesticide Surrogate									
Dibromo-DDE	21655-73-2	0.05	%	78.2	88.3	81.0	----	----	
EP068T: Organophosphorus Pesticide Surrogate									
DEF	78-48-8	0.05	%	84.3	95.4	92.2	----	----	
EP075(SIM)S: Phenolic Compound Surrogates									
Phenol-d6	13127-88-3	0.5	%	93.3	96.2	100	----	----	
2-Chlorophenol-D4	93951-73-6	0.5	%	94.0	95.4	98.9	----	----	
2,4,6-Tribromophenol	118-79-6	0.5	%	70.7	66.8	68.6	----	----	
EP075(SIM)T: PAH Surrogates									
2-Fluorobiphenyl	321-60-8	0.5	%	103	106	110	----	----	
Anthracene-d10	1719-06-8	0.5	%	109	111	114	----	----	
4-Terphenyl-d14	1718-51-0	0.5	%	107	109	112	----	----	
EP080S: TPH(V)/BTEX Surrogates									
1,2-Dichloroethane-D4	17060-07-0	0.2	%	94.0	95.3	98.5	----	----	
Toluene-D8	2037-26-5	0.2	%	102	98.2	104	----	----	
4-Bromofluorobenzene	460-00-4	0.2	%	96.4	96.5	97.8	----	----	
EP090S: Organotin Surrogate									
Tripopyltin	----	0.5	%	76.0	47.2	39.4	----	----	
EP231S: PFAS Surrogate									
13C4-PFOS	----	0.0002	%	106	96.5	97.0	----	----	
13C8-PFOA	----	0.0002	%	100	105	104	----	----	



Surrogate Control Limits

Sub-Matrix: SOIL		Recovery Limits (%)	
Compound	CAS Number	Low	High
EP068S: Organochlorine Pesticide Surrogate			
Dibromo-DDE	21655-73-2	49	147
EP068T: Organophosphorus Pesticide Surrogate			
DEF	78-48-8	35	143
EP075(SIM)S: Phenolic Compound Surrogates			
Phenol-d6	13127-88-3	63	123
2-Chlorophenol-D4	93951-73-6	66	122
2,4,6-Tribromophenol	118-79-6	40	138
EP075(SIM)T: PAH Surrogates			
2-Fluorobiphenyl	321-60-8	70	122
Anthracene-d10	1719-06-8	66	128
4-Terphenyl-d14	1718-51-0	65	129
EP080S: TPH(V)/BTEX Surrogates			
1,2-Dichloroethane-D4	17060-07-0	73	133
Toluene-D8	2037-26-5	74	132
4-Bromofluorobenzene	460-00-4	72	130
EP090S: Organotin Surrogate			
Tripropyltin	----	35	130
EP231S: PFAS Surrogate			
13C4-PFOS	----	60	120
13C8-PFOA	----	60	120

Inter-Laboratory Testing

Analysis conducted by ALS Brisbane, NATA accreditation no. 825, site no. 818 (Chemistry) 18958 (Biology).

(SOIL) EP090: Organotin Compounds

(SOIL) EP090S: Organotin Surrogate

(SOIL) EP003: Total Organic Carbon (TOC) in Soil

QUALITY CONTROL REPORT

Work Order	: ES2246795	Page	: 1 of 14
Client	: ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Sarah Mathew
Address	: LEVEL 15 309 KENT STREET SYDNEY NSW AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
Telephone	: +61 02 8584 8888	Telephone	: +61-2-8784 8555
Project	: 0564417 Kamay Wharf Project	Date Samples Received	: 29-Dec-2022
Order number	: ----	Date Analysis Commenced	: 05-Jan-2023
C-O-C number	: ----	Issue Date	: 16-Jan-2023
Sampler	: ----		
Site	: ----		
Quote number	: EN/114		
No. of samples received	: 3		
No. of samples analysed	: 3		



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Method Blank (MB) and Laboratory Control Spike (LCS) Report; Recovery and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	Position	Accreditation Category
Alex Rossi	Organic Chemist	Sydney Organics, Smithfield, NSW
Ben Felgendrejeris	Senior Acid Sulfate Soil Chemist	Brisbane Acid Sulphate Soils, Stafford, QLD
Edwandy Fadjjar	Organic Coordinator	Sydney Inorganics, Smithfield, NSW
Edwandy Fadjjar	Organic Coordinator	Sydney Organics, Smithfield, NSW
Sarah Ashworth	Laboratory Manager - Brisbane	Brisbane Organics, Stafford, QLD
Wisam Marassa	Inorganics Coordinator	Sydney Inorganics, Smithfield, NSW



General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis. Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Key :
 Anonymous = Refers to samples which are not specifically part of this work order but formed part of the QC process lot
 CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
 LOR = Limit of reporting
 RPD = Relative Percentage Difference
 # = Indicates failed QC

Laboratory Duplicate (DUP) Report

The quality control term Laboratory Duplicate refers to a randomly selected intralaboratory split. Laboratory duplicates provide information regarding method precision and sample heterogeneity. The permitted ranges for the Relative Percent Deviation (RPD) of Laboratory Duplicates are specified in ALS Method QWI-EN/38 and are dependent on the magnitude of results in comparison to the level of reporting: Result < 10 times LOR: No Limit; Result between 10 and 20 times LOR: 0% - 50%; Result > 20 times LOR: 0% - 20%.

Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4802558)									
ES2244549-091	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	<10	<10	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	<2	3	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	<2	<2	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	16	28	53.7	No Limit
		EG005T: Manganese	7439-96-5	5	mg/kg	91	79	15.0	0% - 50%
		EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	<5	5	0.0	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	10	15	34.1	No Limit
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
ES2300195-001	Anonymous	EG005T: Beryllium	7440-41-7	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Cadmium	7440-43-9	1	mg/kg	<1	<1	0.0	No Limit
		EG005T: Barium	7440-39-3	10	mg/kg	30	30	0.0	No Limit
		EG005T: Chromium	7440-47-3	2	mg/kg	8	7	0.0	No Limit
		EG005T: Cobalt	7440-48-4	2	mg/kg	2	<2	0.0	No Limit
		EG005T: Nickel	7440-02-0	2	mg/kg	6	6	0.0	No Limit
		EG005T: Arsenic	7440-38-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Copper	7440-50-8	5	mg/kg	13	13	0.0	No Limit
		EG005T: Lead	7439-92-1	5	mg/kg	39	50	24.1	0% - 50%
		EG005T: Manganese	7439-96-5	5	mg/kg	122	127	4.1	0% - 20%



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EG005(ED093)T: Total Metals by ICP-AES (QC Lot: 4802558) - continued									
ES2300195-001	Anonymous	EG005T: Selenium	7782-49-2	5	mg/kg	<5	<5	0.0	No Limit
		EG005T: Vanadium	7440-62-2	5	mg/kg	12	10	17.7	No Limit
		EG005T: Zinc	7440-66-6	5	mg/kg	89	70	23.1	0% - 50%
		EG005T: Boron	7440-42-8	50	mg/kg	<50	<50	0.0	No Limit
EA055: Moisture Content (Dried @ 105-110°C) (QC Lot: 4801497)									
ES2246795-003	LP_SED_T03_221222	EA055: Moisture Content	----	0.1	%	22.0	22.8	3.5	0% - 20%
EG035T: Total Recoverable Mercury by FIMS (QC Lot: 4802559)									
ES2300090-002	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
ES2246639-001	Anonymous	EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	<0.1	0.0	No Limit
EP003: Total Organic Carbon (TOC) in Soil (QC Lot: 4807764)									
EM2225911-008	Anonymous	EP003: Total Organic Carbon	----	0.02	%	21.7	20.9	3.9	0% - 20%
EB2300100-001	Anonymous	EP003: Total Organic Carbon	----	0.02	%	0.39	0.39	0.0	0% - 50%
EP068A: Organochlorine Pesticides (OC) (QC Lot: 4800861)									
ES2246795-001	LP_SED_T01_221222	EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDE	72-55-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	<0.2	0.0	No Limit		
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4800861)									
ES2246795-001	LP_SED_T01_221222	EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP068B: Organophosphorus Pesticides (OP) (QC Lot: 4800861) - continued									
ES2246795-001	LP_SED_T01_221222	EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	<0.05	0.0	No Limit
		EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QC Lot: 4800860)									
ES2246795-001	LP_SED_T01_221222	EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(b+j)fluoranthene	205-99-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Sum of polycyclic aromatic hydrocarbons	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP075(SIM): Benzo(a)pyrene TEQ (zero)	----	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4800859)									
ES2246795-001	LP_SED_T01_221222	EP071: C15 - C28 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C29 - C36 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: C10 - C14 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit



Sub-Matrix: SOIL

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP080/071: Total Petroleum Hydrocarbons (QC Lot: 4801326)									
ES2246795-001	LP_SED_T01_221222	EP080: C6 - C9 Fraction	----	10	mg/kg	<10	<10	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4800859)									
ES2246795-001	LP_SED_T01_221222	EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	<100	0.0	No Limit
		EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	<50	0.0	No Limit
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QC Lot: 4801326)									
ES2246795-001	LP_SED_T01_221222	EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	<10	0.0	No Limit
EP080: BTEXN (QC Lot: 4801326)									
ES2246795-001	LP_SED_T01_221222	EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	<0.2	0.0	No Limit
		EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	<0.5	0.0	No Limit
		EP080: Naphthalene	91-20-3	1	mg/kg	<1	<1	0.0	No Limit
EP090: Organotin Compounds (QC Lot: 4802203)									
ES2246795-001	LP_SED_T01_221222	EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	<0.5	0.0	No Limit
		EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	<1	0.0	No Limit
		EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	<1	0.0	No Limit
EP231A: Perfluoroalkyl Sulfonic Acids (QC Lot: 4809721)									
ES2246795-001	LP_SED_T01_221222	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0004	0.0004	0.0	No Limit
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
ES2300354-008	Anonymous	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	0.0490	0.0556	12.7	0% - 20%
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4809721)									
ES2246795-001	LP_SED_T01_221222	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit



Sub-Matrix: **SOIL**

				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231B: Perfluoroalkyl Carboxylic Acids (QC Lot: 4809721) - continued									
ES2246795-001	LP_SED_T01_221222	EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit
ES2300354-008	Anonymous	EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	0.0005	0.0004	0.0	No Limit
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	0.0005	0.0008	38.3	No Limit
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	0.0003	0.0003	0.0	No Limit
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0006	<0.0006	0.0	No Limit
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	<0.001	0.0	No Limit		
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4809721)									
ES2246795-001	LP_SED_T01_221222	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2300354-008	Anonymous	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	<0.0002	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	0.0023	0.0023	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	0.0011	0.0010	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0006	<0.0006	0.0	No Limit
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0006	<0.0006	0.0	No Limit
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0006	<0.0006	0.0	No Limit



Sub-Matrix: SOIL				Laboratory Duplicate (DUP) Report					
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)	Acceptable RPD (%)
EP231C: Perfluoroalkyl Sulfonamides (QC Lot: 4809721) - continued									
ES2300354-008	Anonymous	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0006	<0.0006	0.0	No Limit
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QC Lot: 4809721)									
ES2246795-001	LP_SED_T01_221222	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
ES2300354-008	Anonymous	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	<0.0005	0.0	No Limit



Method Blank (MB) and Laboratory Control Sample (LCS) Report

The quality control term Method / Laboratory Blank refers to an analyte free matrix to which all reagents are added in the same volumes or proportions as used in standard sample preparation. The purpose of this QC parameter is to monitor potential laboratory contamination. The quality control term Laboratory Control Sample (LCS) refers to a certified reference material, or a known interference free matrix spiked with target analytes. The purpose of this QC parameter is to monitor method precision and accuracy independent of sample matrix. Dynamic Recovery Limits are based on statistical evaluation of processed LCS.

Sub-Matrix: **SOIL**

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike Concentration	Spike Recovery (%)		Acceptable Limits (%)	
						LCS	Low	High	
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4802558)									
EG005T: Arsenic	7440-38-2	5	mg/kg	<5	121.1 mg/kg	95.4	88.0	113	
EG005T: Barium	7440-39-3	10	mg/kg	<10	90.5 mg/kg	104	65.0	136	
EG005T: Beryllium	7440-41-7	1	mg/kg	<1	0.5 mg/kg	106	70.0	130	
EG005T: Boron	7440-42-8	50	mg/kg	<50	----	----	----	----	
EG005T: Cadmium	7440-43-9	1	mg/kg	<1	0.74 mg/kg	91.9	70.0	130	
EG005T: Chromium	7440-47-3	2	mg/kg	<2	19.6 mg/kg	108	68.0	132	
EG005T: Cobalt	7440-48-4	2	mg/kg	<2	10.4 mg/kg	93.5	83.0	117	
EG005T: Copper	7440-50-8	5	mg/kg	<5	52.9 mg/kg	101	89.0	111	
EG005T: Lead	7439-92-1	5	mg/kg	<5	60.8 mg/kg	95.6	82.0	119	
EG005T: Manganese	7439-96-5	5	mg/kg	<5	534 mg/kg	103	83.0	117	
EG005T: Nickel	7440-02-0	2	mg/kg	<2	15.3 mg/kg	99.9	80.0	120	
EG005T: Selenium	7782-49-2	5	mg/kg	<5	----	----	----	----	
EG005T: Vanadium	7440-62-2	5	mg/kg	<5	58.6 mg/kg	108	75.0	125	
EG005T: Zinc	7440-66-6	5	mg/kg	<5	139.3 mg/kg	86.1	66.0	133	
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4802559)									
EG035T: Mercury	7439-97-6	0.1	mg/kg	<0.1	0.087 mg/kg	90.8	70.0	125	
EP003: Total Organic Carbon (TOC) in Soil (QCLot: 4807764)									
EP003: Total Organic Carbon	----	0.02	%	<0.02	0.54 %	94.5	80.0	120	
				<0.02	27.5 %	92.0	80.0	120	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4800861)									
EP068: alpha-BHC	319-84-6	0.05	mg/kg	<0.05	0.5 mg/kg	97.1	69.0	113	
EP068: Hexachlorobenzene (HCB)	118-74-1	0.05	mg/kg	<0.05	0.5 mg/kg	102	65.0	117	
EP068: beta-BHC	319-85-7	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	67.0	119	
EP068: gamma-BHC	58-89-9	0.05	mg/kg	<0.05	0.5 mg/kg	105	68.0	116	
EP068: delta-BHC	319-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	98.3	65.0	117	
EP068: Heptachlor	76-44-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	67.0	115	
EP068: Aldrin	309-00-2	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.0	115	
EP068: Heptachlor epoxide	1024-57-3	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	118	
EP068: trans-Chlordane	5103-74-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	63.0	117	
EP068: alpha-Endosulfan	959-98-8	0.05	mg/kg	<0.05	0.5 mg/kg	104	66.0	116	
EP068: cis-Chlordane	5103-71-9	0.05	mg/kg	<0.05	0.5 mg/kg	99.1	64.0	116	
EP068: Dieldrin	60-57-1	0.05	mg/kg	<0.05	0.5 mg/kg	99.5	66.0	116	
EP068: 4,4'-DDE	72-55-9	0.05	mg/kg	<0.05	0.5 mg/kg	98.8	67.0	115	
EP068: Endrin	72-20-8	0.05	mg/kg	<0.05	0.5 mg/kg	99.0	67.0	123	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP068A: Organochlorine Pesticides (OC) (QCLot: 4800861) - continued									
EP068: beta-Endosulfan	33213-65-9	0.05	mg/kg	<0.05	0.5 mg/kg	102	69.0	115	
EP068: 4.4'-DDD	72-54-8	0.05	mg/kg	<0.05	0.5 mg/kg	105	69.0	121	
EP068: Endrin aldehyde	7421-93-4	0.05	mg/kg	<0.05	0.5 mg/kg	84.3	56.0	120	
EP068: Endosulfan sulfate	1031-07-8	0.05	mg/kg	<0.05	0.5 mg/kg	108	62.0	124	
EP068: 4.4'-DDT	50-29-3	0.2	mg/kg	<0.2	0.5 mg/kg	97.9	66.0	120	
EP068: Endrin ketone	53494-70-5	0.05	mg/kg	<0.05	0.5 mg/kg	96.4	64.0	122	
EP068: Methoxychlor	72-43-5	0.2	mg/kg	<0.2	0.5 mg/kg	107	54.0	130	
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4800861)									
EP068: Dichlorvos	62-73-7	0.05	mg/kg	<0.05	0.5 mg/kg	74.9	59.0	119	
EP068: Demeton-S-methyl	919-86-8	0.05	mg/kg	<0.05	0.5 mg/kg	94.3	62.0	128	
EP068: Monocrotophos	6923-22-4	0.2	mg/kg	<0.2	0.5 mg/kg	75.8	54.0	126	
EP068: Dimethoate	60-51-5	0.05	mg/kg	<0.05	0.5 mg/kg	97.2	67.0	119	
EP068: Diazinon	333-41-5	0.05	mg/kg	<0.05	0.5 mg/kg	104	70.0	120	
EP068: Chlorpyrifos-methyl	5598-13-0	0.05	mg/kg	<0.05	0.5 mg/kg	106	72.0	120	
EP068: Parathion-methyl	298-00-0	0.2	mg/kg	<0.2	0.5 mg/kg	104	68.0	120	
EP068: Malathion	121-75-5	0.05	mg/kg	<0.05	0.5 mg/kg	91.8	68.0	122	
EP068: Fenthion	55-38-9	0.05	mg/kg	<0.05	0.5 mg/kg	101	69.0	117	
EP068: Chlorpyrifos	2921-88-2	0.05	mg/kg	<0.05	0.5 mg/kg	104	76.0	118	
EP068: Parathion	56-38-2	0.2	mg/kg	<0.2	0.5 mg/kg	98.3	64.0	122	
EP068: Pirimphos-ethyl	23505-41-1	0.05	mg/kg	<0.05	0.5 mg/kg	92.0	70.0	116	
EP068: Chlorfenvinphos	470-90-6	0.05	mg/kg	<0.05	0.5 mg/kg	104	69.0	121	
EP068: Bromophos-ethyl	4824-78-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	66.0	118	
EP068: Fenamiphos	22224-92-6	0.05	mg/kg	<0.05	0.5 mg/kg	85.8	68.0	124	
EP068: Prothiofos	34643-46-4	0.05	mg/kg	<0.05	0.5 mg/kg	102	62.0	112	
EP068: Ethion	563-12-2	0.05	mg/kg	<0.05	0.5 mg/kg	98.7	68.0	120	
EP068: Carbophenothion	786-19-6	0.05	mg/kg	<0.05	0.5 mg/kg	103	65.0	127	
EP068: Azinphos Methyl	86-50-0	0.05	mg/kg	<0.05	0.5 mg/kg	68.8	41.0	123	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4800860)									
EP075(SIM): Naphthalene	91-20-3	0.5	mg/kg	<0.5	6 mg/kg	118	77.0	125	
EP075(SIM): Acenaphthylene	208-96-8	0.5	mg/kg	<0.5	6 mg/kg	113	72.0	124	
EP075(SIM): Acenaphthene	83-32-9	0.5	mg/kg	<0.5	6 mg/kg	108	73.0	127	
EP075(SIM): Fluorene	86-73-7	0.5	mg/kg	<0.5	6 mg/kg	112	72.0	126	
EP075(SIM): Phenanthrene	85-01-8	0.5	mg/kg	<0.5	6 mg/kg	115	75.0	127	
EP075(SIM): Anthracene	120-12-7	0.5	mg/kg	<0.5	6 mg/kg	102	77.0	127	
EP075(SIM): Fluoranthene	206-44-0	0.5	mg/kg	<0.5	6 mg/kg	115	73.0	127	
EP075(SIM): Pyrene	129-00-0	0.5	mg/kg	<0.5	6 mg/kg	116	74.0	128	
EP075(SIM): Benz(a)anthracene	56-55-3	0.5	mg/kg	<0.5	6 mg/kg	107	69.0	123	
EP075(SIM): Chrysene	218-01-9	0.5	mg/kg	<0.5	6 mg/kg	111	75.0	127	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4800860) - continued									
EP075(SIM): Benzo(b+)fluoranthene	205-99-2 205-82-3	0.5	mg/kg	<0.5	6 mg/kg	108	68.0	116	
EP075(SIM): Benzo(k)fluoranthene	207-08-9	0.5	mg/kg	<0.5	6 mg/kg	113	74.0	126	
EP075(SIM): Benzo(a)pyrene	50-32-8	0.5	mg/kg	<0.5	6 mg/kg	106	70.0	126	
EP075(SIM): Indeno(1.2.3.cd)pyrene	193-39-5	0.5	mg/kg	<0.5	6 mg/kg	112	61.0	121	
EP075(SIM): Dibenz(a,h)anthracene	53-70-3	0.5	mg/kg	<0.5	6 mg/kg	112	62.0	118	
EP075(SIM): Benzo(g,h,i)perylene	191-24-2	0.5	mg/kg	<0.5	6 mg/kg	109	63.0	121	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4800859)									
EP071: C10 - C14 Fraction	----	50	mg/kg	<50	300 mg/kg	98.0	75.0	129	
EP071: C15 - C28 Fraction	----	100	mg/kg	<100	450 mg/kg	95.0	77.0	131	
EP071: C29 - C36 Fraction	----	100	mg/kg	<100	300 mg/kg	97.3	71.0	129	
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4801326)									
EP080: C6 - C9 Fraction	----	10	mg/kg	<10	26 mg/kg	115	68.4	128	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4800859)									
EP071: >C10 - C16 Fraction	----	50	mg/kg	<50	375 mg/kg	97.5	77.0	125	
EP071: >C16 - C34 Fraction	----	100	mg/kg	<100	525 mg/kg	95.2	74.0	138	
EP071: >C34 - C40 Fraction	----	100	mg/kg	<100	225 mg/kg	99.0	63.0	131	
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4801326)									
EP080: C6 - C10 Fraction	C6_C10	10	mg/kg	<10	31 mg/kg	114	68.4	128	
EP080: BTEXN (QCLot: 4801326)									
EP080: Benzene	71-43-2	0.2	mg/kg	<0.2	1 mg/kg	112	62.0	116	
EP080: Toluene	108-88-3	0.5	mg/kg	<0.5	1 mg/kg	108	67.0	121	
EP080: Ethylbenzene	100-41-4	0.5	mg/kg	<0.5	1 mg/kg	106	65.0	117	
EP080: meta- & para-Xylene	108-38-3 106-42-3	0.5	mg/kg	<0.5	2 mg/kg	108	66.0	118	
EP080: ortho-Xylene	95-47-6	0.5	mg/kg	<0.5	1 mg/kg	101	68.0	120	
EP080: Naphthalene	91-20-3	1	mg/kg	<1	1 mg/kg	95.8	63.0	119	
EP090: Organotin Compounds (QCLot: 4802203)									
EP090: Monobutyltin	78763-54-9	1	µgSn/kg	<1	1.25 µgSn/kg	114	36.0	128	
EP090: Dibutyltin	1002-53-5	1	µgSn/kg	<1	1.25 µgSn/kg	118	42.0	132	
EP090: Tributyltin	56573-85-4	0.5	µgSn/kg	<0.5	1.25 µgSn/kg	60.4	52.0	139	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4809721)									
EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.2	72.0	128	
EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	73.0	123	
EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	67.0	130	
EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	111	70.0	132	
EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	68.0	136	
EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	86.0	59.0	134	



Sub-Matrix: SOIL

Method: Compound	CAS Number	LOR	Unit	Method Blank (MB) Report	Laboratory Control Spike (LCS) Report				
				Result	Spike	Spike Recovery (%)		Acceptable Limits (%)	
					Concentration	LCS	Low	High	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4809721)									
EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.001	mg/kg	<0.001	0.00625 mg/kg	100	71.0	135	
EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	69.0	132	
EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.0002	mg/kg	<0.0002	0.00125 mg/kg	104	70.0	132	
EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	111	71.0	131	
EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	69.0	133	
EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	113	72.0	129	
EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.0002	mg/kg	<0.0002	0.00125 mg/kg	112	69.0	133	
EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	116	64.0	136	
EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.0002	mg/kg	<0.0002	0.00125 mg/kg	109	69.0	135	
EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.0002	mg/kg	<0.0002	0.00125 mg/kg	91.2	66.0	139	
EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	105	69.0	133	
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4809721)									
EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	110	67.0	137	
EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.0005	mg/kg	<0.0005	0.00312 mg/kg	105	71.6	129	
EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	106	69.8	131	
EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.0005	mg/kg	<0.0005	0.00312 mg/kg	95.5	68.7	130	
EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.0005	mg/kg	<0.0005	0.00312 mg/kg	110	65.1	134	
EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.0002	mg/kg	<0.0002	0.00125 mg/kg	107	63.0	144	
EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.0002	mg/kg	<0.0002	0.00125 mg/kg	115	61.0	139	
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4809721)									
EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	112	62.0	145	
EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.0005	mg/kg	<0.0005	0.00125 mg/kg	105	64.0	140	
EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.0005	mg/kg	<0.0005	0.00125 mg/kg	106	65.0	137	
EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.0005	mg/kg	<0.0005	0.00125 mg/kg	95.2	69.2	143	

Matrix Spike (MS) Report

The quality control term Matrix Spike (MS) refers to an intralaboratory split sample spiked with a representative set of target analytes. The purpose of this QC parameter is to monitor potential matrix effects on analyte recoveries. Static Recovery Limits as per laboratory Data Quality Objectives (DQOs). Ideal recovery ranges stated may be waived in the event of sample matrix interference.

Sub-Matrix: SOIL

Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Matrix Spike (MS) Report			
				Spike	SpikeRecovery(%)	Acceptable Limits (%)	
				Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4802558)							
ES2244549-091	Anonymous	EG005T: Arsenic	7440-38-2	50 mg/kg	102	70.0	130
		EG005T: Cadmium	7440-43-9	50 mg/kg	102	70.0	130



Sub-Matrix: SOIL

				Matrix Spike (MS) Report			
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)	
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High
EG005(ED093)T: Total Metals by ICP-AES (QCLot: 4802558) - continued							
ES2244549-091	Anonymous	EG005T: Chromium	7440-47-3	50 mg/kg	103	68.0	132
		EG005T: Copper	7440-50-8	250 mg/kg	102	70.0	130
		EG005T: Lead	7439-92-1	250 mg/kg	106	70.0	130
		EG005T: Nickel	7440-02-0	50 mg/kg	103	70.0	130
		EG005T: Zinc	7440-66-6	250 mg/kg	104	66.0	133
EG035T: Total Recoverable Mercury by FIMS (QCLot: 4802559)							
ES2246639-001	Anonymous	EG035T: Mercury	7439-97-6	5 mg/kg	# 58.1	70.0	130
EP068A: Organochlorine Pesticides (OC) (QCLot: 4800861)							
ES2246795-001	LP_SED_T01_221222	EP068: gamma-BHC	58-89-9	0.5 mg/kg	97.1	70.0	130
		EP068: Heptachlor	76-44-8	0.5 mg/kg	88.4	70.0	130
		EP068: Aldrin	309-00-2	0.5 mg/kg	105	70.0	130
		EP068: Dieldrin	60-57-1	0.5 mg/kg	101	70.0	130
		EP068: Endrin	72-20-8	2 mg/kg	84.2	70.0	130
		EP068: 4,4'-DDT	50-29-3	2 mg/kg	71.7	70.0	130
EP068B: Organophosphorus Pesticides (OP) (QCLot: 4800861)							
ES2246795-001	LP_SED_T01_221222	EP068: Diazinon	333-41-5	0.5 mg/kg	80.8	70.0	130
		EP068: Chlorpyrifos-methyl	5598-13-0	0.5 mg/kg	96.6	70.0	130
		EP068: Pirimphos-ethyl	23505-41-1	0.5 mg/kg	87.1	70.0	130
		EP068: Bromophos-ethyl	4824-78-6	0.5 mg/kg	94.6	70.0	130
		EP068: Prothiofos	34643-46-4	0.5 mg/kg	82.8	70.0	130
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons (QCLot: 4800860)							
ES2246795-001	LP_SED_T01_221222	EP075(SIM): Acenaphthene	83-32-9	10 mg/kg	117	70.0	130
		EP075(SIM): Pyrene	129-00-0	10 mg/kg	126	70.0	130
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4800859)							
ES2246795-001	LP_SED_T01_221222	EP071: C10 - C14 Fraction	----	480 mg/kg	109	73.0	137
		EP071: C15 - C28 Fraction	----	3100 mg/kg	115	53.0	131
		EP071: C29 - C36 Fraction	----	2060 mg/kg	123	52.0	132
EP080/071: Total Petroleum Hydrocarbons (QCLot: 4801326)							
ES2246795-001	LP_SED_T01_221222	EP080: C6 - C9 Fraction	----	32.5 mg/kg	92.2	70.0	130
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4800859)							
ES2246795-001	LP_SED_T01_221222	EP071: >C10 - C16 Fraction	----	860 mg/kg	108	73.0	137
		EP071: >C16 - C34 Fraction	----	4320 mg/kg	120	53.0	131
		EP071: >C34 - C40 Fraction	----	890 mg/kg	114	52.0	132
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions (QCLot: 4801326)							
ES2246795-001	LP_SED_T01_221222	EP080: C6 - C10 Fraction	C6_C10	37.5 mg/kg	88.9	70.0	130
EP080: BTEXN (QCLot: 4801326)							



Sub-Matrix: SOIL

				Matrix Spike (MS) Report				
				Spike Concentration	SpikeRecovery(%) MS	Acceptable Limits (%)		
Laboratory sample ID	Sample ID	Method: Compound	CAS Number	Concentration	MS	Low	High	
EP080: BTEXN (QCLot: 4801326) - continued								
ES2246795-001	LP_SED_T01_221222	EP080: Benzene	71-43-2	2.5 mg/kg	75.6	70.0	130	
		EP080: Toluene	108-88-3	2.5 mg/kg	74.0	70.0	130	
		EP080: Ethylbenzene	100-41-4	2.5 mg/kg	75.6	70.0	130	
		EP080: meta- & para-Xylene	108-38-3	2.5 mg/kg	75.8	70.0	130	
			106-42-3					
		EP080: ortho-Xylene	95-47-6	2.5 mg/kg	77.4	70.0	130	
	EP080: Naphthalene	91-20-3	2.5 mg/kg	80.3	70.0	130		
EP090: Organotin Compounds (QCLot: 4802203)								
ES2246795-002	LP_SED_T02_221222	EP090: Monobutyltin	78763-54-9	1.25 µgSn/kg	44.7	20.0	130	
		EP090: Dibutyltin	1002-53-5	1.25 µgSn/kg	53.5	20.0	130	
		EP090: Tributyltin	56573-85-4	1.25 µgSn/kg	53.2	20.0	130	
EP231A: Perfluoroalkyl Sulfonic Acids (QCLot: 4809721)								
ES2246795-001	LP_SED_T01_221222	EP231X: Perfluorobutane sulfonic acid (PFBS)	375-73-5	0.00125 mg/kg	106	72.0	128	
		EP231X: Perfluoropentane sulfonic acid (PFPeS)	2706-91-4	0.00125 mg/kg	122	73.0	123	
		EP231X: Perfluorohexane sulfonic acid (PFHxS)	355-46-4	0.00125 mg/kg	118	67.0	130	
		EP231X: Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	0.00125 mg/kg	114	70.0	132	
		EP231X: Perfluorooctane sulfonic acid (PFOS)	1763-23-1	0.00125 mg/kg	112	68.0	136	
		EP231X: Perfluorodecane sulfonic acid (PFDS)	335-77-3	0.00125 mg/kg	112	59.0	134	
EP231B: Perfluoroalkyl Carboxylic Acids (QCLot: 4809721)								
ES2246795-001	LP_SED_T01_221222	EP231X: Perfluorobutanoic acid (PFBA)	375-22-4	0.00625 mg/kg	114	71.0	135	
		EP231X: Perfluoropentanoic acid (PFPeA)	2706-90-3	0.00125 mg/kg	126	69.0	132	
		EP231X: Perfluorohexanoic acid (PFHxA)	307-24-4	0.00125 mg/kg	114	70.0	132	
		EP231X: Perfluoroheptanoic acid (PFHpA)	375-85-9	0.00125 mg/kg	116	71.0	131	
		EP231X: Perfluorooctanoic acid (PFOA)	335-67-1	0.00125 mg/kg	121	69.0	133	
		EP231X: Perfluorononanoic acid (PFNA)	375-95-1	0.00125 mg/kg	120	72.0	129	
		EP231X: Perfluorodecanoic acid (PFDA)	335-76-2	0.00125 mg/kg	116	69.0	133	
		EP231X: Perfluoroundecanoic acid (PFUnDA)	2058-94-8	0.00125 mg/kg	107	64.0	136	
		EP231X: Perfluorododecanoic acid (PFDoDA)	307-55-1	0.00125 mg/kg	102	69.0	135	
		EP231X: Perfluorotridecanoic acid (PFTrDA)	72629-94-8	0.00125 mg/kg	116	66.0	139	
		EP231X: Perfluorotetradecanoic acid (PFTeDA)	376-06-7	0.00312 mg/kg	108	69.0	133	
		EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4809721)						
ES2246795-001	LP_SED_T01_221222	EP231X: Perfluorooctane sulfonamide (FOSA)	754-91-6	0.00125 mg/kg	108	67.0	137	
		EP231X: N-Methyl perfluorooctane sulfonamide (MeFOSA)	31506-32-8	0.00312 mg/kg	110	71.6	129	
		EP231X: N-Ethyl perfluorooctane sulfonamide (EtFOSA)	4151-50-2	0.00312 mg/kg	106	69.8	131	
		EP231X: N-Methyl perfluorooctane sulfonamidoethanol (MeFOSE)	24448-09-7	0.00312 mg/kg	105	68.7	130	



Sub-Matrix: **SOIL**

				<i>Matrix Spike (MS) Report</i>			
				<i>Spike</i>	<i>SpikeRecovery(%)</i>	<i>Acceptable Limits (%)</i>	
<i>Laboratory sample ID</i>	<i>Sample ID</i>	<i>Method: Compound</i>	<i>CAS Number</i>	<i>Concentration</i>	<i>MS</i>	<i>Low</i>	<i>High</i>
EP231C: Perfluoroalkyl Sulfonamides (QCLot: 4809721) - continued							
ES2246795-001	LP_SED_T01_221222	EP231X: N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	1691-99-2	0.00312 mg/kg	95.0	65.1	134
		EP231X: N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	0.00125 mg/kg	97.6	63.0	144
		EP231X: N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	0.00125 mg/kg	109	61.0	139
EP231D: (n:2) Fluorotelomer Sulfonic Acids (QCLot: 4809721)							
ES2246795-001	LP_SED_T01_221222	EP231X: 4:2 Fluorotelomer sulfonic acid (4:2 FTS)	757124-72-4	0.00125 mg/kg	128	62.0	145
		EP231X: 6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	0.00125 mg/kg	113	64.0	140
		EP231X: 8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	0.00125 mg/kg	116	65.0	137
		EP231X: 10:2 Fluorotelomer sulfonic acid (10:2 FTS)	120226-60-0	0.00125 mg/kg	116	69.2	143

QA/QC Compliance Assessment to assist with Quality Review

Work Order	: ES2246795	Page	: 1 of 8
Client	: ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Telephone	: +61-2-8784 8555
Project	: 0564417 Kamay Wharf Project	Date Samples Received	: 29-Dec-2022
Site	: ----	Issue Date	: 16-Jan-2023
Sampler	: ----	No. of samples received	: 3
Order number	: ----	No. of samples analysed	: 3

This report is automatically generated by the ALS LIMS through interpretation of the ALS Quality Control Report and several Quality Assurance parameters measured by ALS. This automated reporting highlights any non-conformances, facilitates faster and more accurate data validation and is designed to assist internal expert and external Auditor review. Many components of this report contribute to the overall DQO assessment and reporting for guideline compliance.

Brief method summaries and references are also provided to assist in traceability.

Summary of Outliers

Outliers : Quality Control Samples

This report highlights outliers flagged in the Quality Control (QC) Report.

- **NO Method Blank value outliers occur.**
- **NO Duplicate outliers occur.**
- **NO Laboratory Control outliers occur.**
- **Matrix Spike outliers exist - please see following pages for full details.**
- **For all regular sample matrices, NO surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

- **NO Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

- **NO Quality Control Sample Frequency Outliers exist.**



Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **SOIL**

Compound Group Name	Laboratory Sample ID	Client Sample ID	Analyte	CAS Number	Data	Limits	Comment
Matrix Spike (MS) Recoveries							
EG035T: Total Recoverable Mercury by FIMS	ES2246639--001	Anonymous	Mercury	7439-97-6	58.1 %	70.0-130%	Recovery less than lower data quality objective

Analysis Holding Time Compliance

If samples are identified below as having been analysed or extracted outside of recommended holding times, this should be taken into consideration when interpreting results.

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times (referencing USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for VOC in soils vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EA055: Moisture Content (Dried @ 105-110°C)								
Soil Glass Jar - Unpreserved (EA055) LP_SED_T01_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	----	----	----	05-Jan-2023	05-Jan-2023	✔
EG005(ED093)T: Total Metals by ICP-AES								
Soil Glass Jar - Unpreserved (EG005T) LP_SED_T01_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	20-Jun-2023	✔	06-Jan-2023	20-Jun-2023	✔
EG035T: Total Recoverable Mercury by FIMS								
Soil Glass Jar - Unpreserved (EG035T) LP_SED_T01_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	19-Jan-2023	✔	06-Jan-2023	19-Jan-2023	✔
EP003: Total Organic Carbon (TOC) in Soil								
Pulp Bag (EP003) LP_SED_T01_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	10-Jan-2023	19-Jan-2023	✔	11-Jan-2023	19-Jan-2023	✔
EP068A: Organochlorine Pesticides (OC)								
Soil Glass Jar - Unpreserved (EP068) LP_SED_T01_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	10-Jan-2023	14-Feb-2023	✔
EP068B: Organophosphorus Pesticides (OP)								
Soil Glass Jar - Unpreserved (EP068) LP_SED_T01_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	10-Jan-2023	14-Feb-2023	✔



Matrix: SOIL

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP075(SIM)B: Polynuclear Aromatic Hydrocarbons								
Soil Glass Jar - Unpreserved (EP075(SIM)) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	10-Jan-2023	14-Feb-2023	✔
EP080/071: Total Petroleum Hydrocarbons								
Soil Glass Jar - Unpreserved (EP080) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	05-Jan-2023	05-Jan-2023	✔
Soil Glass Jar - Unpreserved (EP071) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	10-Jan-2023	14-Feb-2023	✔
EP080/071: Total Recoverable Hydrocarbons - NEPM 2013 Fractions								
Soil Glass Jar - Unpreserved (EP080) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	05-Jan-2023	05-Jan-2023	✔
Soil Glass Jar - Unpreserved (EP071) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	10-Jan-2023	14-Feb-2023	✔
EP080: BTEXN								
Soil Glass Jar - Unpreserved (EP080) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	05-Jan-2023	05-Jan-2023	✔
EP090: Organotin Compounds								
Soil Glass Jar - Unpreserved (EP090) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	05-Jan-2023	05-Jan-2023	✔	06-Jan-2023	14-Feb-2023	✔
EP231A: Perfluoroalkyl Sulfonic Acids								
HDPE Soil Jar (EP231X) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	12-Jan-2023	20-Jun-2023	✔	13-Jan-2023	21-Feb-2023	✔
EP231B: Perfluoroalkyl Carboxylic Acids								
HDPE Soil Jar (EP231X) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	12-Jan-2023	20-Jun-2023	✔	13-Jan-2023	21-Feb-2023	✔
EP231C: Perfluoroalkyl Sulfonamides								
HDPE Soil Jar (EP231X) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	12-Jan-2023	20-Jun-2023	✔	13-Jan-2023	21-Feb-2023	✔
EP231D: (n:2) Fluorotelomer Sulfonic Acids								
HDPE Soil Jar (EP231X) LP_SED_T01_221222, LP_SED_T02_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	12-Jan-2023	20-Jun-2023	✔	13-Jan-2023	21-Feb-2023	✔

Page : 4 of 8
 Work Order : ES2246795
 Client : ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)
 Project : 0564417 Kamay Wharf Project



Matrix: **SOIL**

Evaluation: ✖ = Holding time breach ; ✔ = Within holding time.

Method Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis			
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation	
EP231P: PFAS Sums								
HDPE Soil Jar (EP231X) LP_SED_T01_221222, LP_SED_T03_221222	LP_SED_T02_221222,	22-Dec-2022	12-Jan-2023	20-Jun-2023	✔	13-Jan-2023	21-Feb-2023	✔



Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(were) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix: **SOIL**

Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Reaular	Actual	Expected	Evaluation	
Analytical Methods							
Laboratory Duplicates (DUP)							
Moisture Content	EA055	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Organotin Analysis	EP090	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	2	20	10.00	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	2	11	18.18	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	3	33.33	10.00	✓	NEPM 2013 B3 & ALS QC Standard
Laboratory Control Samples (LCS)							
Organotin Analysis	EP090	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	2	17	11.76	10.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Method Blanks (MB)							
Organotin Analysis	EP090	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Metals by ICP-AES	EG005T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Organic Carbon	EP003	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Matrix Spikes (MS)							
Organotin Analysis	EP090	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
PAH/Phenols (SIM)	EP075(SIM)	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	1	17	5.88	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Pesticides by GCMS	EP068	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
Total Mercury by FIMS	EG035T	1	20	5.00	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Matrix: **SOIL** Evaluation: * = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type	Method	Count		Rate (%)			Quality Control Specification
		QC	Regular	Actual	Expected	Evaluation	
<i>Analytical Methods</i>							
Matrix Spikes (MS) - Continued							
Total Metals by ICP-AES	EG005T	1	11	9.09	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH - Semivolatile Fraction	EP071	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard
TRH Volatiles/BTEX	EP080	1	3	33.33	5.00	✓	NEPM 2013 B3 & ALS QC Standard



Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Moisture Content	EA055	SOIL	In house: A gravimetric procedure based on weight loss over a 12 hour drying period at 105-110 degrees C. This method is compliant with NEPM Schedule B(3).
Total Metals by ICP-AES	EG005T	SOIL	In house: Referenced to APHA 3120; USEPA SW 846 - 6010. Metals are determined following an appropriate acid digestion of the soil. The ICPAES technique ionises samples in a plasma, emitting a characteristic spectrum based on metals present. Intensities at selected wavelengths are compared against those of matrix matched standards. This method is compliant with NEPM Schedule B(3)
Total Mercury by FIMS	EG035T	SOIL	In house: Referenced to APHA 3112 Hg - B (Flow-injection (SnCl ₂) (Cold Vapour generation) AAS) FIM-AAS is an automated flameless atomic absorption technique. Mercury in solids are determined following an appropriate acid digestion. Ionic mercury is reduced online to atomic mercury vapour by SnCl ₂ which is then purged into a heated quartz cell. Quantification is by comparing absorbance against a calibration curve. This method is compliant with NEPM Schedule B(3)
Total Organic Carbon	EP003	SOIL	In house C-IR17. Dried and pulverised sample is reacted with acid to remove inorganic Carbonates, then combusted in a furnace in the presence of strong oxidants / catalysts. The evolved (Organic) Carbon (as CO ₂) is automatically measured by infra-red detector.
Pesticides by GCMS	EP068	SOIL	In house: Referenced to USEPA SW 846 - 8270 Extracts are analysed by Capillary GC/MS and quantification is by comparison against an established 5 point calibration curve. This technique is compliant with NEPM Schedule B(3).
TRH - Semivolatile Fraction	EP071	SOIL	In house: Referenced to USEPA SW 846 - 8015 Sample extracts are analysed by Capillary GC/FID and quantified against alkane standards over the range C10 - C40. Compliant with NEPM Schedule B(3).
PAH/Phenols (SIM)	EP075(SIM)	SOIL	In house: Referenced to USEPA SW 846 - 8270. Extracts are analysed by Capillary GC/MS in Selective Ion Mode (SIM) and quantification is by comparison against an established 5 point calibration curve. This method is compliant with NEPM Schedule B(3)
TRH Volatiles/BTEX	EP080	SOIL	In house: Referenced to USEPA SW 846 - 8260. Extracts are analysed by Purge and Trap, Capillary GC/MS. Quantification is by comparison against an established 5 point calibration curve. Compliant with NEPM Schedule B(3) amended.
Organotin Analysis	EP090	SOIL	In house: Referenced to USEPA SW 846 - 8270 Prepared sample extracts are analysed by GC/MS coupled with high volume injection, and quantified against an established calibration curve.
Per- and Polyfluoroalkyl Substances (PFAS) by LCMSMS	EP231X	SOIL	In-house: Analysis of soils by solvent extraction followed by LC-Electrospray-MS-MS, Negative Mode using MRM using internal standard quantitation. Isotopically labelled analogues of target analytes used as internal standards and surrogates are added to a portion of soil which is then extracted with MTBE and an ion pairing reagent. A portion of extract is exchanged into the analytical solvent mixture, combined with an equal volume reagent water and filtered for analysis. Method procedures and data quality objectives conform to US DoD QSM 5.3, table B-15 requirements.

Preparation Methods	Method	Matrix	Method Descriptions
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<i>Preparation Methods</i>	<i>Method</i>	<i>Matrix</i>	<i>Method Descriptions</i>
Hot Block Digest for metals in soils sediments and sludges	EN69	SOIL	In house: Referenced to USEPA 200.2. Hot Block Acid Digestion 1.0g of sample is heated with Nitric and Hydrochloric acids, then cooled. Peroxide is added and samples heated and cooled again before being filtered and bulked to volume for analysis. Digest is appropriate for determination of selected metals in sludge, sediments, and soils. This method is compliant with NEPM Schedule B(3).
Dry and Pulverise (up to 100g)	GEO30	SOIL	#
Methanolic Extraction of Soils for Purge and Trap	ORG16	SOIL	In house: Referenced to USEPA SW 846 - 5030A. 5g of solid is shaken with surrogate and 10mL methanol prior to analysis by Purge and Trap - GC/MS.
Tumbler Extraction of Solids	ORG17	SOIL	In house: Mechanical agitation (tumbler). 10g of sample, Na2SO4 and surrogate are extracted with 30mL 1:1 DCM/Acetone by end over end tumble. The solvent is decanted, dehydrated and concentrated (by KD) to the desired volume for analysis.
Organotin Sample Preparation	ORG35	SOIL	In house: 20g sample is spiked with surrogate and leached in a methanol:acetic acid:UHP water mix and vacuum filtered. Reagents and solvents are added to the sample and the mixture tumbled. The butyltin compounds are simultaneously derivatised and extracted. The extract is further extracted with petroleum ether. The resultant extracts are combined and concentrated for analysis.
QuEChERS Extraction of Solids	ORG71	SOIL	In house: Sequential extractions with Acetonitrile/Methanol by shaking. Extraction efficiency aided by the addition of salts under acidic conditions. Where relevant, interferences from co-extracted organics are removed with dispersive clean-up media (dSPE). The extract is either diluted or concentrated and exchanged into the analytical solvent.



SAMPLE RECEIPT NOTIFICATION (SRN)

Work Order : ES2246795

Client	: ENVIRONMENTAL RESOURCES MANAGEMENT (ERM)	Laboratory	: Environmental Division Sydney
Contact	: MR JOSEPH FERRING	Contact	: Sarah Mathew
Address	: LEVEL 15 309 KENT STREET SYDNEY NSW AUSTRALIA 2000	Address	: 277-289 Woodpark Road Smithfield NSW Australia 2164
E-mail	: joseph.ferring@erm.com	E-mail	: sarah.mathew@alsglobal.com
Telephone	: +61 02 8584 8888	Telephone	: +61-2-8784 8555
Facsimile	: +61 02 8584 8800	Facsimile	: +61-2-8784 8500
Project	: 0564417 Kamay Wharf Project	Page	: 1 of 2
Order number	: ----	Quote number	: EP2020ENVRES0018 (EN/114)
C-O-C number	: ----	QC Level	: NEPM 2013 B3 & ALS QC Standard
Site	: ----		
Sampler	:		

Dates

Date Samples Received	: 29-Dec-2022 11:30	Issue Date	: 04-Jan-2023
Client Requested Due Date	: 16-Jan-2023	Scheduled Reporting Date	: 16-Jan-2023

Delivery Details

Mode of Delivery	: Undefined	Security Seal	: Intact.
No. of coolers/boxes	: 1	Temperature	: 13.4' C - Ice Bricks present
Receipt Detail	:	No. of samples received / analysed	: 3 / 3

General Comments

- This report contains the following information:
 - Sample Container(s)/Preservation Non-Compliances
 - Summary of Sample(s) and Requested Analysis
 - Proactive Holding Time Report
 - Requested Deliverables
- **Unable to conduct Grain size analysis due to bag was not supplied.**
- **Please refer to the Proactive Holding Time Report table below which summarises breaches of recommended holding times that have occurred prior to samples/instructions being received at the laboratory. The laboratory will process these samples unless instructions are received from you indicating you do not wish to proceed. The absence of this summary table indicates that all samples have been received within the recommended holding times for the analysis requested.**
- **Sample(s) requiring volatile organic compound analysis received in airtight containers (ZHE).**
- **TBT and TOC analysis will be conducted by ALS Brisbane.**
- Please direct any queries you have regarding this work order to the above ALS laboratory contact.
- Analytical work for this work order will be conducted at ALS Sydney.
- Sample Disposal - Aqueous (3 weeks), Solid (2 months ± 1 week) from receipt of samples.
- Please be aware that APHA/NEPM recommends water and soil samples be chilled to less than or equal to 6°C for chemical analysis, and less than or equal to 10°C but unfrozen for Microbiological analysis. Where samples are received above this temperature, it should be taken into consideration when interpreting results. Refer to ALS EnviroMail 85 for ALS recommendations of the best practice for chilling samples after sampling and for maintaining a cool temperature during transit.



mgt



SYDNEY

Unit F3 - 6 Building F, 16 Mars Road, Lane Cove
Phone: +612 9900 8400
Email: EnviroSampleNSW@eurofins.com.au

BRISBANE

Unit 1-21 Smallwood Place, Murrarie
Phone: +617 3902 4600
Email: EnviroSampleQLD@eurofins.com.au

MELBOURNE

2 Kingston Town Close, Oakleigh, VIC 3166
Phone: +613 8564 5000 Fax: +613 8564 5090
Email: EnviroSampleVic@eurofins.com.au

CHAIN OF CUSTODY RECORD

Company Name* : Environmental Resources Management (ERM)		Contact Name* : Indiana Strachan		Purchase Order :		COC Number :																																																			
Office Address* : Level 14, 207 Kent Street, Sydney NSW 2000		Project Manager : Joseph Ferring		Project Number : 0564417		Quote ID* :																																																			
Special Directions & Comments :		Email for Results* : indiana.strachan@erm.com ; joseph.fering@erm.com ; ian.batterley@erm.com		Project Name : Kamay Wharf Project		Data Output Format* : <i>ostat lequios</i> Excel																																																			
Please send the following to ALS for analysis: <i>LP-SED-T01 - 221222</i> <i>LP-SED-T02 - 221222</i> <i>LP-SED-T03 - 221222.</i> Eurofins mgt DI Water Batch Number :		Analytes* :						Some common holding times (with correct preservation) - For further information contact the lab																																																	
		<table border="1"> <tr><td>TRH</td><td>BTEXN</td><td>Heavy metals and metalloids (15)</td><td>PAHs</td><td>OC/OP</td><td>TBT</td><td>DBT</td><td>MDT</td><td>PFAS (30)</td><td>Total organic carbon</td><td>Grain size analysis</td><td>HOLD</td></tr> </table>						TRH	BTEXN	Heavy metals and metalloids (15)	PAHs	OC/OP	TBT	DBT	MDT	PFAS (30)	Total organic carbon	Grain size analysis	HOLD	<table border="1"> <tr><th colspan="2">Waters</th><th colspan="2">Soils</th></tr> <tr><td>BTEX, MAH, VOC</td><td>14 days</td><td>BTEX, MAH, VOC</td><td>14 days</td></tr> <tr><td>TRH, PAH, Phenols, Pesticides</td><td>7 days</td><td>TRH, PAH, Phenols, Pesticides</td><td>14 days</td></tr> <tr><td>Heavy Metals</td><td>6 months</td><td>Heavy Metals</td><td>6 months</td></tr> <tr><td>Mercury, CrVI</td><td>28 days</td><td>Mercury, CrVI</td><td>28 days</td></tr> <tr><td>Microbiological testing</td><td>24 hours</td><td>Microbiological testing</td><td>72 hours</td></tr> <tr><td>BOD, Nitrate, Nitrite, Total N</td><td>2 days</td><td>Anions</td><td>28 days</td></tr> <tr><td>Solids - TSS, TDS etc</td><td>7 days</td><td>SPOCAS, pH Field and FOX, CrS</td><td>24 hours</td></tr> <tr><td>Ferrous iron</td><td>7 days</td><td>ASLP, TCLP</td><td>7 days</td></tr> </table>				Waters		Soils		BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days	TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days	Heavy Metals	6 months	Heavy Metals	6 months	Mercury, CrVI	28 days	Mercury, CrVI	28 days	Microbiological testing	24 hours	Microbiological testing	72 hours	BOD, Nitrate, Nitrite, Total N	2 days	Anions	28 days	Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours	Ferrous iron	7 days
TRH	BTEXN	Heavy metals and metalloids (15)	PAHs	OC/OP	TBT	DBT	MDT	PFAS (30)	Total organic carbon	Grain size analysis	HOLD																																														
Waters		Soils																																																							
BTEX, MAH, VOC	14 days	BTEX, MAH, VOC	14 days																																																						
TRH, PAH, Phenols, Pesticides	7 days	TRH, PAH, Phenols, Pesticides	14 days																																																						
Heavy Metals	6 months	Heavy Metals	6 months																																																						
Mercury, CrVI	28 days	Mercury, CrVI	28 days																																																						
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Solids - TSS, TDS etc	7 days	SPOCAS, pH Field and FOX, CrS	24 hours																																																						
Ferrous iron	7 days	ASLP, TCLP	7 days																																																						
Sample ID* :		Date :		Matrix* :		Containers* :						Comments																																													
500P		250P		125P		200A		40mL vial		500 PFAS		<i>500PFAS</i> <i>500</i>																																													
1	<i>LP-ELOS - 0.4</i>	<i>22/12</i>	<i>S</i>	<i>[Handwritten marks]</i>						<i>X</i>																																															
2	<i>LP-ELOS - 0.75</i>			<i>[Handwritten marks]</i>						<i>X</i>																																															
3	<i>LP-SFD06 - 0.0</i>			<i>[Handwritten marks]</i>																																																					
4	<i>LP-SFD06 - 0.5</i>			<i>[Handwritten marks]</i>																																																					
5	<i>LP-SFD06 - 1.0</i>			<i>[Handwritten marks]</i>																																																					
6	<i>LP-ELO6 - 0.0</i>			<i>[Handwritten marks]</i>						<i>X</i>																																															
7	<i>LP-ELO6 - 0.5</i>			<i>[Handwritten marks]</i>						<i>X</i>																																															
8	<i>LP-ELO6 - 1.0</i>			<i>[Handwritten marks]</i>						<i>X</i>																																															
9	<i>LP-SED-D01-221222</i>			<i>[Handwritten marks]</i>																																																					
10	<i>LP-SED-D07-221222</i>			<i>[Handwritten marks]</i>																																																					
11	<i>LP-SED-D03-221222</i>			<i>[Handwritten marks]</i>																																																					
12	<i>LP-SED-T01 - 221222</i>			<i>[Handwritten marks]</i>																																																					
13	<i>LP-SED-T02 - 221222</i>			<i>[Handwritten marks]</i>								<i>send to ALS</i>																																													
14	<i>LP-SED-T03 - 221222</i>			<i>[Handwritten marks]</i>								<i>send to ALS</i>																																													
15				<i>[Handwritten marks]</i>								<i>send to ALS</i>																																													
16				<i>[Handwritten marks]</i>																																																					
Relinquished By* : <i>Indiana Strachan</i>		Received By :		Turn Around Time :		Method Of Shipment :		Temperature on Arrival :																																																	
Date & Time* : <i>22/12/22</i>		Date & Time :		1 DAY <input type="checkbox"/> 2 DAY <input type="checkbox"/> 3 DAY <input type="checkbox"/>		Hand Delivered <input type="checkbox"/>																																																			
Signature* : <i>[Signature]</i>		Signature :		5 DAY <input checked="" type="checkbox"/> 10 DAY <input type="checkbox"/>		Courier <input checked="" type="checkbox"/>		Report Number :																																																	
				Other: <input type="checkbox"/>		Courier Consignment # :																																																			

1
2
3

Thank u
29/12/22 1130



REPORT OF ANALYSIS

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street	Job No. : ENV1194/230113 Quote No. : QT-02232 Order No. : Date Received : 13-JAN-2023 Sampled By : CLIENT
Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Phone : (02) 94490161

Lab Reg No.	Sample Ref	Sample Description
N23/000750	S22-DE0050127	SEDIMENTS ERM FIELD_ID K_SED01_0.0 16/12/22
N23/000751	S22-DE0050128	SEDIMENTS ERM FIELD_ID K_SED01_0.5 16/12/22
N23/000752	S22-DE0050129	SEDIMENTS ERM FIELD_ID K_SED01_1.0 16/12/22
N23/000753	S22-DE0050130	SEDIMENTS ERM FIELD_ID K_SED_D01_22 126 16/12/22

Lab Reg No.		N23/000750	N23/000751	N23/000752	N23/000753	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005012	S22-DE005013	
	Units					Method
Organotins						
Monobutyltin as Sn	ng/g	0.71	<0.5	1.0	1.8	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	116	113	105	112	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	101	94	95	93	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19

REPORT OF ANALYSIS

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Report No. RN1379931

Lab Reg No.		N23/000750	N23/000751	N23/000752	N23/000753	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005012	S22-DE005013	
	Units					Method
PCB Congeners						
PCB # 118	ug/kg	<2	<2	<2	<2	NR_19
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	<2	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



Luke Baker, Analyst
Organics - NSW
Accreditation No. 198

27-JAN-2023

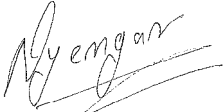
Lab Reg No.		N23/000750	N23/000751	N23/000752	N23/000753	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005012	S22-DE005013	
	Units					Method
Trace Elements						
Total Solids	%	71.7	69.9	71.0	71.7	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	

REPORT OF ANALYSIS

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Report No. RN1379931

Lab Reg No.		N23/000750	N23/000751	N23/000752	N23/000753	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005012	S22-DE005013	
	Units					Method



Neela Iyengar, Analyst
Inorganics - NSW
Accreditation No. 198

27-JAN-2023

REPORT OF ANALYSIS

Page: 4 of 17

Report No. RN1379931

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230113 Quote No. : QT-02232 Order No. : Date Received : 13-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
--	--

Lab Reg No.	Sample Ref	Sample Description
N23/000754	S22-DE0050118	SEDIMENTS ERM FIELD_ID K_SEDO2_0.0 16/12/22
N23/000755	S22-DE0050119	SEDIMENTS ERM FIELD_ID K_SEDO2_0.5 16/12/22
N23/000756	S22-DE0050120	SEDIMENTS ERM FIELD_ID K_SEDO2_1.0 16/12/22
N23/000757	S22-DE0050124	SEDIMENTS ERM FIELD_ID K_SEDO3_0.0 16/12/22

Lab Reg No.	Units	N23/000754	N23/000755	N23/000756	N23/000757	Method
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005012	S22-DE005012	
Organotins						
Monobutyltin as Sn	ng/g	<0.5	1.0	<0.5	0.65	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	113	119	99	108	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	93	87	103	85	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	<2	<2	<2	NR_19

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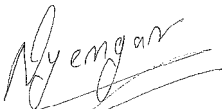
Lab Reg No.		N23/000754	N23/000755	N23/000756	N23/000757	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005012	S22-DE005012	
	Units					Method
PCB Congeners						
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	<2	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



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Lab Reg No.		N23/000754	N23/000755	N23/000756	N23/000757	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005012	S22-DE005012	
	Units					Method
Trace Elements						
Total Solids	%	71.6	70.4	70.0	73.8	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	



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Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230113 Quote No. : QT-02232 Order No. : Date Received : 13-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
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Lab Reg No.	Sample Ref	Sample Description
N23/000758	S22-DE0050125	SEDIMENTS ERM FIELD_ID K_SEDO3_0.5 16/12/22
N23/000759	S22-DE0050126	SEDIMENTS ERM FIELD_ID K_SEDO3_1.0 16/12/22
N23/000760	S22-DE0050131	SEDIMENTS ERM FIELD_ID K_SED_D02_22 126 16/12/22
N23/000761	S22-DE0050132	SEDIMENTS ERM FIELD_ID K_SED_D03_22 126 16/12/22

Lab Reg No.	Units	N23/000758	N23/000759	N23/000760	N23/000761	Method
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005013	S22-DE005013	
Organotins						
Monobutyltin as Sn	ng/g	0.85	0.95	0.78	1.8	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	112	107	105	110	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	89	83	105	92	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	2.0	<2	<2	NR_19

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Lab Reg No.		N23/000758	N23/000759	N23/000760	N23/000761	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005013	S22-DE005013	
	Units					Method
PCB Congeners						
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	2.0	<2	<2	NR_19
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	4.1	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



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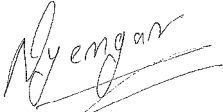
Lab Reg No.		N23/000758	N23/000759	N23/000760	N23/000761	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005013	S22-DE005013	
	Units					Method
Trace Elements						
Total Solids	%	71.4	70.3	73.1	69.1	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	

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Lab Reg No.		N23/000758	N23/000759	N23/000760	N23/000761	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005013	S22-DE005013	
	Units					Method



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Report No. RN1379931

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230113 Quote No. : QT-02232 Order No. : Date Received : 13-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
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Lab Reg No.	Sample Ref	Sample Description
N23/000762	S22-DE0050121	SEDIMENTS ERM FIELD_ID K_SEDO4_0.0 16/12/22
N23/000763	S22-DE0050122	SEDIMENTS ERM FIELD_ID K_SEDO4_0.5 16/12/22
N23/000764	S22-DE0050123	SEDIMENTS ERM FIELD_ID K_SEDO4_1.0 16/12/22
N23/000765	S22-DE0050115	SEDIMENTS ERM FIELD_ID K_SEDO5_0.0 16/12/22

Lab Reg No.	Units	N23/000762	N23/000763	N23/000764	N23/000765	Method
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005012	S22-DE005011	
Organotins						
Monobutyltin as Sn	ng/g	0.68	0.92	0.64	<0.5	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	110	106	103	96	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	100	99	96	110	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	<2	<2	<2	NR_19

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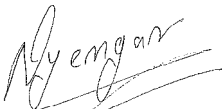
Lab Reg No.		N23/000762	N23/000763	N23/000764	N23/000765	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005012	S22-DE005011	
	Units					Method
PCB Congeners						
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	<2	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



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Lab Reg No.		N23/000762	N23/000763	N23/000764	N23/000765	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005012	S22-DE005012	S22-DE005012	S22-DE005011	
	Units					Method
Trace Elements						
Total Solids	%	70.2	70.2	65.6	71.1	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	



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Report No. RN1379931

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230113 Quote No. : QT-02232 Order No. : Date Received : 13-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
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Lab Reg No.	Sample Ref	Sample Description
N23/000766	S22-DE0050116	SEDIMENTS ERM FIELD_ID K_SEDO5_0.4 16/12/22
N23/000767	S22-DE0050117	SEDIMENTS ERM FIELD_ID K_SEDO5_0.75 16/12/22
N23/000768	S22-DE0050106	SEDIMENTS ERM FIELD_ID K_SEDO6_0.0 16/12/22
N23/000769	S22-DE0050107	SEDIMENTS ERM FIELD_ID K_SEDO6_0.5 16/12/22

Lab Reg No.	Units	N23/000766	N23/000767	N23/000768	N23/000769	Method
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005010	S22-DE005010	
Organotins						
Monobutyltin as Sn	ng/g	1.6	1.4	<0.5	1.2	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	102	106	106	100	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	110	110	106	110	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	<2	<2	<2	NR_19

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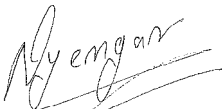
Lab Reg No.		N23/000766	N23/000767	N23/000768	N23/000769	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005010	S22-DE005010	
	Units					Method
PCB Congeners						
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	<2	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



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Lab Reg No.		N23/000766	N23/000767	N23/000768	N23/000769	
Date Sampled		16-DEC-2022	16-DEC-2022	16-DEC-2022	16-DEC-2022	
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005010	S22-DE005010	
	Units					Method
Trace Elements						
Total Solids	%	72.8	71.1	73.6	71.9	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	



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Inorganics - NSW
Accreditation No. 198

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Report No. RN1379931

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230113 Quote No. : QT-02232 Order No. : Date Received : 13-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
--	--

Lab Reg No.	Sample Ref	Sample Description
N23/000770	S22-DE0050108	SEDIMENTS ERM FIELD_ID K_SEDO6_1.0 16/12/22
N23/000771	S22-DE0050109	SEDIMENTS ERM FIELD_ID LP_SED02_0.0 15/12/22
N23/000772	S22-DE0050110	SEDIMENTS ERM FIELD_ID LP_SED02_0.5 15/12/22
N23/000773	S22-DE0050111	SEDIMENTS ERM FIELD_ID LP_SED02_1.0 15/12/22

Lab Reg No.	Units	N23/000770	N23/000771	N23/000772	N23/000773	Method
Date Sampled		16-DEC-2022	15-DEC-2022	15-DEC-2022	15-DEC-2022	
Sample Reference		S22-DE005010	S22-DE005010	S22-DE005011	S22-DE005011	
Organotins						
Monobutyltin as Sn	ng/g	<0.5	1.1	2.2	0.97	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	104	107	116	90	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	99	97	91	108	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	<2	<2	<2	NR_19

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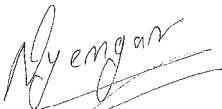
Lab Reg No.		N23/000770	N23/000771	N23/000772	N23/000773	
Date Sampled		16-DEC-2022	15-DEC-2022	15-DEC-2022	15-DEC-2022	
Sample Reference		S22-DE005010	S22-DE005010	S22-DE005011	S22-DE005011	
	Units					Method
PCB Congeners						
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	<2	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



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Lab Reg No.		N23/000770	N23/000771	N23/000772	N23/000773	
Date Sampled		16-DEC-2022	15-DEC-2022	15-DEC-2022	15-DEC-2022	
Sample Reference		S22-DE005010	S22-DE005010	S22-DE005011	S22-DE005011	
	Units					Method
Trace Elements						
Total Solids	%	74.5	70.5	70.9	80.1	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	



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Report No. RN1379931

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230113 Quote No. : QT-02232 Order No. : Date Received : 13-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
--	--

Lab Reg No.	Sample Ref	Sample Description
N23/000774	S22-DE0050112	SEDIMENTS ERM FIELD_ID LP_SED03_0.0 15/12/22
N23/000775	S22-DE0050113	SEDIMENTS ERM FIELD_ID LP_SED03_0.5 15/12/22
N23/000776	S22-DE0050114	SEDIMENTS ERM FIELD_ID LP_SED03_1.0 15/12/22

Lab Reg No.	Units	N23/000774	N23/000775	N23/000776	Method
Date Sampled		15-DEC-2022	15-DEC-2022	15-DEC-2022	
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005011	
Organotins					
Monobutyltin as Sn	ng/g	0.67	0.78	2.4	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	100	109	104	NR_35
Organochlorine (OC) Pesticides					
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	97	92	91	NR_19
PCB Congeners					
PCB # 8	ug/kg	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	<2	<2	NR_19
PCB # 126	ug/kg	<2	<2	<2	NR_19

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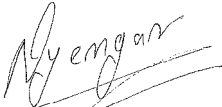
Lab Reg No.		N23/000774	N23/000775	N23/000776		
Date Sampled		15-DEC-2022	15-DEC-2022	15-DEC-2022		
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005011		
	Units					Method
PCB Congeners						
PCB # 128	ug/kg	<2	<2	<2		NR_19
PCB # 138	ug/kg	<2	<2	<2		NR_19
PCB # 153	ug/kg	<2	<2	<2		NR_19
PCB # 169	ug/kg	<2	<2	<2		NR_19
PCB # 170	ug/kg	<2	<2	<2		NR_19
PCB # 180	ug/kg	<2	<2	<2		NR_19
PCB # 187	ug/kg	<2	<2	<2		NR_19
PCB # 195	ug/kg	<2	<2	<2		NR_19
PCB # 206	ug/kg	<2	<2	<2		NR_19
PCB # 209	ug/kg	<2	<2	<2		NR_19
Total PCB	ug/kg	<2	<2	<2		NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023		
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023		



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Lab Reg No.		N23/000774	N23/000775	N23/000776		
Date Sampled		15-DEC-2022	15-DEC-2022	15-DEC-2022		
Sample Reference		S22-DE005011	S22-DE005011	S22-DE005011		
	Units					Method
Trace Elements						
Total Solids	%	78.2	78.0	77.2		NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023		
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023		



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All results are expressed on a dry weight basis.



WORLD RECOGNISED
ACCREDITATION

Accredited for compliance with ISO/IEC 17025 - Testing.
This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

This Report supersedes reports: *RN1379503* *RN1379901* *RN1379926*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.

Chemical Accreditation 198: 105 Delhi Road, North Ryde, NSW, 2113



REPORT OF ANALYSIS

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street	Job No. : ENV1194/230116
Attention : JOE FERRING	Quote No. : QT-02232
Project Name : SITE KAMAY WHARF 0564417	Order No. :
Your Client Services Manager : Ilona Narouta	Date Received : 16-JAN-2023
	Sampled By : CLIENT
	Phone : (02) 94490161

Lab Reg No.	Sample Ref	Sample Description
N23/000820	S22-DE0056924	SOIL LP-SED01-0.0
N23/000821	S22-DE0056925	SOIL LP-SED01-0.5
N23/000822	S22-DE0056926	SOIL LP-SED01-1.0
N23/000823	S22-DE0056927	SOIL LP-SED04-0

Lab Reg No.		N23/000820	N23/000821	N23/000822	N23/000823	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
Organotins						
Monobutyltin as Sn	ng/g	<0.5	0.81	<0.5	0.76	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	113	110	107	118	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	135	120	115	127	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	<2	<2	<2	NR_19

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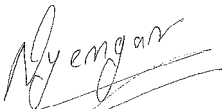
Lab Reg No.		N23/000820	N23/000821	N23/000822	N23/000823	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
PCB Congeners						
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	<2	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



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Lab Reg No.		N23/000820	N23/000821	N23/000822	N23/000823	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
Trace Elements						
Total Solids	%	73.0	77.3	82.1	71.4	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	



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Report No. RN1379937

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230116 Quote No. : QT-02232 Order No. : Date Received : 16-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
--	--

Lab Reg No.	Sample Ref	Sample Description
N23/000824	S22-DE0056928	SOIL LP-SED04-0.5
N23/000825	S22-DE0056929	SOIL LP-SED04-1
N23/000826	S22-DE0056930	SOIL LP-SED05-0
N23/000827	S22-DE0056931	SOIL LP-SED05-0.4

Lab Reg No.		N23/000824	N23/000825	N23/000826	N23/000827	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
Organotins						
Monobutyltin as Sn	ng/g	1.2	1.5	0.61	1.2	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	0.55	NR_35
Surrogate: Tripropyltin	%REC	120	115	112	112	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	118	119	114	101	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	<2	<2	<2	NR_19

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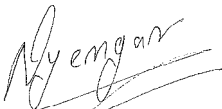
Lab Reg No.		N23/000824	N23/000825	N23/000826	N23/000827	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
PCB Congeners						
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	<2	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



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Lab Reg No.		N23/000824	N23/000825	N23/000826	N23/000827	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
Trace Elements						
Total Solids	%	76.7	76.2	70.7	74.1	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	



Neela Iyengar, Analyst
Inorganics - NSW
Accreditation No. 198

27-JAN-2023

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REPORT OF ANALYSIS

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Report No. RN1379937

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230116 Quote No. : QT-02232 Order No. : Date Received : 16-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
--	--

Lab Reg No.	Sample Ref	Sample Description
N23/000828	S22-DE0056932	SOIL LP-SED05-0.75
N23/000829	S22-DE0056933	SOIL LP-SED06-0
N23/000830	S22-DE0056934	SOIL LP-SED06-0.5
N23/000831	S22-DE0056935	SOIL LP-SED06-1

Lab Reg No.		N23/000828	N23/000829	N23/000830	N23/000831	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
Organotins						
Monobutyltin as Sn	ng/g	1.6	1.4	1.1	0.96	NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	<0.5	<0.5	NR_35
Surrogate: Tripropyltin	%REC	125	125	113	98	NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009	<0.0009	NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001	<0.001	NR_19
Surrogate: DF-DDE	%REC	127	109	114	107	NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2	<2	NR_19
PCB # 18	ug/kg	<2	<2	<2	<2	NR_19
PCB # 28	ug/kg	<2	<2	<2	<2	NR_19
PCB # 44	ug/kg	<2	<2	<2	<2	NR_19
PCB # 52	ug/kg	<2	<2	<2	<2	NR_19
PCB # 66	ug/kg	<2	<2	<2	<2	NR_19
PCB # 77	ug/kg	<2	<2	<2	<2	NR_19
PCB # 101	ug/kg	<2	<2	<2	<2	NR_19
PCB # 105	ug/kg	<2	<2	<2	<2	NR_19
PCB # 118	ug/kg	<2	<2	<2	<2	NR_19

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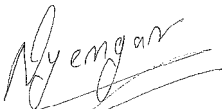
Lab Reg No.		N23/000828	N23/000829	N23/000830	N23/000831	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
PCB Congeners						
PCB # 126	ug/kg	<2	<2	<2	<2	NR_19
PCB # 128	ug/kg	<2	<2	<2	<2	NR_19
PCB # 138	ug/kg	<2	<2	<2	<2	NR_19
PCB # 153	ug/kg	<2	<2	<2	<2	NR_19
PCB # 169	ug/kg	<2	<2	<2	<2	NR_19
PCB # 170	ug/kg	<2	<2	<2	<2	NR_19
PCB # 180	ug/kg	<2	<2	<2	<2	NR_19
PCB # 187	ug/kg	<2	<2	<2	<2	NR_19
PCB # 195	ug/kg	<2	<2	<2	<2	NR_19
PCB # 206	ug/kg	<2	<2	<2	<2	NR_19
PCB # 209	ug/kg	<2	<2	<2	<2	NR_19
Total PCB	ug/kg	<2	<2	<2	<2	NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023	24-JAN-2023	



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Lab Reg No.		N23/000828	N23/000829	N23/000830	N23/000831	
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022	22-DEC-2022	
	Units					Method
Trace Elements						
Total Solids	%	70.5	77.9	71.5	81.1	NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023	20-JAN-2023	
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023	23-JAN-2023	



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Report No. RN1379937

Client : Environmental Resources Management Australia Pty L Level 14 207 Kent Street Attention : JOE FERRING Project Name : SITE KAMAY WHARF 0564417 Your Client Services Manager : Ilona Narouta	Job No. : ENV1194/230116 Quote No. : QT-02232 Order No. : Date Received : 16-JAN-2023 Sampled By : CLIENT Phone : (02) 94490161
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Lab Reg No.	Sample Ref	Sample Description
N23/000832	S22-DE0056936	SOIL LP-SED-D01-221222
N23/000833	S22-DE0056937	SOIL LP-SED-D02-221222
N23/000834	S22-DE0056938	SOIL LP-SED-D03-221222

Lab Reg No.		N23/000832	N23/000833	N23/000834		
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022		
	Units					Method
Organotins						
Monobutyltin as Sn	ng/g	1.0	1.2	1.1		NR_35
Dibutyltin as Sn	ng/g	<0.5	<0.5	<0.5		NR_35
Tributyltin as Sn	ng/g	<0.5	<0.5	0.78		NR_35
Surrogate: Tripropyltin	%REC	114	114	119		NR_35
Organochlorine (OC) Pesticides						
gamma-BHC (Lindane)	mg/kg	<0.0009	<0.0009	<0.0009		NR_19
trans-Chlordane	mg/kg	<0.001	<0.001	<0.001		NR_19
cis-Chlordane	mg/kg	<0.001	<0.001	<0.001		NR_19
Dieldrin	mg/kg	<0.001	<0.001	<0.001		NR_19
pp-DDE	mg/kg	<0.001	<0.001	<0.001		NR_19
pp-DDD	mg/kg	<0.001	<0.001	<0.001		NR_19
pp-DDT	mg/kg	<0.001	<0.001	<0.001		NR_19
Endrin	mg/kg	<0.001	<0.001	<0.001		NR_19
Endrin Aldehyde	mg/kg	<0.001	<0.001	<0.001		NR_19
Endrin Ketone	mg/kg	<0.001	<0.001	<0.001		NR_19
Surrogate: DF-DDE	%REC	125	115	117		NR_19
PCB Congeners						
PCB # 8	ug/kg	<2	<2	<2		NR_19
PCB # 18	ug/kg	<2	<2	<2		NR_19
PCB # 28	ug/kg	<2	<2	<2		NR_19
PCB # 44	ug/kg	<2	<2	<2		NR_19
PCB # 52	ug/kg	<2	<2	<2		NR_19
PCB # 66	ug/kg	<2	<2	<2		NR_19
PCB # 77	ug/kg	<2	<2	<2		NR_19
PCB # 101	ug/kg	<2	<2	<2		NR_19
PCB # 105	ug/kg	<2	<2	<2		NR_19
PCB # 118	ug/kg	<2	<2	<2		NR_19
PCB # 126	ug/kg	<2	<2	<2		NR_19

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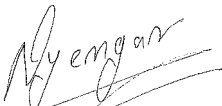
Lab Reg No.		N23/000832	N23/000833	N23/000834		
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022		
	Units					Method
PCB Congeners						
PCB # 128	ug/kg	<2	<2	<2		NR_19
PCB # 138	ug/kg	<2	<2	<2		NR_19
PCB # 153	ug/kg	<2	<2	<2		NR_19
PCB # 169	ug/kg	<2	<2	<2		NR_19
PCB # 170	ug/kg	<2	<2	<2		NR_19
PCB # 180	ug/kg	<2	<2	<2		NR_19
PCB # 187	ug/kg	<2	<2	<2		NR_19
PCB # 195	ug/kg	<2	<2	<2		NR_19
PCB # 206	ug/kg	<2	<2	<2		NR_19
PCB # 209	ug/kg	<2	<2	<2		NR_19
Total PCB	ug/kg	<2	<2	<2		NR_19
Dates						
Date extracted		23-JAN-2023	23-JAN-2023	23-JAN-2023		
Date analysed		24-JAN-2023	24-JAN-2023	24-JAN-2023		



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27-JAN-2023

Lab Reg No.		N23/000832	N23/000833	N23/000834		
Date Sampled		22-DEC-2022	22-DEC-2022	22-DEC-2022		
	Units					Method
Trace Elements						
Total Solids	%	73.3	74.3	67.5		NT2_49
Dates						
Date extracted		20-JAN-2023	20-JAN-2023	20-JAN-2023		
Date analysed		23-JAN-2023	23-JAN-2023	23-JAN-2023		



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27-JAN-2023

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All results are expressed on a dry weight basis.



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ACCREDITATION

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This report shall not be reproduced except in full.
Results relate only to the sample(s) as received and tested.

This Report supersedes reports: *RN1379505* *RN1379925*

Measurement Uncertainty is available upon request.

Note: Sampling date(s) have been provided by the client.

Chemical Accreditation 198: 105 Delhi Road, North Ryde, NSW, 2113

APPENDIX G CALIBRATION CERTIFICATES



Air-Met Scientific Pty Ltd
1300 137 067

Multi Parameter Water Meter

Instrument **YSI Quatro Pro Plus**
Serial No. **20M101178**

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

Certificate of Calibration

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

Sensor	Serial no	Standard Solutions	Certified	Solution Bottle Number	Instrument Reading
2. pH 7.00		pH 7.00		386467	pH 7.01
3. pH 4.00		pH 4.00		389384	pH 4.05
4. mV		237.8mV		393734/393728	237.7mV
5. EC		2.76mS		385789	2.75mS
6. D.O		0ppm		12110	0.01ppm
7. Temp		21°C		MultiTherm	21°C

Calibrated by: Sarah Lian

Calibration date: 14/12/2022

Next calibration due: 13/01/2023

PID Calibration Certificate

Instrument **PhoCheck Tiger**
 Serial No. **T-105901**



Air-Met Scientific Pty Ltd
 1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump		✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm	N/A	N/A
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation					
Other tests:						

Certificate of Calibration

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

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No		Instrument Reading
PID Lamp		94ppm Isobutylene	NATA	SY506		94.3ppm

Calibrated by: Izack Muhlbock

Calibration date: **18/12/2022**

Next calibration due: **17/01/2023**

PID Calibration Certificate



Instrument **PhoCheck Tiger**
 Serial No. **T-114169**

Air-Met Scientific Pty Ltd
 1300 137 067

Item	Test	Pass	Comments			
Battery	Charge Condition	✓				
	Fuses	✓				
	Capacity	✓				
	Recharge OK?	✓				
Switch/keypad	Operation	✓				
Display	Intensity	✓				
	Operation (segments)	✓				
Grill Filter	Condition	✓				
	Seal	✓				
Pump	Operation	✓				
	Filter	✓				
	Flow	✓				
	Valves, Diaphragm	✓				
PCB	Condition	✓				
Connectors	Condition	✓				
Sensor	PID	✓	10.6 ev			
Alarms	Beeper	✓	Low	High	TWA	STEL
	Settings	✓	50ppm	100ppm		
Software	Version	✓				
Data logger	Operation	✓				
Download	Operation	✓				
Other tests:						

Certificate of Calibration

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

Diffusion mode Aspirated mode

Sensor	Serial no	Calibration gas and concentration	Certified	Gas bottle No	Instrument Reading
PID Lamp		94ppm Isobutylene	NATA	SY506	94ppm

Calibrated by: **Dom Ta**

Calibration date: **13/12/2022**

Next calibration due: **12/01/2023**



APPENDIX H MCLENNANS DIVING SERVICES REPORT

David Dack
Associate Principal
Arup

From Alan McLennan
Project Manager

30th December 2022

Report – Proposed Kamay Wharves Sediment Sampling

MDS supplied a diving team to collect sediment cores at the proposed Kamay wharf sites at La Perouse and Kurnell. The work was carried out using SSBA diving equipment as per AS2299.1.2015 section 6, and the Work Health and Safety Regulations 2017. The team consisted of Dive Supervisors Alan McLennan, and divers Daniel Fell, Zoe Pocklington and Stafford Malapa. The team worked from the 2C surveyed boat “Sea Hunt” (AMSA Rego number 425 435)

Objectives – To collect six, one-metre-long sediment cores at the La Perouse and Kurnell wharf sites. Then deliver the cores to the ERM representative on shore for sub-sampling

Method – The team used a Rossfelder P3 vibrocorer to collect the cores. The vibrocorer was lowered to the seabed using a davit arm mounted on the Sea Hunt. A 1.2-metre-long aluminium core tube was used to capture the samples.

The first step was to mark the location with a marker buoy, then the Sea Hunt was anchored alongside the buoy. The diver then checked that the seabed was suitable for a core sample, and that the corer was positioned vertically above the location. The diver then requested for the surface crew to “make it hot” and the corer was vibrated into the sediment until at least the 1 metre mark. The diver then requested “make it cold” and removed the vibrocorer from the tube. The diver capped the tube top and attached a fabric sling to the tube. The tube was then extracted from the seabed using the winch. Once the tube was clear of the seabed the diver capped the bottom of the tube.

The tube was then taken ashore by dinghy to the waiting ERM representative, Indiana Strachan. An MDS staff member assisted her by opening the cores for sub-sampling.

Discussion – The type of vibrocorer was changed from the planned hydraulic model, to an electric Rossfelder P3 model due to an oil leak discovered during prestart testing. The core tubes were changed from steel to aluminium for the convenience of opening them for sub-sampling. The sediment cores were collected over three days. On the first day only two cores were collected at La Perouse due to high winds and swell. The Kurnell cores were collected the next day. The remaining La Perouse cores were collected when calm weather returned.

The cores at La Perouse contained a high proportion of small shells. The sediment was deep enough to take a one metre core without obstruction, except for the core closest to shore which only had shallow sediment over the rock shelf. The diver moved the location out from shore until the sediment was deeper enough. The seabed was coarse sand with no seagrass present. The two cores closest to shore (LP04 & LP05) produced a noticeable plume of fines when the cores were retrieved, and an aroma of hydrogen sulphide was noticed.

The cores at Kurnell were composed of fine sand with very little resistance to the tube penetrating it. Zostera, halophila and posidonia seagrasses were present at most locations. The sediment depth at the site closest to shore was very shallow and the diver moved the core to slightly deeper water to find enough sediment.

Conclusion - The cores were taken as planned at both locations. The cores were delivered to shore and sub sampled by ERM. No difficulties were encountered apart from unexpectedly strong winds on the first day.

Please find following plots of the sample locations and a table of coordinates and comments for each location. Also following are photographs of the work in progress.

Thank you very much for asking us to assist with this interesting project.

Kind Regards,

Alan McLennan
Phone 0433111528



Figure 1: Sediment core being sub-sampled by Indiana Strachan from ERM



Figure 2: The layout of the La Perouse sample locations

La Perouse Sample Coordinates						
Site ID	Easting	Northing	Date	Time	Water Depth (M)	Comment
LP01	336395	6237861	22/12/22	10:15	5.3	Loose sand. No seagrass
LP02	336425	6237872	15/12/22	13:54	4.9	Loose sand and shells on seabed. No seagrass
LP03	336453	6237873	15/12/22	13:10	4.9	Loose sand and shells on seabed No seagrass
LP04	336479	6237862	22/12/22	12:50	4.0	Fine sand and shell. Black cloud of fines on extraction. Anoxic odour.
LP05	336494	6237842	22/12/22	13:40	2.5	Shallow sediment. Diver pushed core into to gap in rock shelf with assistance of hammer. Anoxic odour.
LP06	336424	6237862	22/12/22	10:15	5.3	Loose sand. No seagrass



Figure 3: Layout of the Kurnell sample locations

Kurnell Sample Coordinates						
Site ID	Easting	Northing	Date	Time	Water Depth (M)	Comment
KS01	335304	6236160	16/12/22	10:40	5.3	Patchy Halofila seagrass. Fine sand. No resistance.
KS02	335336	6236141	16/12/22	11:05	4.9	Fine sand. Sparse Halofila. Core penetrated 400mm without vibration. Very soft.
KS03	335325	6236130	16/12/22	12:15	4.2	Sparse Zostera, Posidonia and Halofila. No resistance
KS04	335349	6236086	16/12/22	12:27	3.9	Halofila and Posidonia. Resistance at 0.8m only.
KS05	335369	6236058	16/12/22	13:15	3.0	Zostera in dense patches. High resistance at 0.8m
KS06	335383	6236026	16/12/22	14:03	2.5	Diver moved out 10 metres due to rock shelf. No resistance to core. Pushed in by hand.



Figure 4: La Perouse sediment cores opened for sub-sampling



Figure 5: Diver Zoe Pocklington communicating with the diver, with the vibrocorer controls to her left, and breathing gas controls to her right.



Figure 6: The vibrocorer with a core tube loaded ready to be winched to the seabed. The blue line on the tube indicates the one metre penetration mark.

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Mozambique	

ERM's Sydney Office

Level 14, 207 Kent Street
Sydney NSW 2000

T: 02 8584 8888

F: 02 8584 8800

www.erm.com



Appendix D ARUP memo – marine ecology

Technical Note

Project title	Kamay Ferry Terminals
Job number	273023
File reference	
cc	
Prepared by	Craig Chargulaf
Date	14 December 2022
Subject	Response to request for additional information

108 Wickham Street Fortitude Valley Brisbane QLD 4006 Australia
t +61 7 3023 6000
arup.com

1. Introduction

The Kamay Ferry Wharves project involves the potential reinstatement of new wharves and recommencement of ferry operations between Kurnell peninsula and La Perouse headland at the ocean entrance of Botany Bay. An *Environmental Protection and Biodiversity Protection Act 1999* referral was submitted and a request for additional information was received on 22 November 2022. This technical note provides the ecological background for the protected matters that may be impacted by sediment contamination during construction as outlined in the Request for additional information for Kamay Ferry Wharves Project, NSW (EPBC Ref: 2020/8825) letter.

A desktop review of ecological records, datasets and Geographic Information System (GIS) maps available for flora and fauna was carried out for the study area. This ecological assessment will be provided to EnRiskS who will review the ecological assessment and results from the sediment sampling and analysis for contaminants. For any sediment result that indicates an exceedance of the toxicant default guideline values, EnRiskS will conduct an assessment of the potential risks to organisms living in and around the areas of interest from exposure to those contaminants present in sediments as a result of the construction works or ferry operation.

If the sampling results and potential impact of contamination to MNES assessment (EnRiskS) show it is required, Arup will revisit the MNES assessment against the Significant impact guidelines 1.1 (Department of the Environment 2013) and the assessments will ensure the results of the EnRiskS toxicity impacts assessment are considered to include both acute (e.g. direct mortality) and cumulative (e.g. bioaccumulation) impacts to each species.

2. MNES Species

2.1 Black rockcod (*Epinephelus daemeli*)

Black Rockcod (*Epinephelus daemeli*), listed as vulnerable under the EPBC Act, has the potential to occur within rock / rubble / reef habitats located at La Perouse and Kurnell, and Botany Bay is a known habitat area. The Hawkesbury Shelf within the Coastal Depth Zone of 0 – 20m in intertidal rocky shores is considered Significant Habitat for the species (Aquaculture, Conservation and Marine Parks Unit 2011).

Job number 273023
Date 14 December 2022

This species prefers to inhabit caves, gutters and crevices usually to depths of 50m. These habitats are likely present around La Perouse and the eastern edge of Kurnell towards Inscription Point. Juveniles are found inshore, often in coastal rockpools and estuaries. Black rockcod are very territorial, and individuals have relatively small home ranges and unlikely to move very far from suitable habitat patches. Black rockcod can be aggressive and individuals may occupy one particular cave for most of their adult life (Aquaculture, Conservation and Marine Parks Unit 2011).

Targeted surveys indicated that there is no black rockcod habitat within the proposal boundary area, but there is suitable habitat adjacent to the proposal boundary of both Kurnell and La Perouse (Arup 2021a) (Figure 1 and Figure 2). The Kamay Ferry Wharves Environmental Impact Statement (Kamay EIS) (Arup 2021b) did not record any black rockcod during field surveys within the project boundary but did not potential indirect impacts may occur to this species.



Figure 1: Black rockcod (solid) and potential black rockcod (hatched) habitat around La Perouse, and the project boundary (pink) and footprint (dark blue).

Job number

273023

Date

14 December 2022

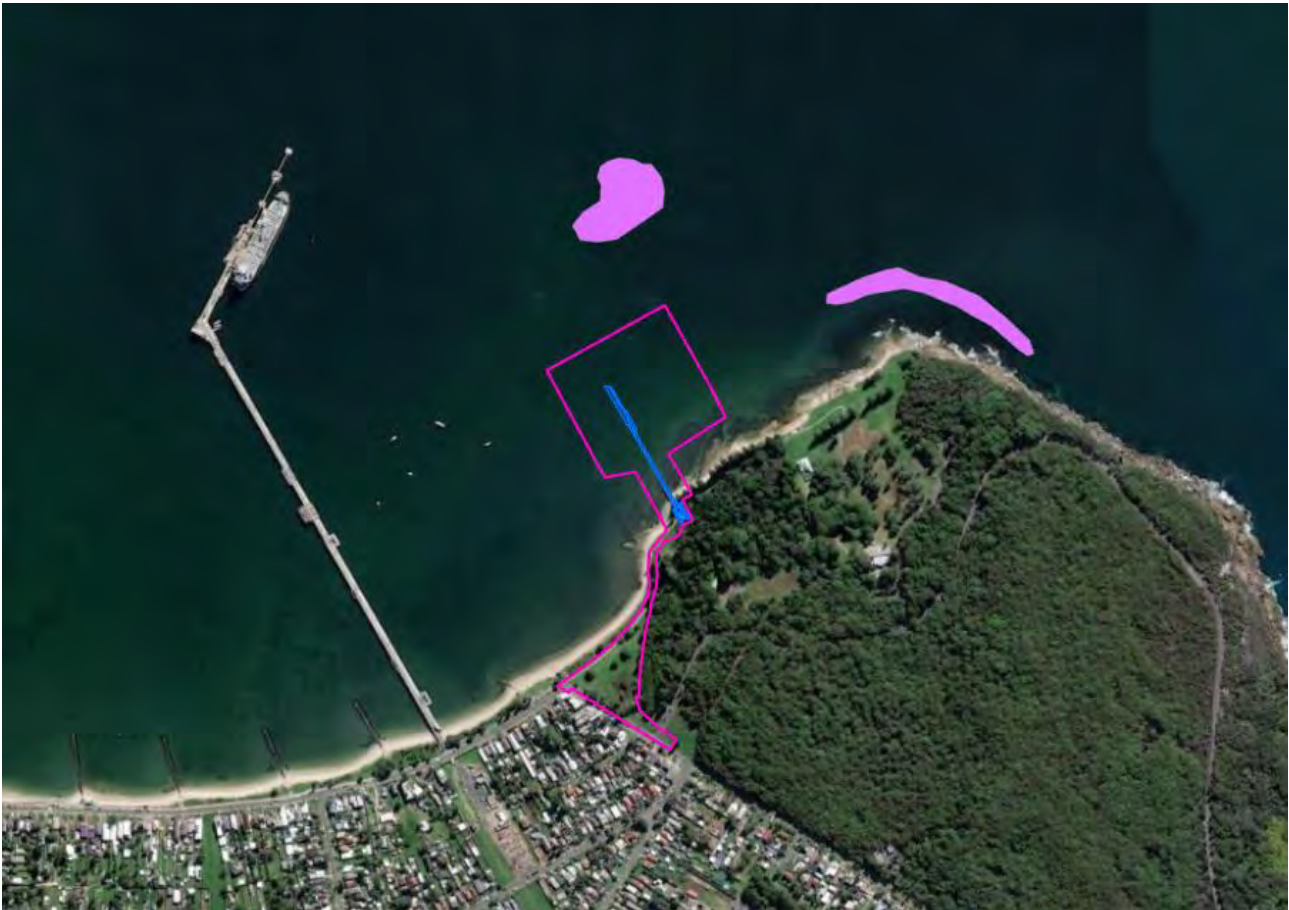


Figure 2: Black rockcod habitat around Kurnell, and the project boundary (pink) and footprint (dark blue).

2.2 *Posidonia australis*

The endangered ecological community *Posidonia australis* Seagrass Meadows of the Manning-Hawkesbury Ecoregion was identified in marine environments at Kurnell. *Posidonia australis* was typically confined to a large medium (15-50% cover) to high (>50% cover) density bed on the western side of the study area. Smaller, and what appeared to be typically isolated patches of low (<15% cover) to medium density *Posidonia australis*, continued amongst other seagrasses along the shoreline to the east. In general, *Posidonia australis* was typically confined to depths of less than 3m around Kurnell.

Generally, this seagrass community occurs mostly within the sheltered environments of permanently open estuaries, from Wallis Lake to Port Hacking. It occurs mostly in shallow sub-tidal coastal waters (i.e. <10 m) in locations with protection from high wave energy, typically, permanently open estuaries. *Posidonia australis* is widespread throughout sections of Botany Bay and is common along Kurnell towards Towra Point Nature Reserve.

The seagrass species *Posidonia australis* plays a significant role in the integrity of the TEC, by contributing to ecological and biogeochemical process (DoE 2015). This species is long lived, with persistent rhizomes and is meadow forming. *Posidonia australis* fronds can grow to over 80 cm

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long and as much as 90% of the mass of the plant may be in the roots and rhizomes. In accordance with Key Diagnostic Criteria for the TEC, as defined in the EPBC Act Conservation Advice (DoE 2015), the TEC can occur in a naturally patchy distribution. Mosaic patches can be ‘discrete’, areas can ‘bare’ and or ‘intermixed with other species of seagrass’ between the patches of *Posidonia australis* are *Halophila* and *Zostera*, which are part of the overall community structure. Cover of *Halophila* and *Zostera* can fluctuate much more seasonally whereas *Posidonia australis* have more permanent beds, is slow growing and is less likely to fluctuate between seasons (bar storm and or anthropogenic impacts) compared to other species.

A large meadow is located to the east of the proposed wharf location, of which approximately 6.8 ha is located within the marine study area (Arup 2021a). Further to the west, a mosaic of mixed *Posidonia australis* (>50%) and other species such as *Zostera* sp. and *Halophila* sp. was noted extending along the same depth contour around the sheltered side of Kurnell towards Inscription Point. The extent of this mixed mosaic of seagrass was about 2.6 ha. The mapped seagrass around both project areas is provided in Figure 3 and Figure 4.

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Figure 3: Seagrass meadows mapped around La Perouse (Arup 2021), and the project boundary (pink) and footprint (dark blue). Seagrass key: Blue – *Zostera*/*Halophila* mix, Pink – *Posidonia* mixed with other species and Green – *Halophila* dominant.

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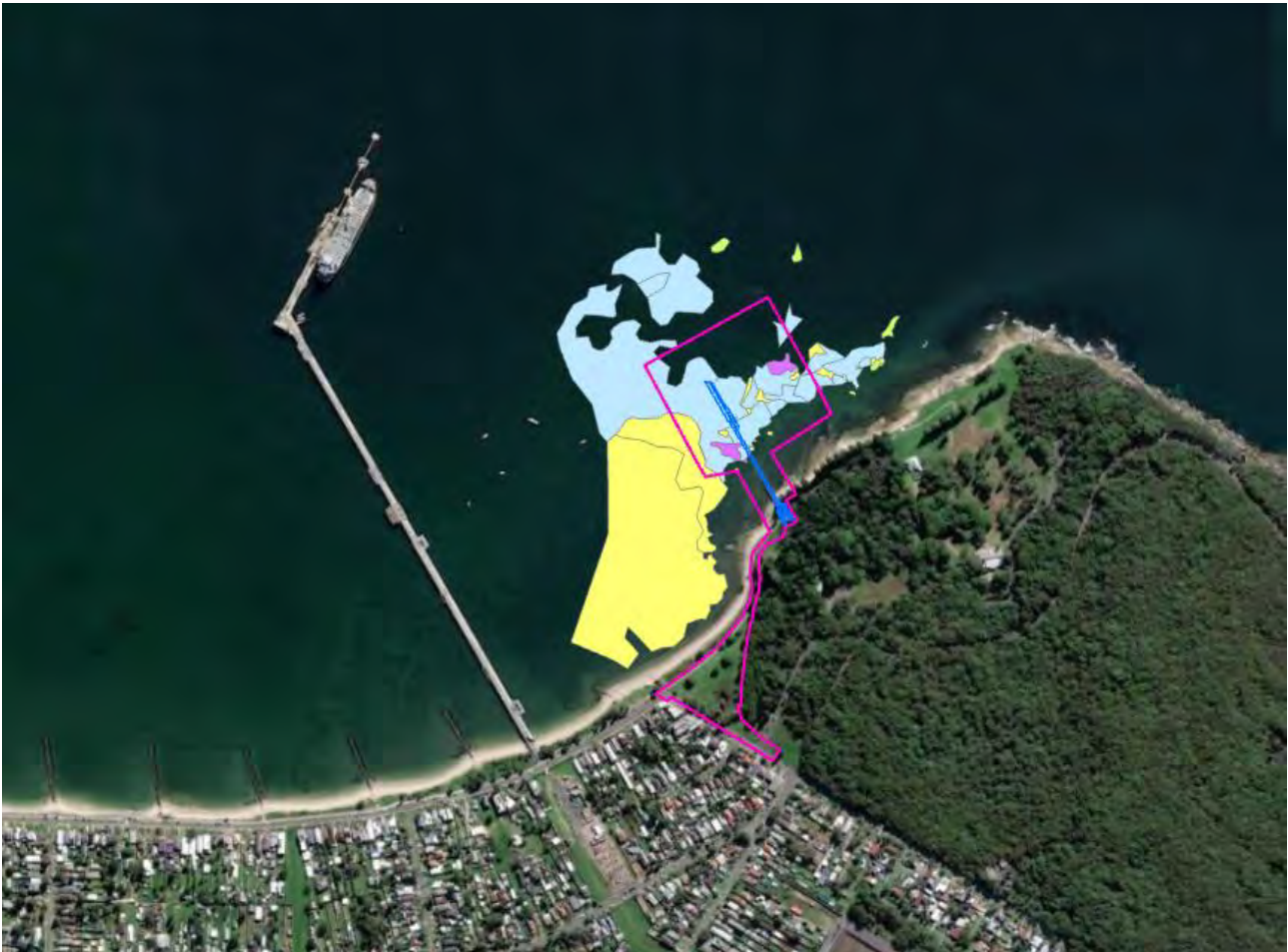


Figure 4: Seagrass meadows mapped around Kurnell (Arup 2021), and the project boundary (pink) and footprint (dark blue). Seagrass key: Yellow – *Posidonia* dominant, Blue – *Zostera*/*Halophila* mix, Pink – *Posidonia* mixed with other species and Green – *Halophila* dominant.

2.3 White's seahorse (*Hippocampus whitei*)

White's seahorse is endemic to the east coast of Australia. This species favours shallow-water estuarine habitats and is currently known to occur in eight estuaries along the New South Wales Coast, but is most abundant in Port Stephens, Sydney Harbour and Port Hacking. Its northern limit is Hervey Bay in Queensland, and it has been historically recorded as far south as St Georges Basin in New South Wales. It is known to occur from depths of 1 m to 18 m and habitats that are considered important for this species include sponge gardens, seagrass meadows and soft coral communities. It is also known to use artificial habitats such as protective swimming net enclosures and jetty pylons.

In Port Stephens, adult White's seahorses show a preference for sponge, soft coral and *Posidonia australis* seagrass habitats. Juveniles prefer gorgonian fan habitats as well as sponges and soft corals. In the Sydney region they are most likely to be found occurring on the artificial protective swimming net habitats. They prefer more complex habitats, presumably to provide better protection and more available food resources (Hellyer et al. 2011; Harasti et al. 2010); however, their habitat

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selection can also be influenced by prey type and occurrence of predators (Manning et al. 2018). The species displays strong site fidelity often not recorded far from their home site. There are records of this specie around both project areas, and they are associated with the seagrass meadows (Figure 5 and Figure 6). The Kamay EIS identified that with the loss of the *Posidonia australis* there would be an impact to White's seahorse, but it is not expected to be considered significant due to adjacent areas of habitat availability (Arup 2021b)



Figure 5: Records of White's seahorse at La Perouse (ALA 2022), and the project boundary (pink) and footprint (dark blue).

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Figure 6: Records of White's seahorse at Kurnell (ALA 2022), and the project boundary (pink) and footprint (dark blue).

2.4 Cauliflower soft coral (*Dendronephthya australis*)

Cauliflower soft coral is a temperate soft coral species endemic to eastern Australia. The only estuaries where cauliflower soft coral is known to grow in abundance are Port Stephens and the Brisbane Water area of Hawksbury River, New South Wales. They have been found sporadically in other locations in New South Wales waters including, Sydney Harbour, Terrigal, Botany Bay and Jervis Bay.

The species is predominantly found in estuarine environments in New South Wales at depths of 1 – 15 m; however, it occasionally occurs offshore down to depths of 30 m. It is generally found in areas of sandy seabed where there is high current flow, and it can expand and contract in relation to tidal flow cycle (Davis et al. 2015).

Dendronephthya australis colonies occurred along the southern shoreline in the Port Stephens estuary between Fly Point and Corlette Point, but no colonies were found within no-take zones within the marine park. The model illustrated limited habitat suitability for cauliflower soft coral within a larger section of the estuary, suggesting this species has specific environmental requirements for survival (TSSC 2020). Atlas of Living Australia (2022) has records of this species

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around both project areas (Figure 7 and Figure 8). However, there were no sightings of the species in the project boundaries during any of the surveys completed for the Kamay EIS (Arup 2021b).



Figure 7: Records of cauliflower soft coral at La Perouse (ALA 2022), and the project boundary (pink) and footprint (dark blue).

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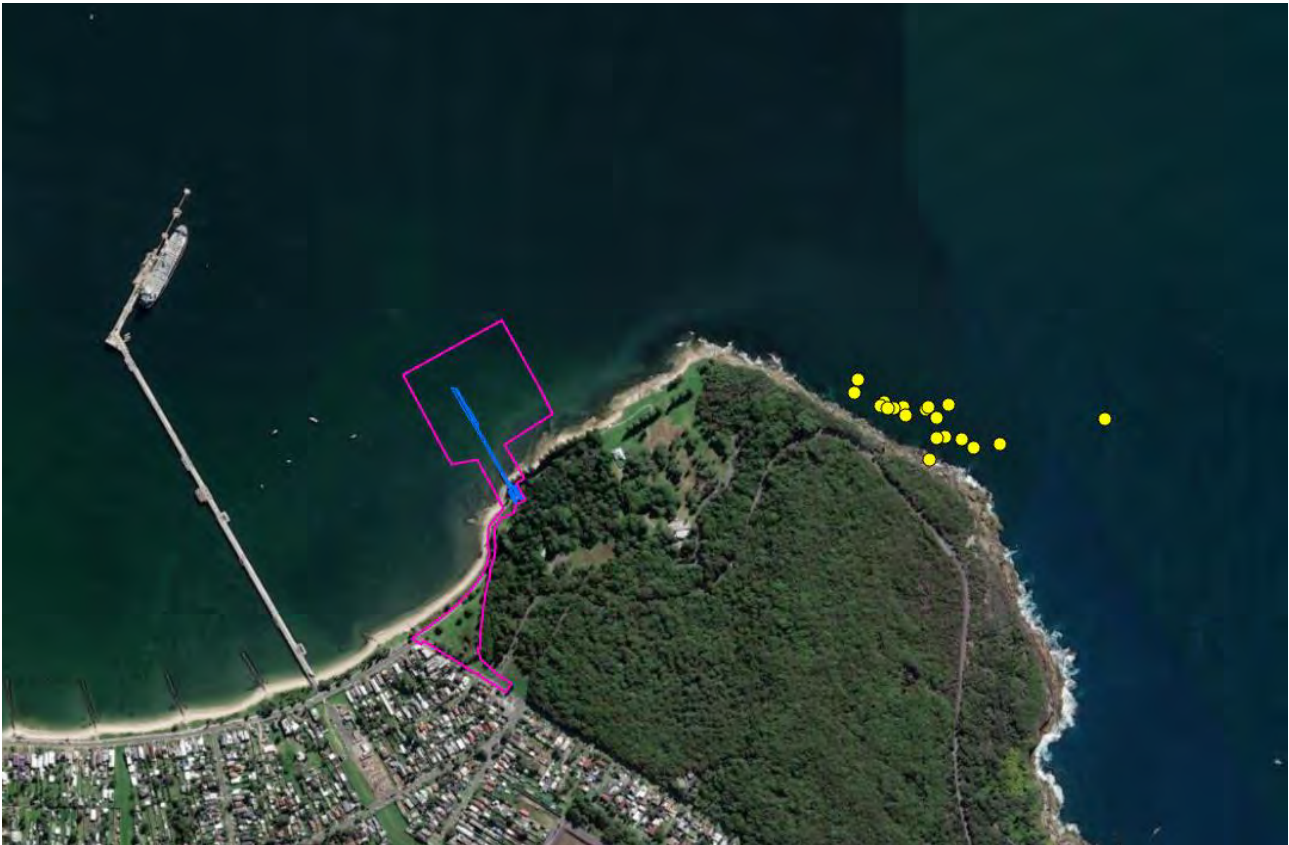


Figure 8: Records of cauliflower soft coral at Kurnell (ALA 2022), and the project boundary (pink) and footprint (dark blue).

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