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Landfill Gas Monitoring – Subsurface Gas

EPL No: **4627**
Date of Sampling **9 & 19 December 2022** **Date Received** **14 June 2023** **Date of Publication** **before 28 June 2023**

Subsurface landfill gas monitoring is usually a number of measurements taken over time with two events. The first event is initial measurements and the second event is measurements after the air space in the well has been pumped out. The highest measurement in the first (initial) and second (post-purge) events are reported in the following table.

Where the groundwater level is above the well screen the high water level can interfere with the monitoring equipment and no measurement/s can be taken.

Monitoring Point	EPA Identification Number	Frequency	Pollutant									
			Carbon Dioxide (%v/v)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Methane (%v/v)		Oxygen (%v/v)	
			Initial	Post Purge	Initial	Post Purge	Initial	Post Purge	Initial	Post Purge	Initial	Post Purge
LDS-GM-001	22	Quarterly	3.6	3.4	2.0	1.0	0.0	0.0	0.2	0.0	22.7	2.7
LDS-GM-002	23	Quarterly	Well destroyed									
LDS-GM-002C		Quarterly	12.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0	16.0	12.3
LDS-GM-003A	24	Quarterly	Well destroyed									
LDS-GM-003B	25	Quarterly	Well destroyed									
LDS-GM-003C		Quarterly	12.1	7.3	1.0	1.0	0.0	0.0	0.0	0.0	7.7	9.4

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			Carbon Dioxide (%v/v)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Methane (%v/v)		Oxygen (%v/v)	
			Initial	Post Purge	Initial	Post Purge	Initial	Post Purge	Initial	Post Purge	Initial	Post Purge
LDS-GM-004	26	Quarterly	5.0	2.6	2.0	1.0	0.0	0.0	5.3	2.5	9.6	13.6
LDS-GM-005	27	Quarterly	8.0	8.0	1.0	1.0	0.0	0.0	0.0	0.0	13.6	13.7
LDS-GM-006A	28	Quarterly	7.4	NR1	1.0	NR1	0.0	NR1	0.0	NR1	19.3	NR1
LDS-GM-006B	29	Quarterly	11.1	NR1	3.0	NR1	0.0	NR1	0.2	NR1	12.9	NR1
LDS-GM-007A	30	Quarterly	High water level in well									
LDS-GM-007B	31	Quarterly	High water level in well									
LDS-GM-008A	32	Quarterly	0.0	NR1	0.0	NR1	0.0	NR1	0.0	NR1	20.7	NR1
LDS-GM-008B	33	Quarterly	High water level in well									
LDS-GM-009C	34	Quarterly	20.0	20.0	4.0	1.0	0.0	0.0	0.1	0.3	15.0	20.0
LDS-GM-009D	35	Quarterly	18.2	6.9	3.0	1.0	0.0	0.0	0.0	0.0	20.0	19.4
LDS-GM-010A	36	Quarterly	1.7	1.7	1.0	1.0	0.0	0.0	0.1	0.1	21.3	18.3
LDS-GM-010B	37	Quarterly	2.0	0.4	1.0	1.0	0.0	0.0	0.0	0.0	21.0	20.8
LDS-GM-011A	38	Quarterly	0.1	0.0	1.0	1.0	0.0	0.0	0.0	0.0	19.8	16.2
LDS-GM-012C	39	Quarterly	11.7	12.9	1.0	1.0	0.0	0.0	0.0	0.0	19.9	12.9
LDS-GM-012D	40	Quarterly	2.3	0.6	1.0	2.0	0.0	1.0	0.2	0.0	20.4	19.7
LDS-GM-013*	41	Quarterly	0.6	NR2	2.0	NR2	0.0	NR2	0.1	NR2	22.6	NR2
LDS-GM-014	42	Quarterly	0.4	0.4	1.0	1.0	1.0	0.0	5.9	6.0	22.7	3.9
LDS-GM-015	43	Quarterly	1.4	1.1	2.0	1.0	1.0	1.0	0.2	0.1	21.5	16.7
LDS-GM-016	44	Quarterly	2.3	2.2	1.0	1.0	0.0	0.0	0.0	0.0	20.0	2.1
LDS-GM-017	45	Quarterly	1.8	1.9	0.0	1.0	1.0	1.0	1.2	1.5	20.4	20.8
LDS-GM-018	46	Quarterly	0.7	0.9	1.0	1.0	0.0	0.0	0.0	0.0	23.4	21.7

Monitoring Point	EPA Identification Number	Frequency	Pollutant									
			Carbon Dioxide (%v/v)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Methane (%v/v)		Oxygen (%v/v)	
			Initial	Post Purge	Initial	Post Purge	Initial	Post Purge	Initial	Post Purge	Initial	Post Purge
LDS-GM-019	47	Quarterly	2.8	3.1	1.0	1.0	0.0	0.0	0.0	0.0	24.4	1.6
LDS-GM-020	48	Quarterly	3.1	3.5	2.0	1.0	0.0	0.0	0.1	0.0	20.1	18.6
LDS-GM-021	49	Quarterly	10.3	10.5	1.0	1.0	0.0	0.0	0.0	0.0	22.0	10.2
LDS-GM-022A	50	Quarterly	Well Inaccessible due to Gateway Construction									
LDS-GM-023	51	Quarterly	0.2	0.1	0.0	0.0	1.0	1.0	0.2	0.1	22.5	19.3
LDS-GM-024A	52	Quarterly	Well Covered by Gateway Construction									
LDS-GM-024B	53	Quarterly	0.1	NR3	0.0	NR3	0.0	NR3	0.1	NR3	22.5	NR3
LDS-GM-025	54	Quarterly	Well Covered by Gateway Construction									
LDS-GM-026	55	Quarterly	0.2	0.1	1.0	2.0	0.0	0.0	0.0	0.0	21.0	20.7
LDS-GM-027	56	Quarterly	9.6	8.6	0.0	1.0	0.0	0.0	0.3	0.0	19.6	7.7
LDS-GM-028	57	Quarterly	33.2	33.5	2.0	1.0	0.0	1.0	68.4	68.6	19.8	0.5
LDS-GM-029	58	Quarterly	8.1	8.2	1.0	0.0	1.0	1.0	0.2	0.2	22.4	6.3
LDS-GM-030	59	Quarterly	11.2	11.0	1.0	1.0	0.0	0.0	0.0	0.0	20.7	9.1
LDS-BH-10321A	17	Quarterly	4.8	4.6	2.0	2.0	0.0	0.0	0.0	0.0	18.0	4.0
LDS-BH-10322	18	Quarterly	3.3	3.3	1.0	1.0	0.0	0.0	0.0	0.0	19.8	2.6
LDS-BH-10329	19	Quarterly	Well destroyed									
LDS-BH-10329A		Quarterly	5.0	4.9	1.0	1.0	0.0	0.0	2.9	2.9	22.7	1.5
LDS-BH-10331	20	Quarterly	Well Inaccessible due to Stockpile									
LDS-BH-10332	21	Quarterly	5.7	5.7	1.0	4.0	1.0	14.0	0.8	0.7	21.8	5.7
LDS-GV-48	60	Quarterly	9.5	9.6	1.0	1.0	0.0	0.0	9.2	9.1	22.6	9.3
LDS-GV-49	61	Quarterly	17.9	17.8	5.0	5.0	1.0	0.0	26.6	26.5	23.4	3.0

Monitoring Point	EPA Identification Number	Frequency	Pollutant									
			Carbon Dioxide (%v/v)		Carbon Monoxide (ppm)		Hydrogen Sulphide (ppm)		Methane (%v/v)		Oxygen (%v/v)	
			Initial	Post Purge	Initial	Post Purge	Initial	Post Purge	Initial	Post Purge	Initial	Post Purge
LDS-GV-50	62	Quarterly	0.7	0.3	2.0	1.0	1.0	1.0	0.1	0.1	23.3	23.2

*The well LDS-GM-013 has been converted to a passive gas vent – the gas vent methodology of pre-purge results has been include in this table.

NOTES:
EPL - Environment Protection Licence
%v/v - percentage by volume
ppm - parts per million
NR1 - no result 1 – the water level too high to take measurement
NR2 - gas vent monitoring methodology used – only pre-purge results recorded.
NR3 - no well cap.

The wells LDS-GM-002, LDS-GM-003A, LDS-GM-003B and LDS-BH-10329 were destroyed before the present monitoring program started in October 2020.
Replacement wells LDS-GM-002C and LDS–GM-003C have been installed adjacent to destroyed wells with the same depth and well screens
Replacement well LDS-GM-0329A has been installed at an agreed nearby location.