

Appendix 3

Soil Sampling Analysis Results

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Amended Report

Report No.: 18-29228-2

Initial Date of Issue: 03-Oct-2018 **Date of Re-Issue:** 03-Oct-2018

Client: Priority Geotechnical Ltd

Client Address: Unit 12
Owenacurra Business Park
Midleton
County Cork
Ireland

Contact(s): Colette Kelly

Project: P18175 Scotch Corner

Quotation No.: **Date Received:** 25-Sep-2018


Order No.: 11073 **Date Instructed:** 25-Sep-2018

No. of Samples: 3

Turnaround (Wkdays): 5 **Results Due:** 01-Oct-2018

Date Approved: 03-Oct-2018

Approved By:



Details: Martin Dyer, Laboratory Manager

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Project: P18175 Scotch Corner

Client: Priority Geotechnical Ltd	Chemtest Job No.:				18-29228	18-29228	18-29228
Quotation No.:	Chemtest Sample ID.:				694540	694541	694542
	Sample Location:				TP01	TP08	TP13
	Sample Type:				SOIL	SOIL	SOIL
	Top Depth (m):				3.50	1.50	3.00
	Date Sampled:				21-Sep-2018	21-Sep-2018	21-Sep-2018
Determinand	Accred.	SOP	Units	LOD			
Moisture	N	2030	%	0.020	47	28	48
Dry Matter	N		%	N/A	53	72	52

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Results - Single Stage WAC

Project: P18175 Scotch Corner

Chemtest Job No: 18-29228				Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 694540				Limits			
Sample Ref:					Inert Waste Landfill	Stable, Non- reactive hazardous waste in non- hazardous Landfill	Hazardous Waste Landfill
Sample ID:							
Sample Location: TP01							
Top Depth(m): 3.50							
Bottom Depth(m):							
Sampling Date: 21-Sep-2018							
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	7.3	3	5	6
Loss On Ignition	2610	U	%	12	--	--	10
Total BTEX	2760	U	mg/kg	< 0.010	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	--
pH	2010	U		7.6	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.014	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0014	< 0.050	0.5	2	25
Barium	1450	U	0.012	< 0.50	20	100	300
Cadmium	1450	U	< 0.00010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	< 0.0010	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0019	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	1.4	14	800	15000	25000
Fluoride	1220	U	0.11	1.1	10	150	500
Sulphate	1220	U	21	210	1000	20000	50000
Total Dissolved Solids	1020	N	85	810	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	15	150	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	47

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: P18175 Scotch Corner

Chemtest Job No: 18-29228 Chemtest Sample ID: 694541 Sample Ref: Sample ID: Sample Location: TP08 Top Depth(m): 1.50 Bottom Depth(m): Sampling Date: 21-Sep-2018				Landfill Waste Acceptance Criteria Limits			
				Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill	
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	7.2	3	5	
Loss On Ignition	2610	U	%	14	--	10	
Total BTEX	2760	U	mg/kg	0.066	6	--	
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	930	500	--	
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	
pH	2010	U		8.0	--	>6	
Acid Neutralisation Capacity	2015	N	mol/kg	0.0070	--	To evaluate	
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0018	< 0.050	0.5	2	
Barium	1450	U	0.0068	< 0.50	20	100	
Cadmium	1450	U	< 0.0010	< 0.010	0.04	1	
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	
Copper	1450	U	< 0.0010	< 0.050	2	50	
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	
Molybdenum	1450	U	0.0022	< 0.050	0.5	10	
Nickel	1450	U	0.0014	< 0.050	0.4	10	
Lead	1450	U	< 0.0010	< 0.010	0.5	10	
Antimony	1450	U	< 0.0010	< 0.010	0.06	0.7	
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	
Zinc	1450	U	0.0013	< 0.50	4	50	
Chloride	1220	U	5.1	51	800	15000	
Fluoride	1220	U	2.8	28	10	150	
Sulphate	1220	U	24	240	1000	20000	
Total Dissolved Solids	1020	N	110	1100	4000	60000	
Phenol Index	1920	U	< 0.030	< 0.30	1	-	
Dissolved Organic Carbon	1610	U	11	110	500	800	

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	28

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Results - Single Stage WAC

Project: P18175 Scotch Corner

Chemtest Job No: 18-29228				Landfill Waste Acceptance Criteria			
Chemtest Sample ID: 694542				Limits			
Sample Ref:					Inert Waste Landfill	Stable, Non-reactive hazardous waste in non-hazardous Landfill	Hazardous Waste Landfill
Sample ID:							
Sample Location: TP13							
Top Depth(m): 3.00							
Bottom Depth(m):							
Sampling Date: 21-Sep-2018							
Determinand	SOP	Accred.	Units				
Total Organic Carbon	2625	U	%	11	3	5	6
Loss On Ignition	2610	U	%	38	--	--	10
Total BTEX	2760	U	mg/kg	2.6	6	--	--
Total PCBs (7 Congeners)	2815	U	mg/kg	< 0.10	1	--	--
TPH Total WAC (Mineral Oil)	2670	U	mg/kg	< 10	500	--	--
Total (Of 17) PAH's	2700	N	mg/kg	< 2.0	100	--	--
pH	2010	U		8.1	--	>6	--
Acid Neutralisation Capacity	2015	N	mol/kg	0.0080	--	To evaluate	To evaluate
Eluate Analysis			10:1 Eluate mg/l	10:1 Eluate mg/kg	Limit values for compliance leaching test using BS EN 12457 at L/S 10 l/kg		
Arsenic	1450	U	0.0015	< 0.050	0.5	2	25
Barium	1450	U	0.012	< 0.50	20	100	300
Cadmium	1450	U	< 0.0010	< 0.010	0.04	1	5
Chromium	1450	U	< 0.0010	< 0.050	0.5	10	70
Copper	1450	U	0.0019	< 0.050	2	50	100
Mercury	1450	U	< 0.00050	< 0.0050	0.01	0.2	2
Molybdenum	1450	U	0.0020	< 0.050	0.5	10	30
Nickel	1450	U	< 0.0010	< 0.050	0.4	10	40
Lead	1450	U	< 0.0010	< 0.010	0.5	10	50
Antimony	1450	U	0.0040	0.040	0.06	0.7	5
Selenium	1450	U	< 0.0010	< 0.010	0.1	0.5	7
Zinc	1450	U	< 0.0010	< 0.50	4	50	200
Chloride	1220	U	2.6	26	800	15000	25000
Fluoride	1220	U	0.14	1.4	10	150	500
Sulphate	1220	U	39	390	1000	20000	50000
Total Dissolved Solids	1020	N	100	990	4000	60000	100000
Phenol Index	1920	U	< 0.030	< 0.30	1	-	-
Dissolved Organic Carbon	1610	U	15	150	500	800	1000

Solid Information	
Dry mass of test portion/kg	0.090
Moisture (%)	48

Waste Acceptance Criteria

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

SOP	Title	Parameters included	Method summary
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1450	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1610	Total/Dissolved Organic Carbon in Waters	Organic Carbon	TOC Analyser using Catalytic Oxidation
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.
2010	pH Value of Soils	pH	pH Meter
2015	Acid Neutralisation Capacity	Acid Reserve	Titration
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2610	Loss on Ignition	loss on ignition (LOI)	Determination of the proportion by mass that is lost from a soil by ignition at 550°C.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID
2760	Volatile Organic Compounds (VOCs) in Soils by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics.(cf. USEPA Method 8260)*please refer to UKAS schedule	Automated headspace gas chromatographic (GC) analysis of a soil sample, as received, with mass spectrometric (MS) detection of volatile organic compounds.
2815	Polychlorinated Biphenyls (PCB) ICES7Congeners in Soils by GC-MS	ICES7 PCB congeners	Acetone/Hexane extraction / GC-MS
640	Characterisation of Waste (Leaching)	Waste material including soil, sludges and granular waste	ComplianceTest for Leaching of Granular Waste Material and Sludge

Report Information

Key

- U UKAS accredited
- M MCERTS and UKAS accredited
- N Unaccredited
- S This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
- SN This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
- T This analysis has been subcontracted to an unaccredited laboratory
- I/S Insufficient Sample
- U/S Unsuitable Sample
- N/E not evaluated
- < "less than"
- > "greater than"

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

Appendix 4

Groundwater and Surface Water Sampling Analysis Results

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Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528700

Fax: (01244) 528701

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

Fehily Timoney
3rd Floor
North Park Offices
North Park Business Park
North Road
Dublin
Dublin 11

Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date: 20 November 2018
Customer: D_FTIM_DUB
Sample Delivery Group (SDG): 181002-48
Your Reference: P1679
Location: Scotch Corner Landfill
Report No: 481781

We received 5 samples on Tuesday October 02, 2018 and 5 of these samples were scheduled for analysis which was completed on Wednesday October 10, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number: Z1283

Report Number: 481781
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
18442340	SI6		0.00 - 0.00	01/10/2018
18442356	SI7		0.00 - 0.00	01/10/2018
18442367	SI8		0.00 - 0.00	01/10/2018
18442375	SI9		0.00 - 0.00	01/10/2018
18442388	SI10		0.00 - 0.00	01/10/2018

Maximum Sample/Coolbox Temperature (°C) :

13.5

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number: Z1283

Report Number: 481781
Superseded Report:

Results Legend



Test



No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container										Sample Type				
					1000ml glass bottle (ALE220)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	250ml BOD (ALE212)	500ml Plastic (ALE208)		H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Alkalinity as CaCO3	All	NDPs: 0 Tests: 5			X				X				X						LE
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 5				X					X								LE
Anions by Kone (w)	All	NDPs: 0 Tests: 5			X					X									LE
BOD True Total	All	NDPs: 0 Tests: 5			X					X								X	LE
COD Unfiltered	All	NDPs: 0 Tests: 5			X					X								X	LE
Coliforms (W)	All	NDPs: 1 Tests: 0				N													LE
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 5				X					X							X	LE
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 5							X				X						LE
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5						X					X					X	LE
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 5				X					X							X	LE
Fluoride	All	NDPs: 0 Tests: 5				X					X							X	LE
Mercury Dissolved	All	NDPs: 0 Tests: 5						X					X					X	LE
Mineral Oil C10-40 Aqueous (W)	All	NDPs: 0 Tests: 5			X					X								X	LE
Nitrite by Kone (w)	All	NDPs: 0 Tests: 5						X					X						LE
Organotins in Aqueous Samples	All	NDPs: 0 Tests: 5			X					X								X	LE

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18442375	S19	0.00 - 0.00	Vial (ALE297)	LE																			
			NaOH (ALE245)	LE																			
			HNO3 Filtered (ALE204)	LE																			
			H2SO4 (ALE244)	LE																			
			500ml Plastic (ALE208)	LE																			
			250ml BOD (ALE212)	LE																			
			1000ml glass bottle (ALE220)	LE																			
			Vial (ALE297)	LE																			
			NaOH (ALE245)	LE																			
			H2SO4 (ALE244)	LE																			
			18442388	S110	0.00 - 0.00	Vial (ALE297)	LE																
NaOH (ALE245)	LE																						
HNO3 Filtered (ALE204)	LE																						
H2SO4 (ALE244)	LE																						
500ml Plastic (ALE208)	LE																						
250ml BOD (ALE212)	LE																						
1000ml glass bottle (ALE220)	LE																						
Vial (ALE297)	LE																						
NaOH (ALE245)	LE																						
HNO3 Filtered (ALE204)	LE																						
H2SO4 (ALE244)	LE																						
18442367	S18	0.00 - 0.00	Vial (ALE297)	LE																			
			NaOH (ALE245)	LE																			
			HNO3 Filtered (ALE204)	LE																			
			H2SO4 (ALE244)	LE																			
			500ml Plastic (ALE208)	LE																			
			250ml BOD (ALE212)	LE																			
			1000ml glass bottle (ALE220)	LE																			
			Vial (ALE297)	LE																			
			NaOH (ALE245)	LE																			
			HNO3 Filtered (ALE204)	LE																			
			H2SO4 (ALE244)	LE																			

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number: Z1283

Report Number: 481781
Superseded Report:

Results Legend

- X Test
- N No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container										Sample Type			
				1000ml glass bottle (ALE220)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	250ml BOD (ALE212)	500ml Plastic (ALE208)		H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
18442340	S16		0.00 - 0.00	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE
18442356	S17		0.00 - 0.00	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE
18442367	S18		0.00 - 0.00	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE	LE

Test	Sample	NDPs: 0 Tests: 5	1000ml glass bottle (ALE220)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	1000ml glass bottle (ALE220)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
Pesticides (Suite I) by GCMS	All		X							X						X
Pesticides (Suite II) by GCMS	All		X							X						X
Pesticides (Suite III) by GCMS	All		X							X						X
pH Value	All				X							X				X
Phosphate by Kone (w)	All				X							X				X
Silicon Dissolved by ICP-OES	All						X						X			X
SVOC MS (W) - Aqueous	All		X							X						X
Total Organic and Inorganic Carbon	All					X							X			X
VOC MS (W)	All								X						X	

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18442388	SI10	0.00 - 0.00	Vial (ALE297)	LE																		X			
			NaOH (ALE245)	LE																					
			HNO3 Filtered (ALE204)	LE																					
			H2SO4 (ALE244)	LE													X								
			500ml Plastic (ALE208)	LE								X													
			250ml BOD (ALE212)	LE									X												
			1000ml glass bottle (ALE220)	LE												X									
			Vial (ALE297)	LE		X																			X
			NaOH (ALE245)	LE																					
			H2SO4 (ALE244)	LE														X							
			500ml Plastic (ALE208)	LE								X													
			250ml BOD (ALE212)	LE									X												
1000ml glass bottle (ALE220)	LE																				X				
Vial (ALE297)	LE																					X			
NaOH (ALE245)	LE																								
18442367	SI8	0.00 - 0.00	Vial (ALE297)	LE																			X		
			NaOH (ALE245)	LE																					
			HNO3 Filtered (ALE204)	LE																					
			H2SO4 (ALE244)	LE																					
			500ml Plastic (ALE208)	LE												X									
			250ml BOD (ALE212)	LE													X								
			1000ml glass bottle (ALE220)	LE																					
			Vial (ALE297)	LE																					X
			NaOH (ALE245)	LE																					
			H2SO4 (ALE244)	LE																					
			500ml Plastic (ALE208)	LE												X									
			250ml BOD (ALE212)	LE													X								
1000ml glass bottle (ALE220)	LE																								
Vial (ALE297)	LE																					X			
NaOH (ALE245)	LE																								

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48	Client Reference: P1679	Report Number: 481781
Location: Scotch Corner Landfill	Order Number: Z1283	Superseded Report:

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-5&*\$@ Sample deviation (see appendix)		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Land Leachate (LE) 01/10/2018	0.00 - 0.00 Land Leachate (LE) 01/10/2018	0.00 - 0.00 Land Leachate (LE) 01/10/2018	0.00 - 0.00 Land Leachate (LE) 01/10/2018	0.00 - 0.00 Land Leachate (LE) 01/10/2018
Component	LOD/Units	Method					
Alkalinity, Total as CaCO3	<2 mg/l	TM043	1060	467	1750	338	1470
BOD, unfiltered	<1 mg/l	TM045	23.8	<1.5	17.3	13.8	34
Oxygen, dissolved	<0.3 mg/l	TM046	3.69	7	0.92	1.7	1.83
Organic Carbon, Total	<3 mg/l	TM090	32.8	21.3	115	28.4	54.6
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	180	47.4	268	6.54	237
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5	<0.5	<0.5	<0.5
COD, unfiltered	<7 mg/l	TM107	126	82.8	420	595	508
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	2.11	1.32	3.18	0.659	2.9
Antimony (diss.filt)	<1 µg/l	TM152	<1	<1	<1	1.2	<1
Arsenic (diss.filt)	<0.5 µg/l	TM152	1.08	1.37	25.5	7.7	3.12
Barium (diss.filt)	<0.2 µg/l	TM152	119	163	285	54.2	146
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1	<0.1	<0.1	<0.1	<0.1
Boron (diss.filt)	<10 µg/l	TM152	214	202	463	21.1	489
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	0.373	0.087	<0.08	<0.08
Chromium (diss.filt)	<1 µg/l	TM152	3.65	1.98	6.78	<1	9.96
Cobalt (diss.filt)	<0.5 µg/l	TM152	2	5.91	8.77	1.89	3.6
Copper (diss.filt)	<0.3 µg/l	TM152	<0.3	9.55	1.39	0.373	<0.3
Lead (diss.filt)	<0.2 µg/l	TM152	0.212	1.91	2.07	<0.2	0.269
Manganese (diss.filt)	<3 µg/l	TM152	2450	1170	2560		2100
Molybdenum (diss.filt)	<3 µg/l	TM152	<3	<3	<3	<3	<3
Nickel (diss.filt)	<0.4 µg/l	TM152	6.83	43.5	20.1	4.8	16.3
Phosphorus (diss.filt)	<10 µg/l	TM152	1140	24	823	25.3	1600
Selenium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1
Tellurium (diss.filt)	<2 µg/l	TM152	<2	<2	<2	<2	<2
Thallium (diss.filt)	<2 µg/l	TM152	<2	<2	<2	<2	<2
Titanium (diss.filt)	<1 µg/l	TM152	10.9	3.37	16.4	8.96	32
Uranium (diss.filt)	<0.5 µg/l	TM152	<0.5	1.11	0.791	1.63	<0.5
Vanadium (diss.filt)	<1 µg/l	TM152	2.82	<1	4.35	2.88	4.69
Zinc (diss.filt)	<1 µg/l	TM152	48.4	24.4	165	1.29	8.58
Tin (Diss.Filt)	<1 µg/l	TM152	<1	<1	3.67	<1	1.76
Silver (diss.filt)	<0.5 µg/l	TM152	<0.5	<0.5	<0.5	<0.5	<0.5
Sodium (Dis.Filt)	<0.076 mg/l	TM152	26.1	39.4	68.8		85.3
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	22.9	23.9	40.6		41



CERTIFICATE OF ANALYSIS

Validated

SDG:	181002-48	Client Reference:	P1679	Report Number:	481781
Location:	Scotch Corner Landfill	Order Number:	Z1283	Superseded Report:	

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10	
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
		Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	
		Date Sampled	01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018	
		Sample Time	-	-	-	-	-	
		Date Received	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	
		SDG Ref	181002-48	181002-48	181002-48	181002-48	181002-48	
		Lab Sample No.(s)	18442340	18442356	18442367	18442375	18442388	
		AGS Reference						
Component	LOD/Units	Method						
Potassium (Dis.Filt)	<0.2 mg/l	TM152	20.7	22.5	54.3		75	
			#	#	#		#	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	159	150	235		198	
			#	#	#		#	
Iron (Dis.Filt)	<0.019 mg/l	TM152	34.8	0.271	27.1		48.8	
			#	#	#		#	
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172	238	<100	425	6430	898	
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	
			#	#	#	2 #	#	
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	<0.05	<0.05	<0.05	<0.05	<0.05	
Chloride	<2 mg/l	TM184	36.8	60.1	102	13.9	136	
Nitrite as N	<0.0152 mg/l	TM184	<0.0152	0.491	<0.0152	<0.0152	<0.0152	
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	<0.1	44.7	<0.1	<0.1	<0.1	
Sulphate (soluble) as S	<1 mg/l	TM184	17.1	6.47	<1	26.7	18.1	
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	
			#	#	#	#	#	
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	
			#	#	#	#	#	
pH	<1 pH Units	TM256	7.04	7.16	7.24	7.03	7.07	
			#	#	#	#	#	
Silicon (diss.filt)	<0.05 mg/l	TM284	10.9	4.38	9.63	4.38	11.8	
Dibutyl tin	<5 ng/l	TM328	15.8	<5	<15	<10	<15	
Tributyl tin	<1 ng/l	TM328	<3	<1	7.97	<2	<3	
Tetrabutyl tin	<2 ng/l	TM328	<6	<2	<6	<4	<6	
Triphenyl tin	<1 ng/l	TM328	<3	<1	<3	<2	<3	
Surrogate	%	TM328	85.8	90.3	75.8	86.7	79.8	
Trifluralin	<0.01 µg/l	TM343	<0.04	<0.02	<0.02	<0.02	<0.02	
alpha-HCH	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
gamma-HCH (Lindane)	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
Heptachlor	<0.01 µg/l	TM343	<0.04	<0.04	<0.04	<0.04	<0.04	
Aldrin	<0.01 µg/l	TM343	<0.02	<0.02	<0.02	<0.02	<0.02	
beta-HCH	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
Isodrin	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
Heptachlor epoxide	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
o,p'-DDE	<0.01 µg/l	TM343	<0.02	<0.02	<0.02	<0.02	<0.02	
Endosulphan I	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
trans-Chlordane	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
cis-Chlordane	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
p,p'-DDE	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48	Client Reference: P1679	Report Number: 481781
Location: Scotch Corner Landfill	Order Number: Z1283	Superseded Report:

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10	
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*@	Sample deviation (see appendix)							
		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
		Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	
		Date Sampled	01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018	
		Sample Time	-	-	-	-	-	
		Date Received	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	
		SDG Ref	181002-48	181002-48	181002-48	181002-48	181002-48	
		Lab Sample No.(s)	18442340	18442356	18442367	18442375	18442388	
		AGS Reference						
Component	LOD/Units	Method						
Dieldrin	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
o,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.02	<0.02	<0.02	<0.02	<0.02	
Endrin	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
o,p'-DDT	<0.01 µg/l	TM343	<0.02	<0.02	<0.02	<0.02	<0.02	
p,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.02	<0.02	<0.02	<0.02	<0.02	
Endosulphan II	<0.02 µg/l	TM343	<0.02	<0.02	<0.02	<0.02	<0.02	
p,p'-DDT	<0.01 µg/l	TM343	<0.03	<0.03	<0.03	<0.03	<0.03	
p,p'-Methoxychlor	<0.01 µg/l	TM343	<0.05	<0.05	<0.05	<0.05	<0.05	
Endosulphan Sulphate	<0.02 µg/l	TM343	<0.02	<0.02	<0.02	<0.02	<0.02	
Permethrin I	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
Permethrin II	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	<0.01	
Dichlorvos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Mevinphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Tecnazene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Hexachlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Diazinon	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Triallate	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Atrazine	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Simazine	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	0.016	0.0772	
Disulfoton	<0.01 µg/l	TM344	<0.02	<0.02	<0.02	<0.02	<0.02	
Propetamphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Chlorpyrifos-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Dimethoate	<0.01 µg/l	TM344	<0.02	<0.02	<0.02	<0.02	<0.02	
Pirimiphos-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Chlorpyrifos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Methyl Parathion	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Malathion	<0.01 µg/l	TM344	<0.03	<0.03	<0.03	<0.03	<0.03	
Fenthion	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Fenitrothion	<0.01 µg/l	TM344	<0.02	<0.02	<0.02	<0.02	<0.02	
Triadimefon	<0.01 µg/l	TM344	<0.01	<0.01	<0.01	<0.01	<0.01	
Pendimethalin	<0.01 µg/l	TM344	<0.03	<0.03	<0.03	<0.03	<0.03	
Parathion	<0.01 µg/l	TM344	<0.02	<0.02	<0.02	<0.02	<0.02	

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number: Z1283

Report Number: 481781
Superseded Report:

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10	
#	ISO17025 accredited.	Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
M	mCERTS accredited.	Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	
aq	Aqueous / settled sample.	Date Sampled	01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018	
diss.filt	Dissolved / filtered sample.	Sample Time	.	.	.	.	.
tot.unfilt	Total / unfiltered sample.	Date Received	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	
*	Subcontracted test.	SDG Ref	181002-48	181002-48	181002-48	181002-48	181002-48	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Lab Sample No.(s)	18442340	18442356	18442367	18442375	18442388	
(F)	Trigger breach confirmed	AGS Reference						
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Chlorfenvinphos	<0.01 µg/l	TM344	<0.02	<0.02	0.987	0.0217	<0.02	
Ethion	<0.01 µg/l	TM344	<0.03	<0.03	<0.03	<0.03	<0.03	
Carbophenothion	<0.01 µg/l	TM344	<0.04	<0.04	<0.04	<0.04	<0.04	
Triazophos	<0.01 µg/l	TM344	<0.03	<0.03	<0.03	<0.03	<0.03	
Phosalone	<0.01 µg/l	TM344	<0.04	<0.04	<0.04	<0.04	<0.04	
Azinphos methyl	<0.02 µg/l	TM344	<0.12	<0.12	<0.12	<0.12	<0.12	
Azinphos ethyl	<0.02 µg/l	TM344	<0.1	<0.1	<0.1	<0.1	<0.1	
Quintozene (PCNB)	<0.01 µg/l	TM345	<0.01	<0.01	<0.01	<0.01	<0.01	
Telodrin	<0.01 µg/l	TM345	<0.01	<0.01	<0.01	<0.01	<0.01	
Chlorothalonil	<0.01 µg/l	TM345	<0.01	<0.01	<0.01	<0.01	<0.01	
Etrimphos	<0.01 µg/l	TM345	<0.01	<0.01	<0.01	<0.01	<0.01	

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48	Client Reference: P1679	Report Number: 481781
Location: Scotch Corner Landfill	Order Number: Z1283	Superseded Report:

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference					
M	mCERTS accredited.		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
aq	Aqueous / settled sample.		Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
diss.filt	Dissolved / filtered sample.		01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.		02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		181002-48	181002-48	181002-48	181002-48	181002-48
(F)	Trigger breach confirmed		18442340	18442356	18442367	18442375	18442388
1-5&*\$@	Sample deviation (see appendix)						
Component	LOD/Units		Method				
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2-Chlorophenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2-Methylphenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2-Nitroaniline (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
2-Nitrophenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
3-Nitroaniline (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
4-Methylphenol (aq)	<1 µg/l	TM176	<1	<2	49.6	<1	10.7
4-Nitroaniline (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
Azobenzene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
Acenaphthylene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
Acenaphthene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
Anthracene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	4.11	5.94	45.3	<2	<2
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1	<2	7.92	<1	<1
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48	Client Reference: P1679	Report Number: 481781
Location: Scotch Corner Landfill	Order Number: Z1283	Superseded Report:

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10	
# ISO17025 accredited.								
M mCERTS accredited.								
aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample.								
tot.unfilt Total / unfiltered sample.								
* Subcontracted test.								
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F) Trigger breach confirmed								
1-5&*\$@ Sample deviation (see appendix)								
		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
		Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
		Date Sampled	01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018
		Sample Time	-	-	-	-	-	-
		Date Received	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018
		SDG Ref	181002-48	181002-48	181002-48	181002-48	181002-48	181002-48
		Lab Sample No.(s)	18442340	18442356	18442367	18442375	18442388	
		AGS Reference						
Component	LOD/Units	Method						
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Carbazole (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Chrysene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Dibenzofuran (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1	<2	<5	1.01	<1	
Diethyl phthalate (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5	<10	<25	<5	<5	
Fluoranthene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Fluorene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Phenol (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Hexachloroethane (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Nitrobenzene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Naphthalene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	1.31	
Isophorone (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Phenanthrene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	
Pyrene (aq)	<1 µg/l	TM176	<1	<2	<5	<1	<1	

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48	Client Reference: P1679	Report Number: 481781
Location: Scotch Corner Landfill	Order Number: Z1283	Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
M	mCERTS accredited.		Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	
aq	Aqueous / settled sample.		01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018	
diss.filt	Dissolved / filtered sample.		02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018	
tot.unfilt	Total / unfiltered sample.		181002-48	181002-48	181002-48	181002-48	181002-48	181002-48	
*	Subcontracted test.		18442340	18442356	18442367	18442375	18442388	18442388	
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-5&*\$@	Sample deviation (see appendix)								
Component	LOD/Units		Method						
Dibromofluoromethane**	%	TM208	109	111	111	107	110		
Toluene-d8**	%	TM208	98.6	101	99.5	99.3	99.8		
4-Bromofluorobenzene**	%	TM208	98.9	98.8	98.3	97.5	98.7		
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	2.81	<1	<1	#	
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	#	
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Benzene	<1 µg/l	TM208	<1	<1	1.77	<1	1.61	#	
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
Toluene	<1 µg/l	TM208	<1	<1	41.3	<1	26.6	#	
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	#	

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Validated

SDG: 181002-48
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number: Z1283

Report Number: 481781
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10			
#	ISO17025 accredited.									
M	mCERTS accredited.									
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted test.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-5&\$@	Sample deviation (see appendix)									
Component	LOD/Units	Method	Depth (m)	Sample Type	Date Sampled	Sample Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
Tetrachloroethene	<1 µg/l	TM208	0.00 - 0.00 Land Leachate (LE)	0.00 - 0.00 Land Leachate (LE)	01/10/2018	01/10/2018	02/10/2018	181002-48	18442340	
			#	#						
Dibromochloromethane	<1 µg/l	TM208	<1	<1						
			#	#						
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1						
			#	#						
Chlorobenzene	<1 µg/l	TM208	<1	<1						
			#	#						
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1						
			#	#						
Ethylbenzene	<1 µg/l	TM208	<1	<1						
			#	#						
m,p-Xylene	<1 µg/l	TM208	<1	5.83						
			#	#						
o-Xylene	<1 µg/l	TM208	<1	2.29						
			#	#						
Styrene	<1 µg/l	TM208	<1	<1						
			#	#						
Bromoform	<1 µg/l	TM208	<1	<1						
			#	#						
Isopropylbenzene	<1 µg/l	TM208	<1	<1						
			#	#						
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1						
			#	#						
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1						
			#	#						
Bromobenzene	<1 µg/l	TM208	<1	<1						
			#	#						
Propylbenzene	<1 µg/l	TM208	<1	<1						
			#	#						
2-Chlorotoluene	<1 µg/l	TM208	<1	<1						
			#	#						
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1						
			#	#						
4-Chlorotoluene	<1 µg/l	TM208	<1	<1						
			#	#						
tert-Butylbenzene	<1 µg/l	TM208	<1	<1						
			#	#						
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1						
			#	#						
sec-Butylbenzene	<1 µg/l	TM208	<1	<1						
			#	#						
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1						
			#	#						
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1						
			#	#						
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1						
			#	#						
n-Butylbenzene	<1 µg/l	TM208	<1	<1						
			#	#						
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1						
			#	#						
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1						
			#	#						
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1						
			#	#						
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1						
			#	#						
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1						
			#	#						
Naphthalene	<1 µg/l	TM208	<1	<1						
			#	#						
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1						
			#	#						

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48 **Client Reference:** P1679 **Report Number:** 481781
Location: Scotch Corner Landfill **Order Number:** Z1283 **Superseded Report:**

VOC MS (W)

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI9	SI10
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
1-5&*%\$@	Sample deviation (see appendix)						
Depth (m)			0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Sample Type			Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
Date Sampled			01/10/2018	01/10/2018	01/10/2018	01/10/2018	01/10/2018
Sample Time			-	-	-	-	-
Date Received			02/10/2018	02/10/2018	02/10/2018	02/10/2018	02/10/2018
SDG Ref			181002-48	181002-48	181002-48	181002-48	181002-48
Lab Sample No.(s)			18442340	18442356	18442367	18442375	18442388
AGS Reference							
Component	LOD/Units	Method					
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1

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CERTIFICATE OF ANALYSIS

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SDG: 181002-48 Client Reference: P1679 Report Number: 481781
Location: Scotch Corner Landfill Order Number: Z1283 Superseded Report:

Notification of NDPs (No determination possible)

Date Received : 02/10/2018 10:46:21

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
18442340	SI6	0.00 - 0.00	Coliforms (W)	See Comments for cancellation details

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SDG: 181002-48 Client Reference: P1679 Report Number: 481781
 Location: Scotch Corner Landfill Order Number: Z1283 Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM284		
TM328		
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Haverden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181002-48
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number: Z1283

Report Number: 481781
Superseded Report:

Test Completion Dates

Lab Sample No(s)	18442340	18442356	18442367	18442375	18442388
Customer Sample Ref.	S16	S17	S18	S19	S110
AGS Ref.					
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate	Land Leachate
Alkalinity as CaCO3	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018
Ammoniacal Nitrogen	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018
Anions by Kone (w)	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018
BOD True Total	07-Oct-2018	07-Oct-2018	07-Oct-2018	07-Oct-2018	07-Oct-2018
COD Unfiltered	08-Oct-2018	08-Oct-2018	08-Oct-2018	09-Oct-2018	08-Oct-2018
Conductivity (at 20 deg.C)	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018
Cyanide Comp/Free/Total/Thiocyanate	04-Oct-2018	08-Oct-2018	08-Oct-2018	08-Oct-2018	08-Oct-2018
Dissolved Metals by ICP-MS	10-Oct-2018	10-Oct-2018	10-Oct-2018	09-Oct-2018	10-Oct-2018
Dissolved Oxygen by Probe	05-Oct-2018	04-Oct-2018	04-Oct-2018	05-Oct-2018	04-Oct-2018
Fluoride	09-Oct-2018	10-Oct-2018	10-Oct-2018	09-Oct-2018	09-Oct-2018
Mercury Dissolved	05-Oct-2018	05-Oct-2018	05-Oct-2018	08-Oct-2018	05-Oct-2018
Mineral Oil C10-40 Aqueous (W)	09-Oct-2018	09-Oct-2018	09-Oct-2018	09-Oct-2018	09-Oct-2018
Nitrite by Kone (w)	06-Oct-2018	06-Oct-2018	06-Oct-2018	06-Oct-2018	06-Oct-2018
Organotins in Aqueous Samples	09-Oct-2018	09-Oct-2018	09-Oct-2018	09-Oct-2018	09-Oct-2018
Pesticides (Suite I) by GCMS	09-Oct-2018	09-Oct-2018	09-Oct-2018	09-Oct-2018	09-Oct-2018
Pesticides (Suite II) by GCMS	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018
Pesticides (Suite III) by GCMS	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018
pH Value	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018	10-Oct-2018
Phosphate by Kone (w)	08-Oct-2018	08-Oct-2018	08-Oct-2018	08-Oct-2018	08-Oct-2018
Silicon Dissolved by ICP-OES	04-Oct-2018	04-Oct-2018	04-Oct-2018	04-Oct-2018	04-Oct-2018
SVOC MS (W) - Aqueous	09-Oct-2018	10-Oct-2018	09-Oct-2018	09-Oct-2018	09-Oct-2018
Total Organic and Inorganic Carbon	05-Oct-2018	03-Oct-2018	05-Oct-2018	05-Oct-2018	03-Oct-2018
VOC MS (W)	08-Oct-2018	08-Oct-2018	08-Oct-2018	08-Oct-2018	08-Oct-2018

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CERTIFICATE OF ANALYSIS

SDG: 181002-48 Client Reference: P1679 Report Number: 481781
 Location: Scotch Corner Landfill Order Number: Z1283 Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
	Deviation from method
	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Astestost Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Coisidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date: 11 October 2018
Customer: D_FTIM_DUB
Sample Delivery Group (SDG): 181003-47
Your Reference: P1679
Location: Scotch Corner Landfill
Report No: 476317

We received 1 sample on Wednesday October 03, 2018 and 1 of these samples were scheduled for analysis which was completed on Thursday October 11, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 181003-47
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 476317
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
18449679	G8		0.00 - 0.00	02/10/2018

Maximum Sample/Coolbox Temperature (°C) :

11.0

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181003-47
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 476317
Superseded Report:

Results Legend

- X Test
- N No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

	Lab Sample No(s)		18449679			
	Customer Sample Reference		G8			
	AGS Reference					
	Depth (m)		0.00 - 0.00			
	Container		250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
	Sample Type		SW	SW	SW	SW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1			X	
Anions by Kone (w)	All	NDPs: 0 Tests: 1		X		
BOD True Total	All	NDPs: 0 Tests: 1	X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1		X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1				X
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 1		X		
pH Value	All	NDPs: 0 Tests: 1		X		

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CERTIFICATE OF ANALYSIS

SDG: 181003-47
 Location: Scotch Corner Landfill

Client Reference: P1679
 Order Number:

Report Number: 476317
 Superseded Report:

Results Legend		Customer Sample Ref.	G8				
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
1-5&*\$@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
BOD, unfiltered	<1 mg/l	TM045	<5				
				#			
Oxygen, dissolved	<0.3 mg/l	TM046	6.99				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2				
				#			
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	0.204				
				#			
Sodium (Dis.Filt)	<0.076 mg/l	TM152	14.8				
				#			
Potassium (Dis.Filt)	<0.2 mg/l	TM152	0.63				
				#			
Chloride	<2 mg/l	TM184	21.1				
				#			
Sulphate (soluble) as S	<1 mg/l	TM184	14.2				
				#			
pH	<1 pH Units	TM256	6.62				
				#			

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181003-47
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 476317
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181003-47
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 476317
Superseded Report:

Test Completion Dates

Lab Sample No(s)	18449679
Customer Sample Ref.	G8
AGS Ref.	
Depth	0.00 - 0.00
Type	Surface Water

Ammoniacal Nitrogen	11-Oct-2018
Anions by Kone (w)	11-Oct-2018
BOD True Total	09-Oct-2018
Conductivity (at 20 deg.C)	10-Oct-2018
Dissolved Metals by ICP-MS	10-Oct-2018
Dissolved Oxygen by Probe	04-Oct-2018
pH Value	10-Oct-2018

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CERTIFICATE OF ANALYSIS

SDG: 181003-47 Client Reference: P1679 Report Number: 476317
 Location: Scotch Corner Landfill Order Number: Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
Deviation from method	
	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Astestost Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.



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Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date: 19 October 2018
Customer: D_FTIM_DUB
Sample Delivery Group (SDG): 181012-1
Your Reference: P1679
Location: Scotch Corner Landfill
Report No: 477702

We received 6 samples on Friday October 12, 2018 and 6 of these samples were scheduled for analysis which was completed on Friday October 19, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 477702
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
18508267	G3		0.00 - 0.00	10/10/2018
18508273	G8		0.00 - 0.00	10/10/2018
18508225	SI6		0.00 - 0.00	10/10/2018
18508239	SI7		0.00 - 0.00	10/10/2018
18508249	SI8		0.00 - 0.00	10/10/2018
18508257	SI10		0.00 - 0.00	10/10/2018

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

9.4

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of (5±3)°C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 477702
Superseded Report:

Results Legend

- X Test
- N No Determination Possible

Sample Types -

- S - Soil/Solid
- UNS - Unspecified Solid
- GW - Ground Water
- SW - Surface Water
- LE - Land Leachate
- PL - Prepared Leachate
- PR - Process Water
- SA - Saline Water
- TE - Trade Effluent
- TS - Treated Sewage
- US - Untreated Sewage
- RE - Recreational Water
- DW - Drinking Water Non-regulatory
- UNL - Unspecified Liquid
- SL - Sludge
- G - Gas
- OTH - Other

Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
18508267	G3		0.00 - 0.00	250ml BOD (ALE212) 0.5l glass bottle (ALE227)	SW
18508273	G8		0.00 - 0.00	250ml BOD (ALE212) HNO3 Filtered (ALE227) H2SO4 (ALE204)	SW
18508225	S16		0.00 - 0.00	250ml BOD (ALE212) 0.5l glass bottle (ALE227) Vial (ALE297) NaOH (ALE245) HNO3 Filtered (ALE204) H2SO4 (ALE244)	LE
18508239	S17		0.00 - 0.00	NaOH (ALE245) HNO3 Filtered (ALE204) H2SO4 (ALE244)	LE

Parameter	Method	NDPs: 0 Tests: 6	18508267	18508273	18508225	18508239
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 6	X	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 6	X	X	X	X
BOD True Total	All	NDPs: 0 Tests: 6	X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 6	X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 6	X	X	X	X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 4			X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 6		X	X	X
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 6	X	X	X	X
Fluoride	All	NDPs: 0 Tests: 4			X	X
Mercury Dissolved	All	NDPs: 0 Tests: 4			X	X
Mineral Oil C10-40 Aqueous (W)	All	NDPs: 0 Tests: 4			X	X
Nitrite by Kone (w)	All	NDPs: 0 Tests: 4			X	X
Organotins in Aqueous Samples	All	NDPs: 0 Tests: 4		X	X	
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 4		X	X	
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 4		X	X	

18508257	S110		0.00 - 0.00	Vial (ALE297)	LE															
				NaOH (ALE245)	LE															
				HNO3 Filtered (ALE204)	LE															
				H2SO4 (ALE244)	LE															
				250ml BOD (ALE212)	LE															
				0.5l glass bottle (ALE227)	LE															
				Vial (ALE297)	LE															
				NaOH (ALE245)	LE															
				HNO3 Filtered (ALE204)	LE															
				H2SO4 (ALE244)	LE															
				250ml BOD (ALE212)	LE															
				0.5l glass bottle (ALE227)	LE															
				Vial (ALE297)	LE															
				NaOH (ALE245)	LE															
				HNO3 Filtered (ALE204)	LE															
				H2SO4 (ALE244)	LE															
				250ml BOD (ALE212)	LE															
				0.5l glass bottle (ALE227)	LE															
				Vial (ALE297)	LE															
				NaOH (ALE245)	LE															
				HNO3 Filtered (ALE204)	LE															
				H2SO4 (ALE244)	LE															
				250ml BOD (ALE212)	LE															
				0.5l glass bottle (ALE227)	LE															
				Vial (ALE297)	LE															
				NaOH (ALE245)	LE															
				HNO3 Filtered (ALE204)	LE															
				H2SO4 (ALE244)	LE															
				250ml BOD (ALE212)	LE															
				0.5l glass bottle (ALE227)	LE															
				Vial (ALE297)	LE															

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18508257	SI10	0.00 - 0.00	Vial (ALE297)	LE															X
			NaOH (ALE245)	LE															
			HNO3 Filtered (ALE204)	LE							X								
			H2SO4 (ALE244)	LE												X			
			250ml BOD (ALE212)	LE															
			0.5l glass bottle (ALE227)	LE		X													
			Vial (ALE297)	LE															X
			NaOH (ALE245)	LE															
			HNO3 Filtered (ALE204)	LE						X									
			H2SO4 (ALE244)	LE															
			250ml BOD (ALE212)	LE															
			0.5l glass bottle (ALE227)	LE															
			Vial (ALE297)	LE		X													X
18508249	SI8	0.00 - 0.00	Vial (ALE297)	LE															X
			NaOH (ALE245)	LE															
			HNO3 Filtered (ALE204)	LE							X								
			H2SO4 (ALE244)	LE															
			250ml BOD (ALE212)	LE															
			0.5l glass bottle (ALE227)	LE		X													
			Vial (ALE297)	LE															X
			NaOH (ALE245)	LE															
			HNO3 Filtered (ALE204)	LE						X									
			H2SO4 (ALE244)	LE															
			250ml BOD (ALE212)	LE															
			0.5l glass bottle (ALE227)	LE															
			Vial (ALE297)	LE		X													X
18508239	SI7	0.00 - 0.00	Vial (ALE297)	LE															X
			NaOH (ALE245)	LE															
			HNO3 Filtered (ALE204)	LE															
			H2SO4 (ALE244)	LE															
			250ml BOD (ALE212)	LE															
			0.5l glass bottle (ALE227)	LE															
			Vial (ALE297)	LE		X													X

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 477702
Superseded Report:

Results Legend		Customer Sample Ref.	G3	G8	SI6	SI7	SI8	SI10
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Surface Water (SW)	Surface Water (SW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
aq	Aqueous / settled sample.		10/10/2018	10/10/2018	10/10/2018	10/10/2018	10/10/2018	10/10/2018
diss.filt	Dissolved / filtered sample.		12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018
tot.unfilt	Total / unfiltered sample.		181012-1	181012-1	181012-1	181012-1	181012-1	181012-1
**	Subcontracted test.		18508267	18508273	18508225	18508239	18508249	18508257
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
BOD, unfiltered	<1 mg/l	TM045	<2.5 #	6.05 #	7.77 #	3.75 #	103 #	61.2 #
Oxygen, dissolved	<0.3 mg/l	TM046	7.68	8.24	7.54	7.38	7.4	6.54
Organic Carbon, Total	<3 mg/l	TM090			30.7	21.2	102	56.8
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	46.9 #	<0.2 #	204	45	229	269
Fluoride	<0.5 mg/l	TM104			<0.5	<0.5	<0.5	<0.5
COD, unfiltered	<7 mg/l	TM107	97.9 #	148 #	91.2 #	82 #	537 #	380 #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	0.927 #	0.218 #	2.24 #	1.15 #	2.57 #	2.93 #
Antimony (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1
Arsenic (diss.filt)	<0.5 µg/l	TM152			1.19 #	1.44 #	23.9 #	2.57 #
Barium (diss.filt)	<0.2 µg/l	TM152			131 #	152 #	359 #	126 #
Beryllium (diss.filt)	<0.1 µg/l	TM152			<0.1 #	<0.1 #	<0.1 #	<0.1 #
Boron (diss.filt)	<10 µg/l	TM152			242 #	240 #	498 #	589 #
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08 #	0.143 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152			2.75 #	1.28 #	4.98 #	10.8 #
Cobalt (diss.filt)	<0.5 µg/l	TM152			1.89 #	4.74 #	7.17 #	2.46 #
Copper (diss.filt)	<0.3 µg/l	TM152			<0.3 #	4.31 #	<0.3 #	<0.3 #
Lead (diss.filt)	<0.2 µg/l	TM152			0.201 #	1.14 #	<0.2 #	<0.2 #
Manganese (diss.filt)	<3 µg/l	TM152			2580 #	1320 #	2550 #	1250 #
Molybdenum (diss.filt)	<3 µg/l	TM152			10.5 #	<3 #	<3 #	<3 #
Nickel (diss.filt)	<0.4 µg/l	TM152			3.67 #	28 #	14.7 #	4.89 #
Phosphorus (diss.filt)	<10 µg/l	TM152			1390 #	21.4 #	1270 #	1260 #
Selenium (diss.filt)	<1 µg/l	TM152			<1 #	<1 #	<1 #	<1 #
Tellurium (diss.filt)	<2 µg/l	TM152			5.89 #	<2 #	<2 #	<2 #
Thallium (diss.filt)	<2 µg/l	TM152			<2 #	<2 #	<2 #	<2 #
Titanium (diss.filt)	<1 µg/l	TM152			15 #	6.02 #	21.2 #	23.7 #
Uranium (diss.filt)	<0.5 µg/l	TM152			<0.5 #	1.26 #	0.714 #	<0.5 #
Vanadium (diss.filt)	<1 µg/l	TM152			3.27 #	<1 #	4.88 #	4.58 #
Zinc (diss.filt)	<1 µg/l	TM152			2.23 #	13 #	3.01 #	2.69 #
Tin (Diss.Filt)	<1 µg/l	TM152			4.76 #	<1 #	3.04 #	1.98 #
Silver (diss.filt)	<0.5 µg/l	TM152			<0.5 #	<0.5 #	<0.5 #	<0.5 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152	26.1 #	17.3 #	25.3 #	39.6 #	55.5 #	79.5 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			23.5 #	25.2 #	41.5 #	41.2 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152	15.5 #	1.22 #	19.8 #	20.1 #	46.8 #	72 #

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CERTIFICATE OF ANALYSIS

Validated

SDG:	181012-1	Client Reference:	P1679
Location:	Scotch Corner Landfill	Order Number:	
		Report Number:	477702
		Superseded Report:	

#	Results Legend	Customer Sample Ref.	G3	G8	S16	S17	S18	S110
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
		Sample Type	Surface Water (SW)	Surface Water (SW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
		Date Sampled	10/10/2018	10/10/2018	10/10/2018	10/10/2018	10/10/2018	10/10/2018
		Sample Time	-	-	-	-	-	-
		Date Received	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018
		SDG Ref	181012-1	181012-1	181012-1	181012-1	181012-1	181012-1
		Lab Sample No.(s)	18508267	18508273	18508225	18508239	18508249	18508257
		AGS Reference						
Component	LOD/Units	Method						
Calcium (Dis.Filt)	<0.2 mg/l	TM152			149	136	223	161
					#	#	#	#
Iron (Dis.Filt)	<0.019 mg/l	TM152			23.2	0.377	24.8	52.5
					#	#	#	#
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172			<100	<100	223	2080
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01	<0.01	<0.01
					#	#	#	#
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184			0.096	<0.05	0.301	<0.05
Sulphate	<2 mg/l	TM184	15.6	36.4	74.8	23.4	<2	8.1
			#	#				
Chloride	<2 mg/l	TM184	46.2	22.4	39.7	60	91	156
			#	#				
Nitrite as N	<0.0152 mg/l	TM184			<0.0152	0.8	<0.0152	<0.0152
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184			<0.1	24.5	<0.1	<0.1
Cyanide, Total	<0.05 mg/l	TM227			<0.05	<0.05	<0.05	<0.05
					#	#	#	#
Cyanide, Free	<0.05 mg/l	TM227			<0.05	<0.05	<0.05	<0.05
					#	#	#	#
pH	<1 pH Units	TM256	8.01	7.26	7.09	7.01	7.48	7.92
			#	#	#	#	#	#
Silicon (diss.filt)	<0.05 mg/l	TM284			8.67	3.49	10.4	10.4
Dibutyl tin	<5 ng/l	TM328			11.7	<5	<15	<15
Tributyl tin	<1 ng/l	TM328			<1	<1	<3	<3
Tetrabutyl tin	<2 ng/l	TM328			<2	<2	<6	<6
Triphenyl tin	<1 ng/l	TM328			<1	<1	<3	<3
Surrogate	%	TM328			95.9	95.8	59.3	72.9
Trifluralin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
alpha-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
gamma-HCH (Lindane)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Aldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
beta-HCH	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Isodrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
o,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Endosulphan I	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
trans-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
cis-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
p,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Dieldrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181012-1	Client Reference: P1679	Report Number: 477702
Location: Scotch Corner Landfill	Order Number:	Superseded Report:

Results Legend		Customer Sample Ref.	G3	G8	SI6	SI7	SI8	SI10
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
		Sample Type	Surface Water (SW)	Surface Water (SW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
		Date Sampled	10/10/2018	10/10/2018	10/10/2018	10/10/2018	10/10/2018	10/10/2018
		Sample Time	-	-	-	-	-	-
		Date Received	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018	12/10/2018
		SDG Ref	181012-1	181012-1	181012-1	181012-1	181012-1	181012-1
		Lab Sample No.(s)	18508267	18508273	18508225	18508239	18508249	18508257
		AGS Reference						
Component	LOD/Units	Method						
o,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Endrin	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
o,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
p,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Endosulphan II	<0.02 µg/l	TM343			<0.02	<0.02	<0.02	<0.02
p,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.02	<0.02	<0.02	<0.02
Permethrin I	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Permethrin II	<0.01 µg/l	TM343			<0.01	<0.01	<0.01	<0.01
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Mevinphos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Tecnazene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Hexachlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Diazinon	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Triallate	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Atrazine	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	0.087
Simazine	<0.01 µg/l	TM344			<0.01	0.0493	0.192	0.213
Disulfoton	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Propetamphos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Chlorpyrifos-methyl	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Dimethoate	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Pirimiphos-methyl	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Chlorpyrifos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Methyl Parathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Malathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Fenthion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Fenitrothion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Triadimefon	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Pendimethalin	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Parathion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01
Chlorfenvinphos	<0.01 µg/l	TM344			<0.01	<0.01	>0.688	<0.01

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 477702
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI10		
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.	Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
diss.filt	Dissolved / filtered sample.	Sample Type	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)		
tot.unfilt	Total / unfiltered sample.	Date Sampled	10/10/2018	10/10/2018	10/10/2018	10/10/2018		
*	Subcontracted test.	Sample Time						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery	Date Received	12/10/2018	12/10/2018	12/10/2018	12/10/2018		
(F)	Trigger breach confirmed	SDG Ref	181012-1	181012-1	181012-1	181012-1		
1-5&*\$@	Sample deviation (see appendix)	Lab Sample No.(s)	18508225	18508239	18508249	18508257		
		AGS Reference						
Component	LOD/Units	Method						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	<1	1.32	<1		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1	<1	1.21	1.39		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2-Chlorophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2-Methylphenol (aq)	<1 µg/l	TM176	<1	<1	2.16	<1		
2-Nitroaniline (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
2-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
3-Nitroaniline (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
4-Methylphenol (aq)	<1 µg/l	TM176	<1	<1	3.26	<1		
4-Nitroaniline (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Azobenzene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Acenaphthylene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Acenaphthene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Anthracene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2	<2	14.8	<2		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1	<1	6.38	<1		
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 477702
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI10		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
M	mCERTS accredited.		Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)		
aq	Aqueous / settled sample.		10/10/2018	10/10/2018	10/10/2018	10/10/2018		
diss.filt	Dissolved / filtered sample.		.	.	.	.
tot.unfilt	Total / unfiltered sample.		12/10/2018	12/10/2018	12/10/2018	12/10/2018		
*	Subcontracted test.		181012-1	181012-1	181012-1	181012-1		
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		18508225	18508239	18508249	18508257		
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Carbazole (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Chrysene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Dibenzofuran (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1	<1	2.77	<1		
Diethyl phthalate (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5	<5	<5	<5		
Fluoranthene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Fluorene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Phenol (aq)	<1 µg/l	TM176	<1	<1	1.34	<1		
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Hexachloroethane (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Nitrobenzene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Naphthalene (aq)	<1 µg/l	TM176	<1	<1	1.75	<1		
Isophorone (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Phenanthrene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		
Pyrene (aq)	<1 µg/l	TM176	<1	<1	<1	<1		

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 477702
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI10		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
M	mCERTS accredited.		Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)		
aq	Aqueous / settled sample.		10/10/2018	10/10/2018	10/10/2018	10/10/2018		
diss.filt	Dissolved / filtered sample.		12/10/2018	12/10/2018	12/10/2018	12/10/2018		
tot.unfilt	Total / unfiltered sample.		181012-1	181012-1	181012-1	181012-1		
tot.unfilt	Subcontracted test.		18508225	18508239	18508249	18508257		
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Dibromofluoromethane**	%	TM208	114	113	119	116		
Toluene-d8**	%	TM208	97.9	100	100	99.7		
4-Bromofluorobenzene**	%	TM208	98.7	97.1	98.1	96.8		
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Chloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Vinyl chloride	<1 µg/l	TM208	1.07 #	<1 #	<1 #	<1 #		
Bromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Chloroethane	<1 µg/l	TM208	<1 #	1.23 #	1.04 #	1.18 #		
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	1.12 #	3.02 #	<1 #		
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #	<3 #	<3 #		
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,1-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
2,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Chloroform	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Benzene	<1 µg/l	TM208	<1 #	<1 #	1.55 #	1.62 #		
Trichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
Toluene	<1 µg/l	TM208	<1 #	<1 #	46.1 #	26.9 #		
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,3-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		

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CERTIFICATE OF ANALYSIS

Validated

SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

Report Number: 477702
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	SI6	SI7	SI8	SI10		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
M	mCERTS accredited.		Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)		
aq	Aqueous / settled sample.		10/10/2018	10/10/2018	10/10/2018	10/10/2018		
diss.filt	Dissolved / filtered sample.		.	.	.	.
tot.unfilt	Total / unfiltered sample.		12/10/2018	12/10/2018	12/10/2018	12/10/2018		
*	Subcontracted test.		181012-1	181012-1	181012-1	181012-1		
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		18508225	18508239	18508249	18508257		
(F)	Trigger breach confirmed							
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Ethylbenzene	<1 µg/l	TM208	<1	<1	43.2	<1	#	#
m,p-Xylene	<1 µg/l	TM208	4.72	<1	111	8.59	#	#
o-Xylene	<1 µg/l	TM208	1.12	2.63	25	1.15	#	#
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Isopropylbenzene	<1 µg/l	TM208	<1	<1	1.13	1.01	#	#
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Propylbenzene	<1 µg/l	TM208	<1	<1	1.01	<1	#	#
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	2.39	1.62	#	#
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,2,4-Trimethylbenzene	<1 µg/l	TM208	6.06	<1	10.6	6.29	#	#
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	10.4	<1	#	#
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	#	#
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	#	#
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	#	#
Naphthalene	<1 µg/l	TM208	<1	<1	1.61	1.4	#	#
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	#	#

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SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
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Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter
TM061	Method for the Determination of EPH,Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter
TM284		
TM328		
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden (Method codes TM) or ALS Life Sciences Ltd Aberdeen (Method codes S).

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Validated

SDG: 181012-1
Location: Scotch Corner Landfill

Client Reference: P1679
Order Number:

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Superseded Report:

Test Completion Dates

Lab Sample No(s)	18508267	18508273	18508225	18508239	18508249	18508257
Customer Sample Ref.	G3	G8	S16	S17	S18	S110
AGS Ref.						
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Surface Water	Surface Water	Land Leachate	Land Leachate	Land Leachate	Land Leachate
Ammoniacal Nitrogen	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
Anions by Kone (w)	18-Oct-2018	18-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
BOD True Total	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
COD Unfiltered	15-Oct-2018	14-Oct-2018	14-Oct-2018	14-Oct-2018	14-Oct-2018	15-Oct-2018
Conductivity (at 20 deg.C)	12-Oct-2018	12-Oct-2018	12-Oct-2018	12-Oct-2018	12-Oct-2018	12-Oct-2018
Cyanide Comp/Free/Total/Thiocyanate			15-Oct-2018	15-Oct-2018	15-Oct-2018	15-Oct-2018
Dissolved Metals by ICP-MS	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
Dissolved Oxygen by Probe	12-Oct-2018	12-Oct-2018	12-Oct-2018	12-Oct-2018	12-Oct-2018	12-Oct-2018
Fluoride			17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
Mercury Dissolved			17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
Mineral Oil C10-40 Aqueous (W)			18-Oct-2018	18-Oct-2018	18-Oct-2018	18-Oct-2018
Nitrite by Kone (w)			16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018
Organotins in Aqueous Samples			18-Oct-2018	18-Oct-2018	18-Oct-2018	18-Oct-2018
Pesticides (Suite I) by GCMS			17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
Pesticides (Suite II) by GCMS			17-Oct-2018	19-Oct-2018	19-Oct-2018	19-Oct-2018
Pesticides (Suite III) by GCMS			17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
pH Value	16-Oct-2018	16-Oct-2018	15-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018
Phosphate by Kone (w)			16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018
Silicon Dissolved by ICP-OES			16-Oct-2018	16-Oct-2018	16-Oct-2018	16-Oct-2018
SVOC MS (W) - Aqueous			17-Oct-2018	17-Oct-2018	17-Oct-2018	17-Oct-2018
Total Organic and Inorganic Carbon			15-Oct-2018	13-Oct-2018	13-Oct-2018	15-Oct-2018
VOC MS (W)			15-Oct-2018	15-Oct-2018	15-Oct-2018	15-Oct-2018

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CERTIFICATE OF ANALYSIS

SDG: 181012-1 Client Reference: P1679 Report Number: 477702
 Location: Scotch Corner Landfill Order Number: Superseded Report:

Appendix

General

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

24. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
	Deviation from method
	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

Asbestos

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Astestost Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.