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HISTORIC LANDFILL AT NEW INN, CO. GALWAY

ENVIRONMENTAL REPORT 2022

Prepared for:

Galway County Council



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Abstract: This report represents the findings of additional environmental monitoring carried out at New Inn Historic Landfill, Co. Galway. The monitoring was undertaken to determine the extent of the potential environmental impact of historic landfilling at the site.

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1. INTRODUCTION

1.1 Background

As part of a Tier 2 Environmental Risk Assessment for the site, Galway County Council (GCC) appointed Fehily Timoney and Company (FT) to undertake environmental sampling on a historic landfill in New Inn, Co. Galway. Between 2020 and 2021, FT conducted groundwater, leachate, surface water and landfill gas monitoring at the New Inn historic landfill. The monitoring comprised sampling and analysis of groundwater at four existing groundwater wells and surface water sampling at two locations along a tributary stream of Raford River located c.60m north of the site boundary.

New Inn historic landfill covers an area of c.1.5 ha and is located adjacent to the R348, Athenry to Ballinasloe Road, to the west of New Inn. The topography of the site is generally relatively flat, with a gentle slope towards south-west. The surroundings area primarily comprises agricultural land with residential areas found to the south-east. The historic landfill area was initially estimated to be approximately 1.5Ha. Available evidence suggests the site was operated between 1970's to 1989. It was originally part of a quarry operated by GCC which was later infilled.

In 2022, Galway County Council requested one additional round of monitoring be undertaken. For continuity, GCC requested that the monitoring locations and parameters remain the same as the monitoring carried out at New Inn historic landfill in 2020 and 2021.

1.2 Scope of Works

FT's scope of work was to undertake one additional round of groundwater, leachate, surface water and landfill gas. Sampling was undertaken at New Inn Landfill on the 1st June 2022.

Laboratory analysis of surface water, leachate and groundwater samples was conducted to assess and quantify any potential or ongoing environmental impacts. Laboratory analytical reports for 2022 surface water, leachate and groundwater monitoring results are presented in Appendix 1.

This report presents the findings of the assessment.



2. ENVIRONMENTAL ASSESSMENT

The results of the environmental assessment at the New Inn historic landfill site between 2020 and 2022 are presented in the following sections.

The surface water, leachate and groundwater results were compared to relevant environmental quality standards to identify the potential and magnitude of any impacts on receiving surface water and groundwater.

2.1 Chemical Assessment Criteria

- European Communities, Environmental Objectives (Groundwater)(Amendment) Regulations, 2016 (S.I. No. 366 of 2016).
- Interim Guideline Values (IGV) set out in the EPAs Groundwater Towards Setting the Guideline Values for the Protection of Groundwater in Ireland.
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009), as amended 2012 (S.I. No. 327 of 2012), 2015 (S.I. No. 386 of 2015), 2019 (S.I. No. 77 of 2019)
- European Communities (Quality of Surface Water Intended for the Abstraction of Drinking Water) Regulations, 1989 (S.I. No. 294/1989).

2.2 Groundwater and Leachate Analysis

Four groundwater monitoring events have been undertaken since 2020; two rounds of monitoring were undertaken on the 30th July 2020 and 25th August 2020; another round on 14th July 2021 and one additional round on 2nd June 2022. The findings from the monitoring and an interpretation of the results are presented in the following sections.

2.2.1 Groundwater Quality Monitoring

The results of groundwater samples analysed from the 4 No. groundwater monitoring wells (BH01, BH04, GW01 and GW02) at the site have been assessed against the EPAs Interim Guideline Values (IGVs) and S.I No. 9 of the European Communities Environmental Objectives (Groundwater) Regulations 2010 (amended) threshold values. A summary of the results reported for each parameter for the monitoring rounds is outlined in Table 2.1, while the laboratory reports for the 2022 monitoring are presented in Appendix 1.

The groundwater sampling locations are presented in Figure 2.1.



- Site Boundary
- Borehole Locations
- 1m Ground Elevation Contours
- Indicative Groundwater Flow Direction

TITLE:		Groundwater Flow Direction	
PROJECT:		New Inn Historic Landfill ERA	
FIGURE NO:		2.1	
CLIENT:		Galway County Council	
SCALE:	1:2,500	REVISION:	0
DATE:	06/10/2020	PAGE SIZE:	A3



Table 2-1: Groundwater Sampling Results

Parameter	Units	S.I. No. 9 of 2010 Standards ¹	EPA IGV Standards ²	Round 1 (30/07/2020)				Round 2 (25/08/2020)				Round 3 (14/07/2021)				Round 4 (02/06/2022)			
				BH1	BH4	GW01	GW02	BH1	BH4	GW01	GW02	BH1	BH4	GW01	GW02	BH1	BH4	GW01	GW02
				UG ³	DG ³	CG ³	DG	UG	DG	CG	DG	UG	DG	CG	DG	UG	DG	CG	DG
Inorganics																			
Conductivity @ 20 deg.C	mS/cm	0.8		0.623	0.794	0.748	1.27	0.643	0.798	0.727	1.45	0.646	0.826	0.711	2.9	0.599	0.823	0.746	2.64
Fluoride	mg/l	1	1	<0.5	<0.5	<0.5	0.908	0.786	0.79	<0.5	0.968	<0.5	<0.5	<0.5	1.71	<0.5	<0.5	<0.5	1.46
Oxygen, dissolved	mg/l		NAC	9.68	8.64	10	9.5	-	8.34	-	9.51	5.46	2.58	4.86	5.54	9.8	9.58	12.2	11.5
pH	pH Units	6 – 9										7.26	7.26	7.07	7.74	7.34	7.17	7.11	7.67
Sulphate	mg/l	187.5	200	11.8	11.8	9.3	181	12.5	11.8	16.9	235	11.4	20.2	10.6	492	13.6	13.6	6.5	442
Chloride	mg/l	24	30	13.5	73.6	22.2	46.4	16.1	66	23.1	55.6	10.9	69	22	94.9	7.4	71	15.4	90.1
COD, unfiltered	mg/l			28.7	32.3	99.6	162	8.83	13.4	342	106	16.3	70.2	83.4	214	-	-	-	-
Ammoniacal Nitrogen as N (low level)	mg/l	0.065	0.15	0.0176	0.186	0.0283	0.544	0.0202	0.558	0.0438	0.526	0.122	0.212	0.0656	0.321	0.013	0.139	0.034	0.443
Cyanide, Total	mg/l	0.0375	0.01	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Total Oxidised Nitrogen as N	mg/l		NAC	1.89	<0.1	1.75	0.216	0.573	0.282	1.98	<0.1	1.13	<0.1	1.87	0.291	0.88	<0.1	1.11	0.107
Alkalinity, Total as HCO3	mg/l		NAC	451	482	1570	939	427	434	2280	1230	440	464	1420	1830	432	459	3340	1460
Filtered (Dissolved) Metals																			
Mercury	µg/l	0.75	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	µg/l	7.5	10	0.521	0.869	<0.5	0.607	<0.5	2.96	<0.5	0.541	<0.5	3.02	<0.5	0.804	<0.5	6.21	<0.5	0.798
Barium	µg/l		100	21.8	33.5	9.12	129	36.9	41.8	1930	111	22.4	38.8	7.87	151	19.1	41.5	7.92	190
Boron	µg/l	750	1000	23.7	43.5	<10	180	64.3	136	348	193	16.6	52.9	14.6	166	21.4	41	15	181
Cadmium	µg/l	3.75	5	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	0.117	<0.08	<0.08	<0.08
Chromium	µg/l	37.5	30	<1	<1	<1	<1	<1	5.17	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
Copper	µg/l	1500	30	4.98	<0.3	0.828	1.97	7.55	0.618	1.15	1	11.9	<0.3	0.98	1.2	24.9	<0.3	0.374	<0.3
Lead	µg/l	7.5	10	<0.2	<0.2	<0.2	0.356	0.616	1.52	<0.2	<0.2	0.497	<0.2	<0.2	0.252	12.2	1.75	<0.2	<0.2
Manganese	µg/l		50	16	115	9.66	8.05	25.8	105	<3	14.9	7.96	131	<3	117	31.2	136	3.15	146
Nickel	µg/l	15	20	10.5	5.59	3.53	3.47	8.5	17.1	2.71	3.44	7.94	2.57	1.65	3.78	9.18	64.2	1.76	2.72
Zinc	µg/l	75	100	26.6	1.95	3.01	1.98	10	5.81	862	<1	29.7	3.2	9.58	8.15	31.5	19.1	1.27	1.89
Sodium	mg/l	150	150	6.42	45.8	8.43	226	10.6	46.5	19.3	222	7.95	43.6	10.8	670	5.99	47.2	8.63	486
Magnesium	mg/l		50	10.1	8.08	5.7	28.3	18.9	12.8	7.94	35.6	9.22	9.11	5.48	34.5	8.55	8.48	5.99	41
Potassium	mg/l		5	1.18	3.32	1.69	5.26	1.58	4.5	0.627	5.49	1.31	3.88	2.15	6.98	1.42	4.06	1.64	7.23
Calcium	mg/l		200	139	139	143	71.8	109	128	138	64.5	131	142	160	31.9	140	152	170	53.8
Iron	mg/l		0.2	<0.019	<0.019	<0.019	<0.019	0.0509	3.75	<0.019	0.0304	0.0802	2.44	<0.019	0.0509	0.407	5.95	<0.019	0.0415



Parameter	Units	S.I. No. 9 of 2010 Standards ¹	EPA IGV Standards ²	Round 1 (30/07/2020)				Round 2 (25/08/2020)				Round 3 (14/07/2021)				Round 4 (02/06/2022)			
				BH1	BH4	GW01	GW02	BH1	BH4	GW01	GW02	BH1	BH4	GW01	GW02	BH1	BH4	GW01	GW02
				UG ³	DG ³	CG ³	DG	UG	DG	CG	DG	UG	DG	CG	DG	UG	DG	CG	DG
Combined Pesticides / Herbicides																			
Dieldrin	µg/l	0.075		<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	0.175	<0.1	<0.05	<0.1	<0.01	<0.01	<0.01	<0.01
Simazine	µg/l	0.075		<0.01	<0.01	<0.01	<0.02	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	0.0763	<0.02	<0.01	<0.02	0.073	<0.01
Miscellaneous Organics																			
MCPA	µg/l	0.075	10000000	<0.05	<0.05	<0.25	<0.25	<0.05	<0.1	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	<0.05	<0.1	<0.1	<0.1
Mecoprop	µg/l	0.075	10	<0.04	<0.04	<0.2	<0.2	<0.04	<0.08	<0.08	<0.08	<0.2	<0.2	<0.2	<0.2	<0.04	<0.08	<0.08	<0.08
Dichlorprop	µg/l		100	<0.1	<0.1	<0.5	<0.5	<0.1	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5	<0.1	<0.2	<0.2	<0.2
2,4-Dichlorophenoxyacetic acid	µg/l	0.075		<0.05	<0.05	<0.25	<0.25	<0.05	<0.1	<0.1	<0.1	<0.25	<0.25	<0.25	<0.25	<0.05	<0.1	<0.1	<0.1
Bromoxynil	µg/l		5	<0.04	<0.04	<0.2	<0.2	<0.08	<0.08	<0.08	<0.08	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08	<0.08	<0.08
Pentachlorophenol	µg/l		2	<0.04	<0.04	<0.2	<0.2	<0.08	<0.08	<0.08	<0.08	<0.2	<0.2	<0.2	<0.2	<0.08	<0.08	<0.08	<0.08

¹ OTV-Overall threshold value, European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010) as amended in 2011, 2012, 2016.

² IGTV-Interim Guideline Values, from EPA, Towards Setting Guideline Values for the Protection of Groundwater in Ireland, 2003.

³ UG – upgradient / DG – downgradient / CG – cross gradient

* Items shaded in **orange** are in exceedance of the Drinking Water Regulations

* Items shaded in **bold** are in exceedance of the EPA IGTV Standards



2.2.2 Groundwater Analysis Discussion

The results of the groundwater monitoring from BH1, BH4, GW01 and GW02 have reported several exceedances of the IGVs and groundwater regulations overall limit values.

Samples obtained from downgradient monitoring wells reported ammoniacal nitrogen concentrations from 0.0656 mg/l to 0.558 mg/l at BH4 and GW02 which exceed IGV and OTV limit values. The highest concentrations of ammoniacal nitrogen concentration are detected at downgradient wells GW02 and BH4, indicating the site landfill may causing an increase in ammoniacal nitrogen downgradient of the site.

Results from July 2021 and June 2022 show elevated concentrations of chloride above the OTV and IGV continue to be detected in downgradient groundwater monitoring wells BH4 and GW02. Results show higher chloride concentrations at GW02 (46.4 – 94.9 mg/l) compared to BH4 (66 – 73.6 mg/l) which is likely due to the proximity to the landfill waste body.

Sulphate (235 – 492 mg/l) and fluoride (1.46 – 1.71 mg/l) levels at GW02 exceeded the OTV / IGV and are another indicator of the presence of landfill leachate.

Landfill leachate has the potential to contain high concentrations of chloride, sulphate and fluoride ions and may be the source of the concentrations observed at these locations.

Electrical conductivity at GW02 exceeded the OTV during each of the four monitoring events and ranged from 1.27 – 2.9 mS/cm. The EC levels are an indication of the presence of dissolved anions (e.g. chloride and sulphate) in the landfill leachate downgradient of the waste body.

Sodium (222 – 670 mg/l) and potassium (5.26 – 7.23 mg/l) levels at GW02 exceeded the respective OTV and IGV limit during each of the four monitoring events. The presence of sodium and potassium at these levels indicates the presence of leachate migration from the landfill.

Analysis of heavy metal compounds showed the presence of barium at GW02 (129 – 190 mg/l) and nickel detected at BH4 (17.1 - 64.2 mg/l) which exceeds the IGV limit. The detection of these heavy metal compounds are typical indicators of landfill leachate.

Iron levels of 0.33 – 38.8 mg/l and manganese levels of 105 – 136 µg/l were detected above the IGV limit at BH4 during the monitoring period since July 2020. Manganese levels of 146 mg/l and 117 mg/l exceeded the IGV at GW02 during the July 2021 and June 2022 monitoring events. Results show iron and manganese levels were broadly below the IGV limit at the upgradient (BH1) and cross-gradient (GW01) wells during each monitoring event since July 2020.

The results of groundwater monitoring when assessed against thresholds for List 1 and List 2 substances – SVOCs, VOCs, PCBs and organics shows all results are below the laboratory limit of detection in all assessments across all four sampling locations on both rounds. Analysis screening of the pesticide and herbicide compounds returned results for dieldrin and simazine at upgradient well BH1 and cross-gradient well GW01, respectively. Dieldrin and simazine are commonly used herbicides, and their presence at these locations are not expected to be attributed to leachate migration from the landfill.

2.2.3 Leachate Monitoring

Leachate monitoring was attempted at location BH02 on 2nd June 2022, the location was dry.

Leachate monitoring was also attempted at location BH02 on the 14th July 2021, the location was dry.



Two rounds of leachate monitoring were successfully undertaken at location BH02 on the 30th July 2020 and 25th August 2020. Results indicated the presence of some pollutants at concentrations typical of Municipal Solid Waste (MSW) leachate i.e., ammoniacal nitrogen, chloride, and COD.

2.3 Landfill Gas Monitoring

FT carried out monitoring of landfill gas (LFG) parameters at each monitoring borehole location BH01, BH02, BH4, GW01 and GW02 inclusive. Methane, carbon dioxide, oxygen and atmospheric pressure were analysed at the 4 No. groundwater monitoring wells located outside the waste body and 1 No. leachate monitoring well (GW02) located within the waste body using a Landfill Gas analyser.

2.3.1 Monitoring Results

The EPA Landfill Manuals - Landfill Monitoring 2nd Edition specifies trigger values for landfill gas monitoring at offsite monitoring locations. The trigger level for methane outside the waste body is 1% v/v and for carbon dioxide is 1.5% v/v. The monitoring results for methane, carbon dioxide and oxygen levels for the perimeter borehole are summarised in Table 2.2.

Table 2-2: Perimeter Well Monitoring Results

Date: 29/07/2020						
Sample Station	CH ₄	CO ₂	O ₂	Atmospheric Pressure	Staff Member	Weather
	(% v/v)	(% v/v)	(% v/v)	(mbar)		
Perimeter Monitoring Wells				1001	Daniel Hayden	Overcast, Light Rain, Warm, 18-20°C
BH01	0.1	0.2	21.1			
BH04	0	0.3	20.6			
GW01	0.1	3.6	16.4			
GW02	0.1	0.3	20.7			
In-Waste Monitoring Wells						
BH02	16.8	15.9	5.3			
Date: 24/8/2020						
Sample Station	CH ₄	CO ₂	O ₂	Atmospheric Pressure	Staff Member	Weather
	(% v/v)	(% v/v)	(% v/v)	(mbar)		
Perimeter Monitoring Wells				1002	Daniel Hayden	Overcast, Light Rain, Warm, 16-18°C
BH01	0	0.6	20.8			
BH04	0	0.2	21.2			
GW01	0	3.3	17.6			
GW02	0	0.3	20.9			



In-Waste Monitoring Wells						
BH02	20.8	18.7	2.5			

Date: 14/07/2021						
Sample Station	CH ₄	CO ₂	O ₂	Atmospheric Pressure	Staff Member	Weather
	(% v/v)	(% v/v)	(% v/v)	(mbar)		
Perimeter Monitoring Wells				1023	Daniel Hayden	Sunny, Clear Warm, 16-18°C
BH01	0	0.8	20.3			
BH02	18.2	17.5	2.2			
BH04	0	0.4	20.8			
GW01	0	2.8	18.2			
GW02	0	1.2	20.1			
In-Waste Monitoring Wells						
BH02	18.2	17.5	2.2			

As can be seen in Table 2.3, no methane or only trace quantities of methane are measured at offsite monitoring wells (GW01, GW02, BH01 and BH04). Carbon dioxide is only detected above the trigger value of 1.5% v/v at offsite monitoring well GW01 at concentrations of between 2.8% v/v and 3.6% v/v during the monitoring events since July 2020. These results indicate that a low level of lateral migration of landfill gas may be occurring, the close proximity of GW01 to the waste body is noted.

Monitoring at leachate monitoring borehole BH02 show concentrations for both carbon dioxide and methane indicate that the landfill may still be biologically active with landfill gas continuing to be produced.

2.4 Surface Water Monitoring

2.4.1 Monitoring Locations

The surface water monitoring locations were selected upstream and downstream of the landfill footprint. Monitoring location SW1 was selected as the upstream location on Raftord river to the north/north-east of the landfill. Monitoring location SW2 is located on the Raftord River to the north-west, and downstream of the site.

The surface water sampling locations at the site are presented in Figure 2.1.

Four rounds of surface water monitoring were carried out on the 30th July and 25th August 2020, 14th July 2021 and 2nd June 2022.





2.4.2 Monitoring Parameters

The results of surface water sampling analysed from the 2 No. sampling locations (SW1 and SW2) have been assessed against the Maximum Admissible Concentration (MAC) and the Environmental Quality Standard (EQS) as per S.I. No. 77/2019 - European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019 where applicable.

A summary of results for each parameter from the monitoring round is outlined in Table 2.4, while the laboratory reports are presented in Appendix 1.



-  **Site Boundary**
-  **Surface Water Monitoring Locations**

TITLE:		Surface Water Sampling Locations	
PROJECT:		New Inn Historic Landfill ERA	
FIGURE NO:		2.2	
CLIENT:		Galway County Council	
SCALE:	1:2,500	REVISION:	0
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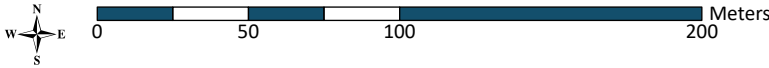




Table 2-3: Surface Water Sampling Results

Parameter	Units	EQS ¹	MAC ²	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
				SW01	SW02	SW01	SW02	SW01	SW02	SW01	SW02
				30/07/2020	30/07/2020	25/08/2020	25/08/2020	14/07/2021	14/07/2021	01/06/2022	01/06/2022
Inorganics											
Conductivity	mS/cm	1	1	0.642	0.64	0.352	0.367	0.629	0.651	0.713	0.709
Fluoride	mg/l	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved Oxygen	mg/l			9.65	9.41	10	10.9	12.5	11.7	9.19	9.27
pH	pH Units	6.0<pH<9.0		7.81	7.73	7.44	7.41	7.75	7.8	7.96	7.99
Sulphate				11	11.7	<2	<2	6.4	6.6	9.4	8.9
Chloride				27.5	28.1	15.5	15	31.3	31.5	43.1	43.1
COD, unfiltered				21.8	17.6	64	61.9	<7	8.46	<7	8.94
Ammoniacal Nitrogen as N (low level)		≤0.065	0.14	0.0237	0.0319	0.0716	0.0861	0.02	0.032	0.0399	0.049
Cyanide, Total		0.01		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BOD, unfiltered		2.6		<1	<1	2.67	2.97	<1	<1	<1	<1
Suspended solids, Total		25		5.9	8.25	3.75	3.6	<2	<2	-	-
Filtered (Dissolved) Metals											
Mercury	µg/l		0.07	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	µg/l	25		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Cadmium	µg/l	0.15	0.9	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08



Parameter	Units	EQS ¹	MAC ²	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
				SW01	SW02	SW01	SW02	SW01	SW02	SW01	SW02
				30/07/2020	30/07/2020	25/08/2020	25/08/2020	14/07/2021	14/07/2021	01/06/2022	01/06/2022
Chromium	µg/l	4.7	32	<1	<1	<1	<1	<1	<1	<1	<1
Copper	µg/l	30		1.11	0.699	0.92	1.14	18.9	12.7	0.531	0.418
Lead	µg/l	1.2	14	0.483	0.268	<0.2	0.442	0.891	0.251	<0.2	<0.2
Nickel	µg/l	4	34	1.24	0.795	1.09	1.03	0.709	0.801	0.581	0.538
Zinc	µg/l	100		6.61	8.97	1.7	2.81	21.4	41.5	4.56	2.03
Semi-Volatile Organic Compounds (SVOCs)											
1,2,4-Trichlorobenzene	µg/l	0.4	not applicable	<1	<1	<8	<10	<1	<1	<1	<1
Anthracene	µg/l	0.1	0.1	<1	<1	<8	<10	<1	<1	<1	<1
bis(2-Ethylhexyl) phthalate	µg/l	1.3	not applicable	<2	<2	<16	<20	<2	<2	<2	<2
Benzo(b)fluoranthene	µg/l		0.017	<1	<1	<8	<10	<1	<1	<1	<1
Benzo(k)fluoranthene	µg/l		0.017	<1	<1	<8	<10	<1	<1	<1	<1
Benzo(a)pyrene	µg/l	0.00017	0.27	<1	<1	<8	<10	<1	<1	<1	<1
Benzo(g,h,i)perylene	µg/l		0.0082	<1	<1	<8	<10	<1	<1	<1	<1
Diethyl phthalate	µg/l	1.3	not applicable	<1	<1	<8	<10	<1	<1	<1	<1
Fluoranthene	µg/l	0.0063	0.12	<1	<1	<8	<10	<1	<1	<1	<1
Hexachlorobenzene	µg/l		0.05	<1	<1	<8	<10	<1	<1	<1	<1
Hexachlorobutadiene	µg/l		0.6	<1	<1	<8	<10	<1	<1	<1	<1



Parameter	Units	EQS ¹	MAC ²	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
				SW01	SW02	SW01	SW02	SW01	SW02	SW01	SW02
				30/07/2020	30/07/2020	25/08/2020	25/08/2020	14/07/2021	14/07/2021	01/06/2022	01/06/2022
Pentachlorophenol	µg/l	0.4	1	<1	<1	<8	<10	<1	<1	<1	<1
Phenol	µg/l	8	46	<1	<1	<8	<10	<1	<1	<1	<1
Naphthalene	µg/l	2	130	<1	<1	<8	<10	<1	<1	<1	<1
Indeno(1,2,3-cd) pyrene	µg/l		not applicable	<1	<1	<8	<10	<1	<1	<1	<1

Notes:

Environmental Quality Standard (EQS) as per European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I No. 272 of 2009). Refers to Annual-Average (AA) EQS for relevant parameters.

Maximum Admissible Concentration (MAC), as classified by European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I No. 272 of 2009).

*** NAC – no abnormal change

Results presented are those which have a relevant EQS / MAC limit value



2.4.3 Surface Water Analysis Discussion

The results of the surface water laboratory analysis as presented in Table 2.4, when assessed against the MAC and EQS quality standards showed one exceedance of the EQS (Good Status) limit for ammoniacal nitrogen. The exceedance of the EQS occurred in August 2020 with concentrations of 0.0716 mg/l and 0.0861 mg/l detected at SW1 and SW2 respectively. Sampling in 2021 and 2022 showed levels remained below the EQS.

Results show little variation in parameter concentrations between upstream and downstream sampling locations during each monitoring event since July 2020. These results indicate that the landfill is not having a deleterious effect on downstream water quality of Rford River north of the site.



3. CONCLUSION

In 2022, Galway County Council requested FT to undertake one additional round of environmental monitoring at New Inn historic landfill. The results of this sampling served as a continuation of the monitoring assessments carried out in 2020 and 2021 as part of the Tier 2 environmental risk assessment for the site.

Analysis of groundwater samples recovered from monitoring wells BH1, BH4, GW01 and GW02 in 2021 and 2022 continue to show similar concentrations of ammoniacal nitrogen, sulphate, chloride and some heavy metal compounds detected during the 2020 events. Results for downgradient wells GW02 and BH4 show similar pollutant parameters are being detected that indicate the presence of landfill leachate. Landfill leachate has the potential to contain high concentrations of ammoniacal N and chloride, fluoride and sulphate ions and may be the source of the concentrations observed at the BH4 and GW02 well locations. Based on the presence of elevated ammoniacal N, sulphate, fluoride and chloride typical of landfill leachate, the shallow soil cap may not be suitable at preventing rainfall infiltration into the waste body and consequently is contributing to leachate generation, subsequent migration of leachate to the underlying groundwater and migration downgradient.

Leachate monitoring was attempted at location BH02 in 2022 and 2021, the location was dry on both occasions. Monitoring results from 2020 indicated the presence of pollutants at elevated concentrations typical of MSW leachate.

Landfill gas monitoring from existing monitoring wells BH01, BH04 and new monitoring wells GW01 and GW02 at the site indicates gas concentrations detected are below threshold levels set by the EPA Landfill Manuals - Landfill Monitoring. The carbon dioxide and methane levels recorded at in-waste well BH02 indicate the landfill may still be biologically active with landfill gas continuing to be produced.

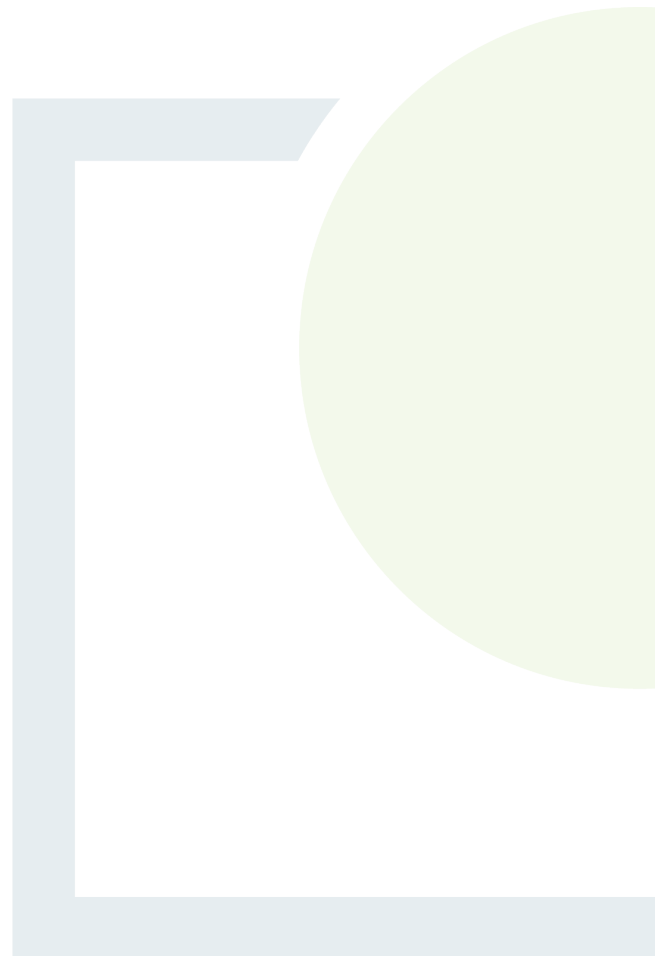
Analysis results for surface water samples recovered from the Raford River located to the north of the site, at locations upstream and downstream of the historic landfill showed only one exceedance of EQS limit values in August 2020. Sampling in 2021 and 2022 showed levels remained below the EQS. Results show little variation in parameter concentrations between upstream and downstream sampling locations during each monitoring event since July 2020. These results indicate that the landfill is not having a deleterious effect on downstream water quality of Raford River north of the site.



CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING

APPENDIX 1

Groundwater, Leachate and
Surface Water Sampling
Analysis Results





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 of report Generation: 09 August 2020
Customer: Fehily Timoney
Sample Delivery Group (SDG): 200731-90
Your Reference: P2282
Location: New Inn Landfill
Report No: 562381

We received 2 samples on Friday July 31, 2020 and 2 of these samples were scheduled for analysis which was completed on Sunday August 09, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562381
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22583459	SW2 (DS)		0.00 - 0.00	30/07/2020
22583445	SW1 (US)		0.00 - 0.00	30/07/2020

Maximum Sample/Coolbox Temperature (°C) :

16.2

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.



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562381
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

Acid Herbicides by GCMS	All	NDPs: 0 Tests: 2	X						X									
Ammonium Low	All	NDPs: 0 Tests: 2				X								X				
Anions by Kone (w)	All	NDPs: 0 Tests: 2			X								X					
BOD True Total	All	NDPs: 0 Tests: 2		X							X							
COD Unfiltered	All	NDPs: 0 Tests: 2		X							X							
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 2			X								X					
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2						X								X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 2			X								X					
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 2			X								X					
Fluoride	All	NDPs: 0 Tests: 2			X								X					
Mercury Dissolved	All	NDPs: 0 Tests: 2			X								X					
Mineral Oil C10-40 Aqueous (W)	All	NDPs: 0 Tests: 2	X								X							
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 2	X								X							
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 2	X								X							
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 2	X								X							



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562381
Superseded Report:

Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				30/07/2020	30/07/2020				
diss.filt	Dissolved / filtered sample.				31/07/2020	31/07/2020				
tot.unfilt	Total / unfiltered sample.				200731-90	200731-90				
+	Subcontracted - refer to subcontractor report for accreditation status.				22583459	22583445				
**	% 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									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Suspended solids, Total	<2 mg/l	TM022			8.25	5.9				
					#	#				
BOD, unfiltered	<1 mg/l	TM045			<1	<1				
					#	#				
Oxygen, dissolved	<0.3 mg/l	TM046			9.41	9.65				
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099			0.0319	0.0237				
					#	#				
Fluoride	<0.5 mg/l	TM104			<0.5	<0.5				
COD, unfiltered	<7 mg/l	TM107			17.6	21.8				
					#	#				
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120			0.64	0.642				
					#	#				
Arsenic (diss.filt)	<0.5 µg/l	TM152			<0.5	<0.5				
					2 #	2 #				
Barium (diss.filt)	<0.2 µg/l	TM152			7.6	7.56				
					2 #	2 #				
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08				
					2 #	2 #				
Chromium (diss.filt)	<1 µg/l	TM152			<1	<1				
					2 #	2 #				
Copper (diss.filt)	<0.3 µg/l	TM152			1.01	0.932				
					2 #	2 #				
Lead (diss.filt)	<0.2 µg/l	TM152			<0.2	<0.2				
					2 #	2 #				
Manganese (diss.filt)	<3 µg/l	TM152			9.09	13.9				
					2 #	2 #				
Nickel (diss.filt)	<0.4 µg/l	TM152			1.57	1.83				
					2 #	2 #				
Phosphorus (diss.filt)	<10 µg/l	TM152			14.2	<10				
					2 #	2 #				
Selenium (diss.filt)	<1 µg/l	TM152			<1	<1				
					2 #	2 #				
Thallium (diss.filt)	<2 µg/l	TM152			<2	<2				
					2 #	2 #				
Zinc (diss.filt)	<1 µg/l	TM152			2.49	2.07				
					2 #	2 #				
Sodium (Dis.Filt)	<0.076 mg/l	TM152			16	15.7				
					2 #	2 #				
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			4.69	4.62				
					2 #	2 #				
Potassium (Dis.Filt)	<0.2 mg/l	TM152			1.67	1.62				
					2 #	2 #				
Calcium (Dis.Filt)	<0.2 mg/l	TM152			134	132				
					2 #	2 #				
Iron (Dis.Filt)	<0.019 mg/l	TM152			0.0501	0.0507				
					2 #	2 #				
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172			<100	<100				
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01				
					2	2				
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184			0.052	0.053				
					#	#				
Sulphate	<2 mg/l	TM184			11.7	11				
					#	#				
Chloride	<2 mg/l	TM184			28.1	27.5				
					#	#				
Sulphate (soluble) as S	<1 mg/l	TM184			3.9	3.67				
					#	#				
PCB congener 28	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 52	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 101	<0.015 µg/l	TM197			<0.015	<0.015				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562381
Superseded Report:

Results Legend			Customer Sample Ref.	SW2 (DS)	SW1 (US)			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% 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							
1-3+9@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015				
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105				
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05				
pH	<1 pH Units	TM256	7.73	7.81				
			#	#				
Trifluralin	<0.01 µg/l	TM343	<0.01	<0.01				
alpha-HCH	<0.01 µg/l	TM343	<0.01	<0.01				
gamma-HCH (Lindane)	<0.01 µg/l	TM343	<0.01	<0.01				
Heptachlor	<0.01 µg/l	TM343	<0.01	<0.01				
Aldrin	<0.01 µg/l	TM343	<0.01	<0.01				
beta-HCH	<0.01 µg/l	TM343	<0.01	<0.01				
Isodrin	<0.01 µg/l	TM343	<0.01	<0.01				
delta-HCH	<0.01 µg/l	TM343	<0.01	<0.02				
Heptachlor epoxide	<0.01 µg/l	TM343	<0.01	<0.01				
o,p'-DDE	<0.01 µg/l	TM343	<0.01	<0.01				
Endosulphan I	<0.01 µg/l	TM343	<0.01	<0.01				
trans-Chlordane	<0.01 µg/l	TM343	<0.01	<0.01				
cis-Chlordane	<0.01 µg/l	TM343	<0.01	<0.01				
p,p'-DDE	<0.01 µg/l	TM343	<0.01	<0.01				
Dieldrin	<0.01 µg/l	TM343	<0.01	<0.01				
o,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.01	<0.01				
Endrin	<0.01 µg/l	TM343	<0.01	<0.01				
o,p'-DDT	<0.01 µg/l	TM343	<0.01	<0.04				
p,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.01	<0.01				
Endosulphan II	<0.02 µg/l	TM343	<0.02	<0.02				
p,p'-DDT	<0.01 µg/l	TM343	<0.01	<0.07				
o,p'-Methoxychlor	<0.01 µg/l	TM343	<0.01	<0.04				
p,p'-Methoxychlor	<0.01 µg/l	TM343	<0.01	<0.07				
Endosulphan Sulphate	<0.02 µg/l	TM343	<0.02	<0.04				
Permethrin I	<0.01 µg/l	TM343	<0.01	<0.01				
Permethrin II	<0.01 µg/l	TM343	<0.01	<0.01				



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Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)			
#	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			
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)			
aq	Aqueous / settled sample.				30/07/2020	30/07/2020			
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.				31/07/2020	31/07/2020			
*	Subcontracted - refer to subcontractor report for accreditation status.				200731-90	200731-90			
**	% 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				22583459	22583445			
(F)	Trigger breach confirmed								
1-3+9@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01			
Hexachlorobutadiene	<0.01 µg/l	TM344			<0.01	<0.01			
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01			
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01			
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.01			
Dichlobenil	<0.01 µg/l	TM344			<0.01	<0.01			
Mevinphos	<0.01 µg/l	TM344			<0.01	<0.01			
Tecnazene	<0.01 µg/l	TM344			<0.01	<0.01			
Hexachlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01			
Demeton-S-methyl	<0.01 µg/l	TM344			<0.01	<0.01			
Phorate	<0.01 µg/l	TM344			<0.01	<0.01			
Diazinon	<0.01 µg/l	TM344			<0.01	<0.01			
Triallate	<0.01 µg/l	TM344			<0.01	<0.01			
Atrazine	<0.01 µg/l	TM344			<0.01	<0.01			
Simazine	<0.01 µg/l	TM344			<0.01	<0.01			
Disulfoton	<0.01 µg/l	TM344			<0.01	<0.01			
Propetamphos	<0.01 µg/l	TM344			<0.01	<0.01			
Chlorpyrifos-methyl	<0.01 µg/l	TM344			<0.01	<0.01			
Dimethoate	<0.01 µg/l	TM344			<0.01	<0.01			
Pirimiphos-methyl	<0.01 µg/l	TM344			<0.01	<0.01			
Chlorpyrifos	<0.01 µg/l	TM344			<0.01	<0.01			
Methyl Parathion	<0.01 µg/l	TM344			<0.01	<0.01			
Malathion	<0.01 µg/l	TM344			<0.01	<0.01			
Fenthion	<0.01 µg/l	TM344			<0.01	<0.01			
Fenitrothion	<0.01 µg/l	TM344			<0.01	<0.01			
Triadimefon	<0.01 µg/l	TM344			<0.01	<0.01			
Pendimethalin	<0.01 µg/l	TM344			<0.01	<0.01			
Parathion	<0.01 µg/l	TM344			<0.01	<0.01			
Chlorfenvinphos	<0.01 µg/l	TM344			<0.01	<0.01			
trans-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01			
cis-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01			
Ethion	<0.01 µg/l	TM344			<0.01	<0.01			
Carbophenothion	<0.01 µg/l	TM344			<0.01	<0.01			



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562381
Superseded Report:

Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
sq	Aqueous / settled sample.				30/07/2020	30/07/2020				
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				31/07/2020	31/07/2020				
*	Subcontracted - refer to subcontractor report for accreditation status.				200731-90	200731-90				
**	% 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				22583459	22583445				
(F)	Trigger breach confirmed									
1-3+9@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Triazophos	<0.01 µg/l	TM344			<0.01	<0.01				
Phosalone	<0.01 µg/l	TM344			<0.01	<0.01				
Azinphos methyl	<0.02 µg/l	TM344			<0.02	<0.02				
Azinphos ethyl	<0.02 µg/l	TM344			<0.02	<0.02				
Etridiazole	<0.01 µg/l	TM345			<0.01	<0.02				
Pentachlorobenzene	<0.01 µg/l	TM345			<0.01	<0.01				
Propachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Quintozene (PCNB)	<0.01 µg/l	TM345			<0.01	<0.01				
Omethoate	<0.01 µg/l	TM345			<0.01	<0.01				
Propazine	<0.01 µg/l	TM345			<0.01	<0.01				
Propyzamide	<0.01 µg/l	TM345			<0.01	<0.01				
Alachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Prometryn	<0.01 µg/l	TM345			<0.01	<0.01				
Telodrin	<0.01 µg/l	TM345			<0.01	<0.01				
Terbutryn	<0.01 µg/l	TM345			<0.01	<0.01				
Chlorothalonil	<0.01 µg/l	TM345			<0.01	<0.03				
Etrimphos	<0.01 µg/l	TM345			<0.01	<0.01				
Metazachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Cyanazine	<0.01 µg/l	TM345			<0.01	<0.01				
Trietazine	<0.01 µg/l	TM345			<0.01	<0.01				
Coumaphos	<0.01 µg/l	TM345			<0.01	<0.01				
Phosphamidon I	<0.01 µg/l	TM345			<0.01	<0.02				
Phosphamidon II	<0.01 µg/l	TM345			<0.01	<0.02				
Dinitro-o-cresol	<0.1 µg/l	TM411			<0.1	<0.1				
Clopyralid	<0.04 µg/l	TM411			<0.04	<0.04				
MCPA	<0.05 µg/l	TM411			<0.05	<0.05				
Mecoprop	<0.04 µg/l	TM411			<0.04	<0.04				
Dicamba	<0.04 µg/l	TM411			<0.04	<0.04				
MCPB	<0.05 µg/l	TM411			<0.05	<0.05				
2,4-DB	<0.1 µg/l	TM411			<0.1	<0.1				
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411			<0.05	<0.05				
Dichlorprop	<0.1 µg/l	TM411			<0.1	<0.1				
Triclopyr	<0.05 µg/l	TM411			<0.05	<0.05				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562381
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				30/07/2020	30/07/2020				
diss.filt	Dissolved / filtered sample.				31/07/2020	31/07/2020				
tot.unfilt	Total / unfiltered sample.				200731-90	200731-90				
+	Subcontracted - refer to subcontractor report for accreditation status.				22583459	22583445				
**	% 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									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176			<8	<10	#	#		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176			<8	<10	#	#		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176			<8	<10	#	#		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176			<8	<10	#	#		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176			<8	<10	#	#		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176			<8	<10	#	#		
2-Chloronaphthalene (aq)	<1 µg/l	TM176			<8	<10	#	#		
2-Chlorophenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
2-Methylnaphthalene (aq)	<1 µg/l	TM176			<8	<10	#	#		
2-Methylphenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
2-Nitroaniline (aq)	<1 µg/l	TM176			<8	<10	#	#		
2-Nitrophenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
3-Nitroaniline (aq)	<1 µg/l	TM176			<8	<10	#	#		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176			<8	<10	#	#		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
4-Chloroaniline (aq)	<1 µg/l	TM176			<8	<10				
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176			<8	<10	#	#		
4-Methylphenol (aq)	<1 µg/l	TM176			<8	<10	#	#		
4-Nitroaniline (aq)	<1 µg/l	TM176			<8	<10	#	#		
4-Nitrophenol (aq)	<1 µg/l	TM176			<8	<10				
Azobenzene (aq)	<1 µg/l	TM176			<8	<10	#	#		
Acenaphthylene (aq)	<1 µg/l	TM176			<8	<10	#	#		
Acenaphthene (aq)	<1 µg/l	TM176			<8	<10	#	#		
Anthracene (aq)	<1 µg/l	TM176			<8	<10	#	#		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176			<8	<10	#	#		
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176			<8	<10	#	#		
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176			<16	<20	#	#		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176			<8	<10	#	#		
Benzo(a)anthracene (aq)	<1 µg/l	TM176			<8	<10	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn LandfillClient Reference: P2282
Order Number: Z2189Report Number: 562381
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	SW2 (DS)	SW1 (US)				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.		0.00 - 0.00	0.00 - 0.00				
diss.filt	Dissolved / filtered sample.		Surface Water (SW)	Surface Water (SW)				
tot.unfilt	Total / unfiltered sample.		30/07/2020	30/07/2020				
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% 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		31/07/2020	31/07/2020				
(F)	Trigger breach confirmed		200731-90	200731-90				
1-3*§@	Sample deviation (see appendix)		22583459	22583445				
Component	LOD/Units	Method						
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Carbazole (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Chrysene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Dibenzofuran (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
n-Butyl phthalate (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Diethyl phthalate (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Dimethyl phthalate (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<40	<50				
			#	#				
Fluoranthene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Fluorene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Hexachlorobenzene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Pentachlorophenol (aq)	<1 µg/l	TM176	<8	<10				
Phenol (aq)	<1 µg/l	TM176	<8	<10				
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Hexachloroethane (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Nitrobenzene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Naphthalene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Isophorone (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<8	<10				
Phenanthrene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				
Pyrene (aq)	<1 µg/l	TM176	<8	<10				
			#	#				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562381
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				30/07/2020	30/07/2020				
diss.filt	Dissolved / filtered sample.				31/07/2020	31/07/2020				
tot.unfilt	Total / unfiltered sample.				200731-90	200731-90				
*	Subcontracted - refer to subcontractor report for accreditation status.				22583459	22583445				
**	% 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									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			107	106				
Toluene-d8**	%	TM208			100	100				
4-Bromofluorobenzene**	%	TM208			99.8	99.8				
Dichlorodifluoromethane	<1 µg/l	TM208			<1	<1				
Chloromethane	<1 µg/l	TM208			<1	<1				
Vinyl chloride	<1 µg/l	TM208			<1	<1				
Bromomethane	<1 µg/l	TM208			<1	<1				
Chloroethane	<1 µg/l	TM208			<1	<1				
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1				
1,1-Dichloroethene	<1 µg/l	TM208			<1	<1				
Carbon disulphide	<1 µg/l	TM208			<1	<1				
Dichloromethane	<3 µg/l	TM208			<3	<3				
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208			<1	<1				
trans-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1				
1,1-Dichloroethane	<1 µg/l	TM208			<1	<1				
cis-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1				
2,2-Dichloropropane	<1 µg/l	TM208			<1	<1				
Bromochloromethane	<1 µg/l	TM208			<1	<1				
Chloroform	<1 µg/l	TM208			<1	<1				
1,1,1-Trichloroethane	<1 µg/l	TM208			<1	<1				
1,1-Dichloropropene	<1 µg/l	TM208			<1	<1				
Carbontetrachloride	<1 µg/l	TM208			<1	<1				
1,2-Dichloroethane	<1 µg/l	TM208			<1	<1				
Benzene	<1 µg/l	TM208			<1	<1				
Trichloroethene	<1 µg/l	TM208			<1	<1				
1,2-Dichloropropane	<1 µg/l	TM208			<1	<1				
Dibromomethane	<1 µg/l	TM208			<1	<1				
Bromodichloromethane	<1 µg/l	TM208			<1	<1				
cis-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1				
Toluene	<1 µg/l	TM208			<1	<1				
trans-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1				
1,1,2-Trichloroethane	<1 µg/l	TM208			<1	<1				
1,3-Dichloropropane	<1 µg/l	TM208			<1	<1				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2189**Report Number:** 562381
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.	SW2 (DS)	SW1 (US)				
#	ISO17025 accredited.	mCERTS accredited.							
M	Aqueous / settled sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00				
sq	Dissolved / filtered sample.		Sample Type	Surface Water (SW)	Surface Water (SW)				
dis.filt	Total / unfiltered sample.		Date Sampled	30/07/2020	30/07/2020				
tot.unfilt	Subcontracted - refer to subcontractor report for accreditation status.		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	31/07/2020	31/07/2020				
**	Trigger breach confirmed		SDG Ref	200731-90	200731-90				
(F)	Sample deviation (see appendix)		Lab Sample No.(s)	22583459	22583445				
1-3+9@			AGS Reference						
Component	LOD/Units	Method							
Tetrachloroethene	<1 µg/l	TM208		<1	<1				
				#	#				
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	<1				
				#	#				
o-Xylene	<1 µg/l	TM208		<1	<1				
				#	#				
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				
				#	#				
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90 **Client Reference:** P2282 **Report Number:** 562381
Location: New Inn Landfill **Order Number:** Z2189 **Superseded Report:**

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
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
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
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
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
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
TM411	Acid_Herbs_GCMS	Acid Herbs in Water 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).



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562381
Superseded Report:

Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.

Depth

Type

22583459	22583445
SW2 (DS)	SW1 (US)
0.00 - 0.00	0.00 - 0.00
Surface Water	Surface Water

Acid Herbicides by GCMS	07-Aug-2020	07-Aug-2020
Ammonium Low	06-Aug-2020	06-Aug-2020
Anions by Kone (w)	03-Aug-2020	03-Aug-2020
BOD True Total	06-Aug-2020	06-Aug-2020
COD Unfiltered	01-Aug-2020	01-Aug-2020
Conductivity (at 20 deg.C)	05-Aug-2020	05-Aug-2020
Cyanide Comp/Free/Total/Thiocyanate	07-Aug-2020	06-Aug-2020
Dissolved Metals by ICP-MS	07-Aug-2020	07-Aug-2020
Dissolved Oxygen by Probe	02-Aug-2020	02-Aug-2020
Fluoride	04-Aug-2020	04-Aug-2020
Mercury Dissolved	05-Aug-2020	05-Aug-2020
Mineral Oil C10-40 Aqueous (W)	07-Aug-2020	07-Aug-2020
PCB Congeners - Aqueous (W)	07-Aug-2020	07-Aug-2020
Pesticides (Suite I) by GCMS	07-Aug-2020	06-Aug-2020
Pesticides (Suite II) by GCMS	07-Aug-2020	07-Aug-2020
Pesticides (Suite III) by GCMS	06-Aug-2020	05-Aug-2020
pH Value	04-Aug-2020	03-Aug-2020
Phosphate by Kone (w)	04-Aug-2020	04-Aug-2020
Suspended Solids	05-Aug-2020	05-Aug-2020
SVOC MS (W) - Aqueous	09-Aug-2020	09-Aug-2020
VOC MS (W)	04-Aug-2020	04-Aug-2020



CERTIFICATE OF ANALYSIS

SDG:	200731-90	Client Reference:	P2282	Report Number:	562381
Location:	New Inn Landfill	Order Number:	Z2189	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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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.

16. 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.

17. **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.

18. 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
3	Deviation from method
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

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

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).

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

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.



Unit 7-8 Hawarden Business Park

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Hawarden

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

Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date of report Generation: 03 September 2020
Customer: Fehily Timoney
Sample Delivery Group (SDG): 200826-98
Your Reference: P2282
Location: New Inn Landfill
Report No: 565823

We received 2 samples on Wednesday August 26, 2020 and 2 of these samples were scheduled for analysis which was completed on Thursday September 03, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22723236	SW2 (DS)		0.00 - 0.00	25/08/2020
22723227	SW1 (US)		0.00 - 0.00	25/08/2020

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



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
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

22723236

SW2 (DS)

0.00 - 0.00

22723227

SW1 (US)

0.00 - 0.00

Vial (ALE297)	SW
NaOH (ALE245)	SW
HNO3 Filtered (ALE204)	SW
H2SO4 (ALE244)	SW
500ml Plastic (ALE208)	SW
250ml BOD (ALE212)	SW
0.5l glass bottle (ALE227)	SW
Vial (ALE297)	SW
NaOH (ALE245)	SW
HNO3 Filtered (ALE204)	SW
H2SO4 (ALE244)	SW
500ml Plastic (ALE208)	SW
250ml BOD (ALE212)	SW
0.5l glass bottle (ALE227)	SW
Vial (ALE297)	SW

Pesticides (Suite III) by GCMS

All

NDPs: 0
Tests: 2

X

X

pH Value

All

NDPs: 0
Tests: 2

X

X

Phosphate by Kone (w)

All

NDPs: 0
Tests: 2

X

X

Suspended Solids

All

NDPs: 0
Tests: 2

X

X

SVOC MS (W) - Aqueous

All

NDPs: 0
Tests: 2

X

X

VOC MS (W)

All

NDPs: 0
Tests: 2

X

X



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
Superseded Report:

Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				25/08/2020	25/08/2020				
diss.filt	Dissolved / filtered sample.				26/08/2020	26/08/2020				
tot.unfilt	Total / unfiltered sample.				200826-98	200826-98				
*	Subcontracted - refer to subcontractor report for accreditation status.				22723236	22723227				
**	% 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									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Suspended solids, Total	<2 mg/l	TM022			3.6	3.75				
					#	#				
BOD, unfiltered	<1 mg/l	TM045			2.97	2.67				
					#	#				
Oxygen, dissolved	<0.3 mg/l	TM046			10.9	10				
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099			0.0861	0.0716				
					#	#				
Fluoride	<0.5 mg/l	TM104			<0.5	<0.5				
COD, unfiltered	<7 mg/l	TM107			61.9	64				
					#	#				
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120			0.367	0.352				
					#	#				
Arsenic (diss.filt)	<0.5 µg/l	TM152			1.14	0.91				
					#	#				
Barium (diss.filt)	<0.2 µg/l	TM152			6.72	6.58				
					#	#				
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08				
					#	#				
Chromium (diss.filt)	<1 µg/l	TM152			1.5	<1				
					#	#				
Copper (diss.filt)	<0.3 µg/l	TM152			2.93	3.15				
					#	#				
Lead (diss.filt)	<0.2 µg/l	TM152			0.43	0.352				
					#	#				
Manganese (diss.filt)	<3 µg/l	TM152			20	22.4				
					#	#				
Nickel (diss.filt)	<0.4 µg/l	TM152			3.33	4.47				
					#	#				
Phosphorus (diss.filt)	<10 µg/l	TM152			148	146				
					#	#				
Selenium (diss.filt)	<1 µg/l	TM152			<1	<1				
					#	#				
Thallium (diss.filt)	<2 µg/l	TM152			<2	<2				
					#	#				
Zinc (diss.filt)	<1 µg/l	TM152			10.4	8.82				
					#	#				
Sodium (Dis.Filt)	<0.076 mg/l	TM152			10.7	15.1				
					#	#				
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			3.02	3.31				
					#	#				
Potassium (Dis.Filt)	<0.2 mg/l	TM152			3.06	3.07				
					#	#				
Calcium (Dis.Filt)	<0.2 mg/l	TM152			73.2	78				
					#	#				
Iron (Dis.Filt)	<0.019 mg/l	TM152			0.603	0.545				
					#	#				
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172			<100	<100				
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01				
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184			0.175	0.161				
					#	#				
Sulphate	<2 mg/l	TM184			<2	<2				
					#	#				
Chloride	<2 mg/l	TM184			15	15.5				
					#	#				
Sulphate (soluble) as S	<1 mg/l	TM184			<1	<1				
					#	#				
PCB congener 28	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 52	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 101	<0.015 µg/l	TM197			<0.015	<0.015				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
Superseded Report:

Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
sq	Aqueous / settled sample.				25/08/2020	25/08/2020				
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				26/08/2020	26/08/2020				
*	Subcontracted - refer to subcontractor report for accreditation status.				200826-98	200826-98				
**	% 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				22723236	22723227				
(F)	Trigger breach confirmed									
1-3+9@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
PCB congener 118	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 138	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 153	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 180	<0.015 µg/l	TM197			<0.015	<0.015				
Sum of detected EC7 PCB's	<0.105 µg/l	TM197			<0.105	<0.105				
Cyanide, Total	<0.05 mg/l	TM227			<0.05	<0.05				
pH	<1 pH Units	TM256			7.41	7.44	#	#		
Trifluralin	<0.01 µg/l	TM343			<0.01	<0.01				
alpha-HCH	<0.01 µg/l	TM343			<0.01	<0.01				
gamma-HCH (Lindane)	<0.01 µg/l	TM343			<0.01	<0.01				
Heptachlor	<0.01 µg/l	TM343			<0.01	<0.01				
Aldrin	<0.01 µg/l	TM343			<0.01	<0.01				
beta-HCH	<0.01 µg/l	TM343			<0.01	<0.01				
Isodrin	<0.01 µg/l	TM343			<0.01	<0.01				
delta-HCH	<0.01 µg/l	TM343			<0.01	<0.01				
Heptachlor epoxide	<0.01 µg/l	TM343			<0.01	<0.01				
o,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01				
Endosulphan I	<0.01 µg/l	TM343			<0.01	<0.01				
trans-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01				
cis-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01				
p,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01				
Dieldrin	<0.01 µg/l	TM343			<0.01	<0.01				
o,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01				
Endrin	<0.01 µg/l	TM343			<0.01	<0.01				
o,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.01				
p,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01				
Endosulphan II	<0.02 µg/l	TM343			<0.02	<0.02				
p,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.01				
o,p'-Methoxychlor	<0.01 µg/l	TM343			<0.01	<0.01				
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.01	<0.01				
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.02	<0.02				
Permethrin I	<0.01 µg/l	TM343			<0.01	<0.01				
Permethrin II	<0.01 µg/l	TM343			<0.01	<0.01				



CERTIFICATE OF ANALYSIS

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SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
Superseded Report:

Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)			
#	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			
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)			
aq	Aqueous / settled sample.				25/08/2020	25/08/2020			
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.				26/08/2020	26/08/2020			
*	Subcontracted - refer to subcontractor report for accreditation status.				200826-98	200826-98			
**	% 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				22723236	22723227			
(F)	Trigger breach confirmed								
1-3+§@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01			
Hexachlorobutadiene	<0.01 µg/l	TM344			<0.01	<0.01			
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01			
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01			
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.01			
Dichlobenil	<0.01 µg/l	TM344			<0.01	<0.01			
Mevinphos	<0.01 µg/l	TM344			<0.01	<0.01			
Tecnazene	<0.01 µg/l	TM344			<0.01	<0.01			
Hexachlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01			
Demeton-S-methyl	<0.01 µg/l	TM344			<0.01	<0.01			
Phorate	<0.01 µg/l	TM344			<0.01	<0.01			
Diazinon	<0.01 µg/l	TM344			<0.01	<0.01			
Triallate	<0.01 µg/l	TM344			<0.01	<0.01			
Atrazine	<0.01 µg/l	TM344			<0.01	<0.01			
Simazine	<0.01 µg/l	TM344			<0.01	<0.01			
Disulfoton	<0.01 µg/l	TM344			<0.01	<0.01			
Propetamphos	<0.01 µg/l	TM344			<0.01	<0.01			
Chlorpyrifos-methyl	<0.01 µg/l	TM344			<0.01	<0.01			
Dimethoate	<0.01 µg/l	TM344			<0.01	<0.01			
Pirimiphos-methyl	<0.01 µg/l	TM344			<0.01	<0.01			
Chlorpyrifos	<0.01 µg/l	TM344			<0.01	<0.01			
Methyl Parathion	<0.01 µg/l	TM344			<0.01	<0.01			
Malathion	<0.01 µg/l	TM344			<0.01	<0.01			
Fenthion	<0.01 µg/l	TM344			<0.01	<0.01			
Fenitrothion	<0.01 µg/l	TM344			<0.01	<0.01			
Triadimefon	<0.01 µg/l	TM344			<0.01	<0.01			
Pendimethalin	<0.01 µg/l	TM344			<0.01	<0.01			
Parathion	<0.01 µg/l	TM344			<0.01	<0.01			
Chlorfenvinphos	<0.01 µg/l	TM344			<0.01	<0.01			
trans-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01			
cis-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01			
Ethion	<0.01 µg/l	TM344			<0.01	<0.01			
Carbophenothion	<0.01 µg/l	TM344			<0.01	<0.01			



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
Superseded Report:

Results Legend			Customer Sample Ref.		SW2 (DS)	SW1 (US)				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
sq	Aqueous / settled sample.				25/08/2020	25/08/2020				
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				26/08/2020	26/08/2020				
*	Subcontracted - refer to subcontractor report for accreditation status.				200826-98	200826-98				
**	% 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				22723236	22723227				
(F)	Trigger breach confirmed									
1-3+9@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Triazophos	<0.01 µg/l	TM344			<0.01	<0.01				
Phosalone	<0.01 µg/l	TM344			<0.01	<0.01				
Azinphos methyl	<0.02 µg/l	TM344			<0.04	<0.04				
Azinphos ethyl	<0.02 µg/l	TM344			<0.02	<0.02				
Etridiazole	<0.01 µg/l	TM345			<0.01	<0.01				
Pentachlorobenzene	<0.01 µg/l	TM345			<0.01	<0.01				
Propachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Quintozene (PCNB)	<0.01 µg/l	TM345			<0.01	<0.01				
Omethoate	<0.01 µg/l	TM345			<0.01	<0.01				
Propazine	<0.01 µg/l	TM345			<0.01	<0.01				
Propyzamide	<0.01 µg/l	TM345			<0.01	<0.01				
Alachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Prometryn	<0.01 µg/l	TM345			<0.01	<0.01				
Telodrin	<0.01 µg/l	TM345			<0.01	<0.01				
Terbutryn	<0.01 µg/l	TM345			<0.01	<0.01				
Chlorothalonil	<0.01 µg/l	TM345			<0.02	<0.02				
Etrimphos	<0.01 µg/l	TM345			<0.01	<0.01				
Metazachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Cyanazine	<0.01 µg/l	TM345			<0.01	<0.01				
Trietazine	<0.01 µg/l	TM345			<0.01	<0.01				
Coumaphos	<0.01 µg/l	TM345			<0.01	<0.01				
Phosphamidon I	<0.01 µg/l	TM345			<0.01	<0.01				
Phosphamidon II	<0.01 µg/l	TM345			<0.01	<0.01				
Dinitro-o-cresol	<0.1 µg/l	TM411			<0.1	<0.2				
Clopyralid	<0.04 µg/l	TM411			<0.04	<0.08				
MCPA	<0.05 µg/l	TM411			<0.05	<0.1				
Mecoprop	<0.04 µg/l	TM411			<0.04	<0.08				
Dicamba	<0.04 µg/l	TM411			<0.04	<0.08				
MCPB	<0.05 µg/l	TM411			<0.05	<0.1				
2,4-DB	<0.1 µg/l	TM411			<0.1	<0.2				
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411			<0.05	<0.1				
Dichlorprop	<0.1 µg/l	TM411			<0.1	<0.2				
Triclopyr	<0.05 µg/l	TM411			<0.05	<0.1				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	SW2 (DS)	SW1 (US)			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Surface Water (SW) 25/08/2020 26/08/2020 200826-98 22723236	0.00 - 0.00 Surface Water (SW) 25/08/2020 26/08/2020 200826-98 22723227				
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% 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							
1-3*5@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<4 #	<4 #				
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<4 #	<4 #				
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<4 #	<4 #				
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<4 #	<4 #				
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<4 #	<4 #				
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<4 #	<4 #				
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<4 #	<4 #				
2-Chlorophenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<4 #	<4 #				
2-Methylphenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
2-Nitroaniline (aq)	<1 µg/l	TM176	<4 #	<4 #				
2-Nitrophenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
3-Nitroaniline (aq)	<1 µg/l	TM176	<4 #	<4 #				
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<4 #	<4 #				
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
4-Chloroaniline (aq)	<1 µg/l	TM176	<4	<4				
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<4 #	<4 #				
4-Methylphenol (aq)	<1 µg/l	TM176	<4 #	<4 #				
4-Nitroaniline (aq)	<1 µg/l	TM176	<4 #	<4 #				
4-Nitrophenol (aq)	<1 µg/l	TM176	<4	<4				
Azobenzene (aq)	<1 µg/l	TM176	<4 #	<4 #				
Acenaphthylene (aq)	<1 µg/l	TM176	<4 #	<4 #				
Acenaphthene (aq)	<1 µg/l	TM176	<4 #	<4 #				
Anthracene (aq)	<1 µg/l	TM176	<4 #	<4 #				
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<4 #	<4 #				
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<4 #	<4 #				
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<8 #	<8 #				
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<4 #	<4 #				
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<4 #	<4 #				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		SW2 (DS)		SW1 (US)					
#	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					
M	mCERTS accredited.				Surface Water (SW)		Surface Water (SW)					
aq	Aqueous / settled sample.				25/08/2020		25/08/2020					
diss.filt	Dissolved / filtered sample.				26/08/2020		26/08/2020					
tot.unfilt	Total / unfiltered sample.				200826-98		200826-98					
*	Subcontracted - refer to subcontractor report for accreditation status.				22723236		22723227					
**	% 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											
1-3*5@	Sample deviation (see appendix)											
Component	LOD/Units	Method										
Dibromofluoromethane**	%	TM208	120		116							
Toluene-d8**	%	TM208	98.1		97.2							
4-Bromofluorobenzene**	%	TM208	98.4		97.3							
Dichlorodifluoromethane	<1 µg/l	TM208	<1		<1		#		#			
Chloromethane	<1 µg/l	TM208	<1		<1		#		#			
Vinyl chloride	<1 µg/l	TM208	<1		<1		#		#			
Bromomethane	<1 µg/l	TM208	<1		<1		#		#			
Chloroethane	<1 µg/l	TM208	<1		<1		#		#			
Trichlorofluoromethane	<1 µg/l	TM208	<1		<1		#		#			
1,1-Dichloroethene	<1 µg/l	TM208	<1		<1		#		#			
Carbon disulphide	<1 µg/l	TM208	<1		<1		#		#			
Dichloromethane	<3 µg/l	TM208	<3		<3		#		#			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1		<1		#		#			
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1		<1		#		#			
1,1-Dichloroethane	<1 µg/l	TM208	<1		<1		#		#			
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1		<1		#		#			
2,2-Dichloropropane	<1 µg/l	TM208	<1		<1							
Bromochloromethane	<1 µg/l	TM208	<1		<1		#		#			
Chloroform	<1 µg/l	TM208	<1		<1		#		#			
1,1,1-Trichloroethane	<1 µg/l	TM208	<1		<1		#		#			
1,1-Dichloropropene	<1 µg/l	TM208	<1		<1		#		#			
Carbontetrachloride	<1 µg/l	TM208	<1		<1		#		#			
1,2-Dichloroethane	<1 µg/l	TM208	<1		<1		#		#			
Benzene	<1 µg/l	TM208	<1		<1		#		#			
Trichloroethene	<1 µg/l	TM208	<1		<1		#		#			
1,2-Dichloropropane	<1 µg/l	TM208	<1		<1		#		#			
Dibromomethane	<1 µg/l	TM208	<1		<1		#		#			
Bromodichloromethane	<1 µg/l	TM208	<1		<1		#		#			
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1		<1		#		#			
Toluene	<1 µg/l	TM208	<1		<1		#		#			
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1		<1		#		#			
1,1,2-Trichloroethane	<1 µg/l	TM208	<1		<1		#		#			
1,3-Dichloropropane	<1 µg/l	TM208	<1		<1		#		#			



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2189**Report Number:** 565823
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.	SW2 (DS)	SW1 (US)				
#	ISO17025 accredited.	mCERTS accredited.							
M	Aqueous / settled sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00				
sq	Dissolved / filtered sample.		Sample Type	Surface Water (SW)	Surface Water (SW)				
dis.filt	Total / unfiltered sample.		Date Sampled	25/08/2020	25/08/2020				
tot.unfilt	Subcontracted - refer to subcontractor report for accreditation status.		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	26/08/2020	26/08/2020				
**	Trigger breach confirmed		SDG Ref	200826-98	200826-98				
(F)	Sample deviation (see appendix)		Lab Sample No.(s)	22723236	22723227				
1-3+9@			AGS Reference						
Component	LOD/Units	Method							
Tetrachloroethene	<1 µg/l	TM208		<1	<1				
				#	#				
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	<1				
				#	#				
o-Xylene	<1 µg/l	TM208		<1	<1				
				#	#				
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				
				#	#				
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1				



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-98 **Client Reference:** P2282 **Report Number:** 565823
Location: New Inn Landfill **Order Number:** Z2189 **Superseded Report:**

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
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
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
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
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
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
TM411	Acid_Herbs_GCMS	Acid Herbs in Water 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).



CERTIFICATE OF ANALYSIS

SDG: 200826-98
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565823
Superseded Report:

Test Completion Dates

Lab Sample No(s)	22723236	22723227
Customer Sample Ref.	SW2 (DS)	SW1 (US)
AGS Ref.		
Depth	0.00 - 0.00	0.00 - 0.00
Type	Surface Water	Surface Water

Acid Herbicides by GCMS	03-Sep-2020	28-Aug-2020
Ammonium Low	03-Sep-2020	03-Sep-2020
Anions by Kone (w)	27-Aug-2020	27-Aug-2020
BOD True Total	01-Sep-2020	01-Sep-2020
COD Unfiltered	30-Aug-2020	30-Aug-2020
Conductivity (at 20 deg.C)	27-Aug-2020	27-Aug-2020
Cyanide Comp/Free/Total/Thiocyanate	03-Sep-2020	03-Sep-2020
Dissolved Metals by ICP-MS	01-Sep-2020	01-Sep-2020
Dissolved Oxygen by Probe	28-Aug-2020	28-Aug-2020
Fluoride	01-Sep-2020	01-Sep-2020
Mercury Dissolved	03-Sep-2020	03-Sep-2020
Mineral Oil C10-40 Aqueous (W)	02-Sep-2020	02-Sep-2020
PCB Congeners - Aqueous (W)	03-Sep-2020	03-Sep-2020
Pesticides (Suite I) by GCMS	01-Sep-2020	01-Sep-2020
Pesticides (Suite II) by GCMS	01-Sep-2020	01-Sep-2020
Pesticides (Suite III) by GCMS	01-Sep-2020	01-Sep-2020
pH Value	27-Aug-2020	27-Aug-2020
Phosphate by Kone (w)	27-Aug-2020	27-Aug-2020
Suspended Solids	30-Aug-2020	30-Aug-2020
SVOC MS (W) - Aqueous	30-Aug-2020	30-Aug-2020
VOC MS (W)	03-Sep-2020	03-Sep-2020



CERTIFICATE OF ANALYSIS

SDG:	200826-98	Client Reference:	P2282	Report Number:	565823
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	

Appendix

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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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.

16. 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.

General

17. **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.

18. 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
3	Deviation from method
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

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

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).

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

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.



Unit 7-8 Hawarden Business Park

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Hawarden

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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 of report Generation: 26 July 2021
Customer: Fehily Timoney
Sample Delivery Group (SDG): 210715-117
Your Reference: P2282
Location: New Inn Landfill
Report No: 607013

We received 2 samples on Thursday July 15, 2021 and 2 of these samples were scheduled for analysis which was completed on Monday July 26, 2021. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG:	210715-117	Client Reference:	P2282	Report Number:	607013
Location:	New Inn Landfill	Order Number:	Z2798	Superseded Report:	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24638818	SW1		0.00 - 0.00	14/07/2021
24638827	SW2		0.00 - 0.00	14/07/2021

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



CERTIFICATE OF ANALYSIS

SDG: 210715-117
Location: New Inn LandfillClient Reference: P2282
Order Number: Z2798Report Number: 607013
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)

24638818

24638827

Customer
Sample Reference

SW1

SW2

AGS Reference

Depth (m)

0.00 - 0.00

0.00 - 0.00

Container

Vial (ALE297)
NaOH (ALE245)
HNO3 Filtered
(ALE204)
H2SO4 (ALE244)
HNO3 Filtered
(ALE204)
NaOH (ALE245)
Vial (ALE297)
0.5l glass bottle
(ALE227)
250ml BOD
(ALE212)
500ml Plastic
(ALE208)
250ml BOD
(ALE212)
0.5l glass bottle
(ALE227)
Vial (ALE297)
NaOH (ALE245)
HNO3 Filtered
(ALE204)
H2SO4 (ALE244)

Sample Type

SW

Pesticides (Suite II) by GCMS

All

NDPs: 0
Tests: 2

X

X

Pesticides (Suite III) by GCMS

All

NDPs: 0
Tests: 2

X

X

pH Value

All

NDPs: 0
Tests: 2

X

X

Suspended Solids

All

NDPs: 0
Tests: 2

X

X

SVOC MS (W) - Aqueous

All

NDPs: 0
Tests: 2

X

X

Total Organic and Inorganic Carbon

All

NDPs: 0
Tests: 2

X

X

VOC MS (W)

All

NDPs: 0
Tests: 2

X

X



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607013
Superseded Report:

Results Legend			Customer Sample Ref.		SW1	SW2				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				14/07/2021	14/07/2021				
diss.filt	Dissolved / filtered sample.				15/07/2021	15/07/2021				
tot.unfilt	Total / unfiltered sample.				210715-117	210715-117				
+	Subcontracted - refer to subcontractor report for accreditation status.				24638818	24638827				
**	% 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									
1-4*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Suspended solids, Total	<2 mg/l	TM022			<2	<2				
					#	#				
Alkalinity, Total as HCO3	<2 mg/l	TM043			420	423				
BOD, unfiltered	<1 mg/l	TM045			<1	<1				
					#	#				
Oxygen, dissolved	<0.3 mg/l	TM046			12.5	11.7				
Organic Carbon, Total	<3 mg/l	TM090			<3	<3				
					◆ #	◆ #				
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099			0.02	0.032				
					#	#				
Fluoride	<0.5 mg/l	TM104			<0.5	<0.5				
COD, unfiltered	<7 mg/l	TM107			<7	8.46				
					#	#				
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120			0.629	0.651				
					#	#				
Arsenic (diss.filt)	<0.5 µg/l	TM152			<0.5	<0.5				
					#	#				
Barium (diss.filt)	<0.2 µg/l	TM152			8.03	8.68				
					#	#				
Boron (diss.filt)	<10 µg/l	TM152			<10	11.7				
					#	#				
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08				
					#	#				
Chromium (diss.filt)	<1 µg/l	TM152			<1	<1				
					#	#				
Copper (diss.filt)	<0.3 µg/l	TM152			<0.3	1.22				
					#	#				
Lead (diss.filt)	<0.2 µg/l	TM152			<0.2	0.237				
					#	#				
Manganese (diss.filt)	<3 µg/l	TM152			11.3	11.2				
					#	#				
Nickel (diss.filt)	<0.4 µg/l	TM152			0.663	0.926				
					#	#				
Phosphorus (diss.filt)	<10 µg/l	TM152			<10	<10				
					#	#				
Selenium (diss.filt)	<1 µg/l	TM152			<1	<1				
					#	#				
Thallium (diss.filt)	<2 µg/l	TM152			<2	<2				
					#	#				
Zinc (diss.filt)	<1 µg/l	TM152			1.48	10				
					#	#				
Sodium (Dis.Filt)	<0.076 mg/l	TM152			18.1	18.5				
					#	#				
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			5.24	5.38				
					#	#				
Potassium (Dis.Filt)	<0.2 mg/l	TM152			2.1	2.26				
					#	#				
Calcium (Dis.Filt)	<0.2 mg/l	TM152			138	140				
					#	#				
Iron (Dis.Filt)	<0.019 mg/l	TM152			0.0735	0.07				
					#	#				
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172			<100	<100				
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01				
Sulphate	<2 mg/l	TM184			6.4	6.6				
					#	#				
Chloride	<2 mg/l	TM184			31.3	31.5				
					#	#				
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184			0.564	0.553				
					#	#				
PCB congener 28	<0.015 µg/l	TM197			<0.015	<0.015				



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607013
Superseded Report:

Results Legend			Customer Sample Ref.		SW1	SW2				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				14/07/2021	14/07/2021				
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021				
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-117	210715-117				
**	% 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				24638818	24638827				
(F)	Trigger breach confirmed									
1-4*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
PCB congener 52	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 101	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 118	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 138	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 153	<0.015 µg/l	TM197			<0.015	<0.015				
PCB congener 180	<0.015 µg/l	TM197			<0.015	<0.015				
Sum of detected EC7 PCB's	<0.105 µg/l	TM197			<0.105	<0.105				
Cyanide, Total	<0.05 mg/l	TM227			<0.05	<0.05				
pH	<1 pH Units	TM256			7.75	7.8	#	#		
Trifluralin	<0.01 µg/l	TM343			<0.01	<0.01				
alpha-HCH	<0.01 µg/l	TM343			<0.01	<0.01				
gamma-HCH (Lindane)	<0.01 µg/l	TM343			<0.01	<0.01				
Heptachlor	<0.01 µg/l	TM343			<0.02	<0.01				
Aldrin	<0.01 µg/l	TM343			<0.01	<0.01				
beta-HCH	<0.01 µg/l	TM343			<0.01	<0.01				
Isodrin	<0.01 µg/l	TM343			<0.01	<0.01				
delta-HCH	<0.01 µg/l	TM343			<0.01	<0.01				
Heptachlor epoxide	<0.01 µg/l	TM343			<0.01	<0.01				
o,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01				
Endosulphan I	<0.01 µg/l	TM343			<0.01	<0.01				
trans-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01				
cis-Chlordane	<0.01 µg/l	TM343			<0.01	<0.01				
p,p'-DDE	<0.01 µg/l	TM343			<0.01	<0.01				
Dieldrin	<0.01 µg/l	TM343			<0.01	<0.01				
o,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01				
Endrin	<0.01 µg/l	TM343			<0.02	<0.01				
o,p'-DDT	<0.01 µg/l	TM343			<0.05	<0.01				
p,p'-DDD (TDE)	<0.01 µg/l	TM343			<0.01	<0.01				
Endosulphan II	<0.02 µg/l	TM343			<0.02	<0.02				
p,p'-DDT	<0.01 µg/l	TM343			<0.08	<0.02				
o,p'-Methoxychlor	<0.01 µg/l	TM343			<0.04	<0.01				
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.08	<0.02				
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.04	<0.02				



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607013
Superseded Report:

Results Legend			Customer Sample Ref.		SW1	SW2				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				14/07/2021	14/07/2021				
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021				
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-117	210715-117				
**	% 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				24638818	24638827				
(F)	Trigger breach confirmed									
1-4+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Permethrin I	<0.01 µg/l	TM343			<0.01	<0.01				
Permethrin II	<0.01 µg/l	TM343			<0.01	<0.01				
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01				
Hexachlorobutadiene	<0.01 µg/l	TM344			<0.01	<0.01				
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01				
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01				
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.01				
Dichlobenil	<0.01 µg/l	TM344			<0.01	<0.01				
Mevinphos	<0.01 µg/l	TM344			<0.01	<0.01				
Tecnazene	<0.01 µg/l	TM344			<0.01	<0.01				
Hexachlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01				
Demeton-S-methyl	<0.01 µg/l	TM344			<0.01	<0.01				
Phorate	<0.01 µg/l	TM344			<0.03	<0.03				
Diazinon	<0.01 µg/l	TM344			<0.01	<0.01				
Triallate	<0.01 µg/l	TM344			<0.01	<0.01				
Atrazine	<0.01 µg/l	TM344			<0.01	<0.01				
Simazine	<0.01 µg/l	TM344			<0.01	<0.01				
Disulfoton	<0.01 µg/l	TM344			<0.07	<0.07				
Propetamphos	<0.01 µg/l	TM344			<0.01	<0.01				
Chlorpyrifos-methyl	<0.01 µg/l	TM344			<0.01	<0.01				
Dimethoate	<0.01 µg/l	TM344			<0.01	<0.01				
Pirimiphos-methyl	<0.01 µg/l	TM344			<0.01	<0.01				
Chlorpyrifos	<0.01 µg/l	TM344			<0.01	<0.01				
Methyl Parathion	<0.01 µg/l	TM344			<0.01	<0.01				
Malathion	<0.01 µg/l	TM344			<0.01	<0.01				
Fenthion	<0.01 µg/l	TM344			<0.02	<0.02				
Fenitrothion	<0.01 µg/l	TM344			<0.01	<0.01				
Triadimefon	<0.01 µg/l	TM344			<0.01	<0.01				
Pendimethalin	<0.01 µg/l	TM344			<0.01	<0.01				
Parathion	<0.01 µg/l	TM344			<0.01	<0.01				
Chlorfenvinphos	<0.01 µg/l	TM344			<0.01	<0.01				
trans-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01				
cis-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01				



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2798**Report Number:** 607013
Superseded Report:

Results Legend			Customer Sample Ref.		SW1	SW2				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
sq	Aqueous / settled sample.				14/07/2021	14/07/2021				
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021				
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-117	210715-117				
**	% 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				24638818	24638827				
(F)	Trigger breach confirmed									
1-4*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Ethion	<0.01 µg/l	TM344			<0.01	<0.01				
Carbophenothion	<0.01 µg/l	TM344			<0.01	<0.01				
Triazophos	<0.01 µg/l	TM344			<0.01	<0.01				
Phosalone	<0.01 µg/l	TM344			<0.01	<0.01				
Azinphos methyl	<0.02 µg/l	TM344			<0.02	<0.02				
Azinphos ethyl	<0.02 µg/l	TM344			<0.02	<0.02				
Etridiazole	<0.01 µg/l	TM345			<0.01	<0.01				
Pentachlorobenzene	<0.01 µg/l	TM345			<0.01	<0.01				
Propachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Quintozene (PCNB)	<0.01 µg/l	TM345			<0.01	<0.01				
Omethoate	<0.01 µg/l	TM345			<0.01	<0.01				
Propazine	<0.01 µg/l	TM345			<0.01	<0.01				
Propyzamide	<0.01 µg/l	TM345			<0.01	<0.01				
Alachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Prometryn	<0.01 µg/l	TM345			<0.01	<0.01				
Telodrin	<0.01 µg/l	TM345			<0.01	<0.01				
Terbutryn	<0.01 µg/l	TM345			<0.01	<0.01				
Chlorothalonil	<0.01 µg/l	TM345			<0.01	<0.01				
Etrimphos	<0.01 µg/l	TM345			<0.01	<0.01				
Metazachlor	<0.01 µg/l	TM345			<0.01	<0.01				
Cyanazine	<0.01 µg/l	TM345			<0.01	<0.01				
Trietazine	<0.01 µg/l	TM345			<0.01	<0.01				
Coumaphos	<0.01 µg/l	TM345			<0.01	<0.01				
Phosphamidon I	<0.01 µg/l	TM345			<0.01	<0.01				
Phosphamidon II	<0.01 µg/l	TM345			<0.01	<0.01				
Dinitro-o-cresol	<0.1 µg/l	TM411			<0.1	<0.1				
Clopyralid	<0.04 µg/l	TM411			<0.04	<0.04				
MCPA	<0.05 µg/l	TM411			<0.05	<0.05				
Mecoprop	<0.04 µg/l	TM411			<0.04	<0.04				
Dicamba	<0.04 µg/l	TM411			<0.04	<0.04				
MCPB	<0.05 µg/l	TM411			<0.05	<0.05				
2,4-DB	<0.1 µg/l	TM411			<0.1	<0.1				
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411			<0.05	<0.05				



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn LandfillClient Reference: P2282
Order Number: Z2798Report Number: 607013
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		SW1	SW2				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				14/07/2021	14/07/2021				
diss.filt	Dissolved / filtered sample.				15/07/2021	15/07/2021				
tot.unfilt	Total / unfiltered sample.				210715-117	210715-117				
+	Subcontracted - refer to subcontractor report for accreditation status.				24638818	24638827				
..	% 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									
1-4*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	#	#		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	#	#		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	#	#		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	#	#		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176			<1	<1	#	#		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176			<1	<1	#	#		
2-Chloronaphthalene (aq)	<1 µg/l	TM176			<1	<1	#	#		
2-Chlorophenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
2-Methylnaphthalene (aq)	<1 µg/l	TM176			<1	<1	#	#		
2-Methylphenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
2-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	#	#		
2-Nitrophenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
3-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	#	#		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176			<1	<1	#	#		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
4-Chloroaniline (aq)	<1 µg/l	TM176			<1	<1				
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176			<1	<1	#	#		
4-Methylphenol (aq)	<1 µg/l	TM176			<1	<1	#	#		
4-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	#	#		
4-Nitrophenol (aq)	<1 µg/l	TM176			<1	<1				
Azobenzene (aq)	<1 µg/l	TM176			<1	<1	#	#		
Acenaphthylene (aq)	<1 µg/l	TM176			<1	<1	#	#		
Acenaphthene (aq)	<1 µg/l	TM176			<1	<1	#	#		
Anthracene (aq)	<1 µg/l	TM176			<1	<1	#	#		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176			<1	<1	#	#		
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176			<1	<1	#	#		
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176			<2	<2	#	#		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176			<1	<1	#	#		
Benzo(a)anthracene (aq)	<1 µg/l	TM176			<1	<1	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn LandfillClient Reference: P2282
Order Number: Z2798Report Number: 607013
Superseded Report:

SVOC MS (W) - Aqueous

Results Legend		Customer Sample Ref.	SW1	SW2				
#	ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report for accreditation status. % 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 1-4+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	0.00 - 0.00 Surface Water (SW) 14/07/2021 15/07/2021 210715-117 24638818	0.00 - 0.00 Surface Water (SW) 14/07/2021 15/07/2021 210715-117 24638827			
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Benzo(a)pyrene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Carbazole (aq)	<1 µg/l	TM176		<1 #	<1 #			
Chrysene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Dibenzofuran (aq)	<1 µg/l	TM176		<1 #	<1 #			
n-Butyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #			
Diethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #			
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Dimethyl phthalate (aq)	<1 µg/l	TM176		<1 #	<1 #			
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<5 #	<5 #			
Fluoranthene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Fluorene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Hexachlorobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Pentachlorophenol (aq)	<1 µg/l	TM176		<1	<1			
Phenol (aq)	<1 µg/l	TM176		<1	<1			
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<1 #	<1 #			
Hexachloroethane (aq)	<1 µg/l	TM176		<1 #	<1 #			
Nitrobenzene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Naphthalene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Isophorone (aq)	<1 µg/l	TM176		<1 #	<1 #			
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<1	<1			
Phenanthrene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<1 #	<1 #			
Pyrene (aq)	<1 µg/l	TM176		<1 #	<1 #			



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2798**Report Number:** 607013
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		SW1	SW2				
#	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				
M	mCERTS accredited.				Surface Water (SW)	Surface Water (SW)				
aq	Aqueous / settled sample.				14/07/2021	14/07/2021				
diss.filt	Dissolved / filtered sample.				15/07/2021	15/07/2021				
tot.unfilt	Total / unfiltered sample.				210715-117	210715-117				
*	Subcontracted - refer to subcontractor report for accreditation status.				24638818	24638827				
**	% 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									
1-4*\$@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			114	111				
Toluene-d8**	%	TM208			99.4	101				
4-Bromofluorobenzene**	%	TM208			96.1	100				
Dichlorodifluoromethane	<1 µg/l	TM208			<1	<1				
Chloromethane	<1 µg/l	TM208			<1	<1				
Vinyl chloride	<1 µg/l	TM208			<1	<1				
Bromomethane	<1 µg/l	TM208			<1	<1				
Chloroethane	<1 µg/l	TM208			<1	<1				
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1				
1,1-Dichloroethene	<1 µg/l	TM208			<1	<1				
Carbon disulphide	<1 µg/l	TM208			<1	<1				
Dichloromethane	<3 µg/l	TM208			<3	<3				
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208			<1	<1				
trans-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1				
1,1-Dichloroethane	<1 µg/l	TM208			<1	<1				
cis-1,2-Dichloroethene	<1 µg/l	TM208			<1	<1				
2,2-Dichloropropane	<1 µg/l	TM208			<1	<1				
Bromochloromethane	<1 µg/l	TM208			<1	<1				
Chloroform	<1 µg/l	TM208			<1	<1				
1,1,1-Trichloroethane	<1 µg/l	TM208			<1	<1				
1,1-Dichloropropene	<1 µg/l	TM208			<1	<1				
Carbontetrachloride	<1 µg/l	TM208			<1	<1				
1,2-Dichloroethane	<1 µg/l	TM208			<1	<1				
Benzene	<1 µg/l	TM208			<1	<1				
Trichloroethene	<1 µg/l	TM208			<1	<1				
1,2-Dichloropropane	<1 µg/l	TM208			<1	<1				
Dibromomethane	<1 µg/l	TM208			<1	<1				
Bromodichloromethane	<1 µg/l	TM208			<1	<1				
cis-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1				
Toluene	<1 µg/l	TM208			<1	<1				
trans-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1				
1,1,2-Trichloroethane	<1 µg/l	TM208			<1	<1				
1,3-Dichloropropane	<1 µg/l	TM208			<1	<1				



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2798**Report Number:** 607013
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample Ref.	SW1	SW2				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% 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							
1-4+§@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
Tetrachloroethene	<1 µg/l	TM208	<1	<1				
			#	#				
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	<1				
			#	#				
o-Xylene	<1 µg/l	TM208	<1	<1				
			#	#				
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				
			#	#				
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1				



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607013
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
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
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
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
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
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
TM411	Acid_Herbs_GCMS	Acid Herbs in Water 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).



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-117
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607013
Superseded Report:

Test Completion Dates

Lab Sample No(s)	24638818	24638827
Customer Sample Ref.	SW1	SW2
AGS Ref.		
Depth	0.00 - 0.00	0.00 - 0.00
Type	Surface Water	Surface Water

Acid Herbicides by GCMS	22-Jul-2021	22-Jul-2021
Alkalinity as CaCO3	21-Jul-2021	21-Jul-2021
Ammonium Low	20-Jul-2021	20-Jul-2021
Anions by Kone (w)	21-Jul-2021	21-Jul-2021
BOD True Total	21-Jul-2021	21-Jul-2021
COD Unfiltered	17-Jul-2021	17-Jul-2021
Conductivity (at 20 deg.C)	21-Jul-2021	21-Jul-2021
Cyanide Comp/Free/Total/Thiocyanate	19-Jul-2021	19-Jul-2021
Dissolved Metals by ICP-MS	20-Jul-2021	20-Jul-2021
Dissolved Oxygen by Probe	16-Jul-2021	16-Jul-2021
Fluoride	16-Jul-2021	16-Jul-2021
Mercury Dissolved	19-Jul-2021	19-Jul-2021
Mineral Oil C10-40 Aqueous (W)	21-Jul-2021	21-Jul-2021
PCB Congeners - Aqueous (W)	20-Jul-2021	20-Jul-2021
Pesticides (Suite I) by GCMS	20-Jul-2021	22-Jul-2021
Pesticides (Suite II) by GCMS	22-Jul-2021	22-Jul-2021
Pesticides (Suite III) by GCMS	26-Jul-2021	26-Jul-2021
pH Value	19-Jul-2021	19-Jul-2021
Suspended Solids	19-Jul-2021	19-Jul-2021
SVOC MS (W) - Aqueous	19-Jul-2021	19-Jul-2021
Total Organic and Inorganic Carbon	23-Jul-2021	23-Jul-2021
VOC MS (W)	16-Jul-2021	18-Jul-2021



CERTIFICATE OF ANALYSIS

SDG:	210715-117	Client Reference:	P2282	Report Number:	607013
Location:	New Inn Landfill	Order Number:	Z2798	Superseded Report:	

Appendix

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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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.

16. 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.

General

17. **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.

18. 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
3	Deviation from method
4	Matrix interference
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

19. Asbestos

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.

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).

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung. Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

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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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 of report Generation: 27 August 2020
Customer: Fehily Timoney
Sample Delivery Group (SDG): 200731-89
Your Reference: P2282
Location: New Inn Landfill
Report No: 564886

This report has been revised and directly supersedes 562407 in its entirety.

We received 4 samples on Friday July 31, 2020 and 4 of these samples were scheduled for analysis which was completed on Monday August 10, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn Landfill

Client Reference: P2282
Order Number: P2282

Report Number: 564886
Superseded Report: 562407

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22583409	BH1		0.00 - 0.00	30/07/2020
22583419	BH4		0.00 - 0.00	30/07/2020
22583387	GW01		0.00 - 0.00	30/07/2020
22583397	GW02		0.00 - 0.00	30/07/2020

Maximum Sample/Coolbox Temperature (°C) :

16.2

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.



CERTIFICATE OF ANALYSIS

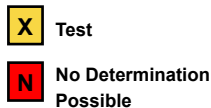
Validated

SDG: 200731-89
Location: New Inn Landfill

Client Reference: P2282
Order Number: P2282

Report Number: 564886
Superseded Report: 562407

Results Legend



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

<div>Results Legend</div> <div><div>X</div> Test</div> <div><div>N</div> No Determination Possible</div> <div>Sample Types -</div> <div>S - Soil/Solid</div> <div>UNS - Unspecified Solid</div> <div>GW - Ground Water</div> <div>SW - Surface Water</div> <div>LE - Land Leachate</div> <div>PL - Prepared Leachate</div> <div>PR - Process Water</div> <div>SA - Saline Water</div> <div>TE - Trade Effluent</div> <div>TS - Treated Sewage</div> <div>US - Untreated Sewage</div> <div>RE - Recreational Water</div> <div>DW - Drinking Water Non-regulatory</div> <div>UNL - Unspecified Liquid</div> <div>SL - Sludge</div> <div>G - Gas</div> <div>OTH - Other</div>	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	22583397		GW02		0.00 - 0.00		NaOH (ALE245)		GW			
	22583387		GW01		0.00 - 0.00		H2SO4 (ALE244)		GW			
	22583419		BH4		0.00 - 0.00		500ml Plastic (ALE208)		GW			
	22583409		BH1		0.00 - 0.00		0.5l glass bottle (ALE227)		GW			
							NaOH (ALE245)		GW			
							H2SO4 (ALE244)		GW			
Acid Herbicides by GCMS		All	NDPs: 0 Tests: 4	X						X		
Alkalinity as CaCO3		All	NDPs: 0 Tests: 4		X						X	
Ammonium Low		All	NDPs: 0 Tests: 4			X						X
Anions by Kone (w)		All	NDPs: 0 Tests: 4		X						X	
BOD True Total		All	NDPs: 0 Tests: 4		X						X	
COD Unfiltered		All	NDPs: 0 Tests: 4		X						X	
Conductivity (at 20 deg.C)		All	NDPs: 0 Tests: 4		X						X	
Cyanide Comp/Free/Total/Thiocyanate		All	NDPs: 0 Tests: 4			X						X
Dissolved Metals by ICP-MS		All	NDPs: 0 Tests: 4		X						X	
Dissolved Oxygen by Probe		All	NDPs: 0 Tests: 4		X						X	
Faecal Coliforms (W)*		All	NDPs: 0 Tests: 4		X						X	
Fluoride		All	NDPs: 0 Tests: 4		X						X	
Mercury Dissolved		All	NDPs: 0 Tests: 4		X						X	
PCB Congeners - Aqueous (W)		All	NDPs: 0 Tests: 4	X			X			X		
Pesticides (Suite I) by GCMS		All	NDPs: 0 Tests: 4	X			X			X		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89 Client Reference: P2282 Report Number: 564886
Location: New Inn Landfill Order Number: P2282 Superseded Report: 562407

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

Results Legend <div><div>X</div> Test</div> <div><div>N</div> No Determination Possible</div> 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																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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	22583387		GW01		0.00 - 0.00	H2SO4 (ALE244)	GW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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	22583409		BH1		0.00 - 0.00	0.5l glass bottle (ALE227)	GW																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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22583397	GW02		0.00 - 0.00	Via1 (ALE297)	GW								X						X
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CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn Landfill**Client Reference:** P2282
Order Number: P2282**Report Number:** 564886
Superseded Report: 562407

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				30/07/2020	30/07/2020	30/07/2020	30/07/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% 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				31/07/2020	31/07/2020	31/07/2020	31/07/2020		
(F)	Trigger breach confirmed				200731-89	200731-89	200731-89	200731-89		
1-3*5@	Sample deviation (see appendix)				22583409	22583419	22583387	22583397		
Component	LOD/Units	Method								
Faecal coliforms confirmed (M7M)*	0 CFU/100ml	SUB			0	0	1	180		
Total Coliform Presumptive (M16)*	CFU/100ml	SUB			2	7	2			
Total Coliform Confirmed (M14)*	CFU/100ml	SUB			2	7	2			
Alkalinity, Total as HCO3	<2 mg/l	TM043			451	482	1570	939		
BOD, unfiltered	<1 mg/l	TM045			<1	<1	<1	<1		
Oxygen, dissolved	<0.3 mg/l	TM046			9.68	8.64	10	9.5		
Organic Carbon, Total	<3 mg/l	TM090			<3	3.47	<3	<3		
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099			0.0176	0.186	0.0283	0.544		
Fluoride	<0.5 mg/l	TM104			<0.5	<0.5	<0.5	0.908		
COD, unfiltered	<7 mg/l	TM107			28.7	32.3	99.6	162		
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120			0.623	0.794	0.748	1.27		
Arsenic (diss.filt)	<0.5 µg/l	TM152			0.521	0.869	<0.5	0.607		
Barium (diss.filt)	<0.2 µg/l	TM152			21.8	33.5	9.12	129		
Boron (diss.filt)	<10 µg/l	TM152			23.7	43.5	<10	180		
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08	<0.08	<0.08		
Chromium (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1		
Copper (diss.filt)	<0.3 µg/l	TM152			4.98	<0.3	0.828	1.97		
Lead (diss.filt)	<0.2 µg/l	TM152			<0.2	<0.2	<0.2	0.356		
Manganese (diss.filt)	<3 µg/l	TM152			16	115	9.66	8.05		
Nickel (diss.filt)	<0.4 µg/l	TM152			10.5	5.59	3.53	3.47		
Phosphorus (diss.filt)	<10 µg/l	TM152			<10	<10	<10	16.5		
Selenium (diss.filt)	<1 µg/l	TM152			<1	<1	<1	33.5		
Thallium (diss.filt)	<2 µg/l	TM152			<2	<2	<2	<2		
Zinc (diss.filt)	<1 µg/l	TM152			26.6	1.95	3.01	1.98		
Sodium (Dis.Filt)	<0.076 mg/l	TM152			6.42	45.8	8.43	226		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			10.1	8.08	5.7	28.3		
Potassium (Dis.Filt)	<0.2 mg/l	TM152			1.18	3.32	1.69	5.26		
Calcium (Dis.Filt)	<0.2 mg/l	TM152			139	139	143	71.8		
Iron (Dis.Filt)	<0.019 mg/l	TM152			<0.019	<0.019	<0.019	<0.019		
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01	<0.01	<0.01		
Sulphate	<2 mg/l	TM184			11.8	11.8	9.3	181		
Chloride	<2 mg/l	TM184			13.5	73.6	22.2	46.4		
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184			1.89	<0.1	1.75	0.216		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn Landfill

Client Reference: P2282
Order Number: P2282

Report Number: 564886
Superseded Report: 562407

Results Legend		Customer Sample Ref.	BH1	BH4	GW01	GW02		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
dis.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% 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							
1-3*§@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105	<0.105		
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05		
pH	<1 pH Units	TM256	7.97	7.33	7.22	7.85		
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		
delta-HCH	<0.01 µg/l	TM343	<0.01	<0.02	<0.02	<0.02		
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		
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	<0.04	<0.04	<0.04		
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	<0.07	<0.07	<0.07		
o,p'-Methoxychlor	<0.01 µg/l	TM343	<0.01	<0.04	<0.04	<0.04		
p,p'-Methoxychlor	<0.01 µg/l	TM343	<0.01	<0.07	<0.07	<0.07		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn Landfill

Client Reference: P2282
Order Number: P2282

Report Number: 564886
Superseded Report: 562407

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
sq	Aqueous / settled sample.				30/07/2020	30/07/2020	30/07/2020	30/07/2020		
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				31/07/2020	31/07/2020	31/07/2020	31/07/2020		
*	Subcontracted - refer to subcontractor report for accreditation status.				200731-89	200731-89	200731-89	200731-89		
**	% 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				22583409	22583419	22583387	22583397		
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.02	<0.04	<0.04	<0.04		
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		
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Hexachlorobutadiene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Dichlobenil	<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		
Demeton-S-methyl	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Phorate	<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	<0.01		
Simazine	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
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	<0.01	<0.01		
trans-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn Landfill

Client Reference: P2282
Order Number: P2282

Report Number: 564886
Superseded Report: 562407

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
sq	Aqueous / settled sample.				30/07/2020	30/07/2020	30/07/2020	30/07/2020		
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.				31/07/2020	31/07/2020	31/07/2020	31/07/2020		
**	% 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				200731-89	200731-89	200731-89	200731-89		
(F)	Trigger breach confirmed				22583409	22583419	22583387	22583397		
1-3+9@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
cis-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Ethion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Carbophenothion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Triazophos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Phosalone	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Azinphos methyl	<0.02 µg/l	TM344			<0.02	<0.02	<0.02	<0.02		
Azinphos ethyl	<0.02 µg/l	TM344			<0.02	<0.02	<0.02	<0.02		
Etridiazole	<0.01 µg/l	TM345			<0.01	<0.02	<0.02	<0.02		
Pentachlorobenzene	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Propachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Quintozene (PCNB)	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Omethoate	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Propazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Propyzamide	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Alachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Prometryn	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Telodrin	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Terbutryn	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Chlorothalonil	<0.01 µg/l	TM345			<0.01	<0.03	<0.03	<0.03		
Etrimphos	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Metazachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Cyanazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Trietazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Coumaphos	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Phosphamidon I	<0.01 µg/l	TM345			<0.01	<0.02	<0.02	<0.02		
Phosphamidon II	<0.01 µg/l	TM345			<0.01	<0.02	<0.02	<0.02		
Dinitro-o-cresol	<0.1 µg/l	TM411			<0.1	<0.1	<0.5	<0.5		
Clopyralid	<0.04 µg/l	TM411			<0.04	<0.04	<0.2	<0.2		
MCPA	<0.05 µg/l	TM411			<0.05	<0.05	<0.25	<0.25		
Mecoprop	<0.04 µg/l	TM411			<0.04	<0.04	<0.2	<0.2		
Dicamba	<0.04 µg/l	TM411			<0.04	<0.04	<0.2	<0.2		
MCPB	<0.05 µg/l	TM411			<0.05	<0.05	<0.25	<0.25		
2,4-DB	<0.1 µg/l	TM411			<0.1	<0.1	<0.5	<0.5		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn Landfill

Client Reference: P2282
Order Number: P2282

Report Number: 564886
Superseded Report: 562407

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				30/07/2020	30/07/2020	30/07/2020	30/07/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
+	Subcontracted - refer to subcontractor report for accreditation status.									
**	% 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				31/07/2020	31/07/2020	31/07/2020	31/07/2020		
(F)	Trigger breach confirmed				200731-89	200731-89	200731-89	200731-89		
1-3*5@	Sample deviation (see appendix)				22583409	22583419	22583387	22583397		
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2-Chloronaphthalene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2-Chlorophenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2-Methylnaphthalene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2-Methylphenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2-Nitroaniline (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
2-Nitrophenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
3-Nitroaniline (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
4-Chloroaniline (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
4-Methylphenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
4-Nitroaniline (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
4-Nitrophenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
Azobenzene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Acenaphthylene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Acenaphthene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Anthracene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176			<16	<16	<20	<20		
					#	#	#	#		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Benzo(a)anthracene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn LandfillClient Reference: P2282
Order Number: P2282Report Number: 564886
Superseded Report: 562407

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				30/07/2020	30/07/2020	30/07/2020	30/07/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				31/07/2020	31/07/2020	31/07/2020	31/07/2020		
*	Subcontracted - refer to subcontractor report for accreditation status.				200731-89	200731-89	200731-89	200731-89		
**	% 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				22583409	22583419	22583387	22583397		
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Benzo(a)pyrene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Carbazole (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Chrysene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Dibenzofuran (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
n-Butyl phthalate (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Diethyl phthalate (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Dimethyl phthalate (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
n-Dioctyl phthalate (aq)	<5 µg/l	TM176			<40	<40	<50	<50		
					#	#	#	#		
Fluoranthene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Fluorene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Hexachlorobenzene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Hexachlorobutadiene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Pentachlorophenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
Phenol (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Hexachloroethane (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Nitrobenzene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Naphthalene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Isophorone (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
Phenanthrene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		
Pyrene (aq)	<1 µg/l	TM176			<8	<8	<10	<10		
					#	#	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn Landfill

Client Reference: P2282
Order Number: P2282

Report Number: 564886
Superseded Report: 562407

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				30/07/2020	30/07/2020	30/07/2020	30/07/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% 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				31/07/2020	31/07/2020	31/07/2020	31/07/2020		
(F)	Trigger breach confirmed				200731-89	200731-89	200731-89	200731-89		
1-3*5@	Sample deviation (see appendix)				22583409	22583419	22583387	22583397		
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			108	107	108	107		
Toluene-d8**	%	TM208			99.1	97.2	97.2	96.2		
4-Bromofluorobenzene**	%	TM208			99	99.9	99.9	101		
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	<1	<1	<1		
Bromomethane	<1 µg/l	TM208			<1	<1	<1	<1		
Chloroethane	<1 µg/l	TM208			<1	<1	<1	<1		
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1	<1	<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	3.44		
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	<1		
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	1.16		
cis-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1	<1		
Toluene	<1 µg/l	TM208			<1	<1	<1	<1		
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		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn LandfillClient Reference: P2282
Order Number: P2282Report Number: 564886
Superseded Report: 562407

VOC MS (W)

Results Legend		Customer Sample Ref.	BH1	BH4	GW01	GW02		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
sq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% 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							
1-3+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 #	<1 #	<1 #		
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
o-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
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 #	<1 #		
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 #	<1 #		
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
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	<1 #	<1 #	<1 #	<1 #		
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
4-iso-Propyltoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<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 #	<1 #		
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #		



CERTIFICATE OF ANALYSIS

Validated

SDG:	200731-89	Client Reference:	P2282	Report Number:	564886
Location:	New Inn Landfill	Order Number:	P2282	Superseded Report:	562407

Table of Results - Appendix

Method No	Reference	Description
SUB		Subcontracted Test
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
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
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
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
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
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
TM411	Acid_Herbs_GCMS	Acid Herbs in Water 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).



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-89
Location: New Inn Landfill

Client Reference: P2282
Order Number: P2282

Report Number: 564886
Superseded Report: 562407

Test Completion Dates

Lab Sample No(s)	22583409	22583419	22583387	22583397
Customer Sample Ref.	BH1	BH4	GW01	GW02
AGS Ref.				
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	07-Aug-2020	07-Aug-2020	07-Aug-2020	07-Aug-2020
Alkalinity as CaCO3	06-Aug-2020	06-Aug-2020	06-Aug-2020	06-Aug-2020
Ammonium Low	06-Aug-2020	06-Aug-2020	06-Aug-2020	06-Aug-2020
Anions by Kone (w)	04-Aug-2020	04-Aug-2020	04-Aug-2020	04-Aug-2020
BOD True Total	06-Aug-2020	06-Aug-2020	06-Aug-2020	06-Aug-2020
COD Unfiltered	01-Aug-2020	01-Aug-2020	01-Aug-2020	04-Aug-2020
Conductivity (at 20 deg.C)	05-Aug-2020	05-Aug-2020	05-Aug-2020	05-Aug-2020
Cyanide Comp/Free/Total/Thiocyanate	07-Aug-2020	06-Aug-2020	07-Aug-2020	07-Aug-2020
Dissolved Metals by ICP-MS	07-Aug-2020	07-Aug-2020	07-Aug-2020	07-Aug-2020
Dissolved Oxygen by Probe	02-Aug-2020	02-Aug-2020	04-Aug-2020	02-Aug-2020
Faecal Coliforms (W)*	10-Aug-2020	10-Aug-2020	10-Aug-2020	10-Aug-2020
Fluoride	04-Aug-2020	04-Aug-2020	04-Aug-2020	04-Aug-2020
Mercury Dissolved	05-Aug-2020	05-Aug-2020	07-Aug-2020	05-Aug-2020
PCB Congeners - Aqueous (W)	10-Aug-2020	10-Aug-2020	10-Aug-2020	10-Aug-2020
Pesticides (Suite I) by GCMS	07-Aug-2020	06-Aug-2020	06-Aug-2020	06-Aug-2020
Pesticides (Suite II) by GCMS	07-Aug-2020	07-Aug-2020	07-Aug-2020	07-Aug-2020
Pesticides (Suite III) by GCMS	06-Aug-2020	05-Aug-2020	05-Aug-2020	05-Aug-2020
pH Value	03-Aug-2020	03-Aug-2020	04-Aug-2020	04-Aug-2020
SVOC MS (W) - Aqueous	09-Aug-2020	09-Aug-2020	09-Aug-2020	09-Aug-2020
Total Coliforms(W)*	10-Aug-2020	10-Aug-2020	10-Aug-2020	
Total Organic and Inorganic Carbon	06-Aug-2020	06-Aug-2020	06-Aug-2020	06-Aug-2020
VOC MS (W)	04-Aug-2020	05-Aug-2020	05-Aug-2020	05-Aug-2020



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Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill CV4 9GU

08 August 2020

Test Report: COV/1904559/2020

Dear Subcon Results

Analysis of your sample(s) received on 01 August 2020 is now complete and we have pleasure in enclosing the appropriate test report(s).


An invoice for the analysis carried out will be sent under separate cover.

Should you have any queries regarding this report(s) or any part of our service, please contact Customer Services on +44 (0)24 7642 1213 who will be happy to discuss your requirements.

If you would like to arrange any further analysis, please contact Customer Services. To arrange container delivery or sample collection, please call the Couriers Department directly on 024 7685 6562.

Thank you for using ALS Environmental Ltd and we look forward to receiving your next samples.

Yours Sincerely,

Signed: 

Name: B. Paige

Title: Microbiology Team Leader



This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No.02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

Report Summary

Hawarden Subcon Results
ALS Life Sciences Limited
Torrington Avenue
Tile Hill
CV4 9GU



ANALYSED BY



Date of Issue: **08 August 2020**

Report Number: **COV/1904559/2020**

Issue **1**

This issue replaces
all previous issues

Job Description: 2020 Analysis

Job Location: 200731-89

Number of Samples
included in this report **7**

Job Received: **01 August 2020**

Number of Test Results
included in this report **10**

Analysis Commenced: **01 August 2020**

Signed: 

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

ALS Environmental Ltd was not responsible for sampling unless otherwise stated.

Information on the methods of analysis and performance characteristics are available on request.

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.

Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.

This test report is not a statement of conformity to any specification or standard.

This communication has been sent to you by ALS Environmental Ltd. Registered in England and Wales. Registration No. 02148934. Registered Office: ALS Environmental Limited, Torrington Avenue, Coventry, CV4 9GU.

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/1904559/2020**
Laboratory Number: **19545545**
Sample Source: **ALS Life Sciences Limited**
Sample Point Description:
Sample Description: **22584586 BH1**
Sample Matrix: **Ground Water**
Sample Date/Time: **30 July 2020**
Sample Received: **01 August 2020**
Analysis Complete: **08 August 2020**
SDG: **200731-89**
Sample Reference: **BH1**

Issue **1**
Sample **1** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Faecal coliforms confirmed	0	cfu/100ml	08/08/2020	N Cov	W57

Analyst Comments for 19545545:

This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

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Certificate of Analysis

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Report Number: **COV/1904559/2020**
Laboratory Number: **19545546**
Sample Source: **ALS Life Sciences Limited**
Sample Point Description:
Sample Description: **22584591 BH1**
Sample Matrix: **Ground Water**
Sample Date/Time: **30 July 2020**
Sample Received: **01 August 2020**
Analysis Complete: **08 August 2020**
SDG: **200731-89**
Sample Reference: **BH1**

Issue **1**
Sample **2** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Total Coliform presumpt	2	cfu/100ml	02/08/2020	Y Cov	W10
Total Coliforms confirmed	2	cfu/100ml	02/08/2020	Y Cov	W10

Analyst Comments for 19545546:

This sample has been analysed for Total Coliforms confirmed, Total Coliform presumpt outside recommended stability times. It is therefore possible that the results provided may be compromised. Total coliforms identified as Raoultella terrigena and Lelliottia amnigena.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/1904559/2020**
Laboratory Number: **19545547**
Sample Source: **ALS Life Sciences Limited**
Sample Point Description:
Sample Description: **22584606 BH4**
Sample Matrix: **Ground Water**
Sample Date/Time: **30 July 2020**
Sample Received: **01 August 2020**
Analysis Complete: **08 August 2020**
SDG: **200731-89**
Sample Reference: **BH4**

Issue **1**
Sample **3** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Faecal coliforms confirmed	0	cfu/100ml	08/08/2020	N Cov	W57

Analyst Comments for 19545547:

This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/1904559/2020**
Laboratory Number: **19545548**
Sample Source: **ALS Life Sciences Limited**
Sample Point Description:
Sample Description: **22584607 BH4**
Sample Matrix: **Ground Water**
Sample Date/Time: **30 July 2020**
Sample Received: **01 August 2020**
Analysis Complete: **08 August 2020**
SDG: **200731-89**
Sample Reference: **BH4**

Issue **1**
Sample **4** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Total Coliform presumpt	7	cfu/100ml	02/08/2020	Y Cov	W10
Total Coliforms confirmed	7	cfu/100ml	02/08/2020	Y Cov	W10

Analyst Comments for 19545548:

This sample has been analysed for Total Coliforms confirmed, Total Coliform presumpt outside recommended stability times. It is therefore possible that the results provided may be compromised. Total coliforms identified as *Serratia fonticola*, *Lelliottia amnigena* and *Citrobacter gillenii*.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

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Certificate of Analysis

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Report Number: **COV/1904559/2020**
Laboratory Number: **19545549**
Sample Source: **ALS Life Sciences Limited**
Sample Point Description:
Sample Description: **22584572 GW01**
Sample Matrix: **Ground Water**
Sample Date/Time: **30 July 2020**
Sample Received: **01 August 2020**
Analysis Complete: **08 August 2020**

SDG: **200731-89**
Sample Reference: **GW01**

Issue **1**
Sample **5** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Faecal coliforms confirmed	1	cfu/100ml	08/08/2020	N Cov	W57

Analyst Comments for 19545549:

This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed: *B. Paige*

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/1904559/2020**
Laboratory Number: **19545550**
Sample Source: **ALS Life Sciences Limited**
Sample Point Description:
Sample Description: **22584573 GW01**
Sample Matrix: **Ground Water**
Sample Date/Time: **30 July 2020**
Sample Received: **01 August 2020**
Analysis Complete: **08 August 2020**
SDG: **200731-89**
Sample Reference: **GW01**

Issue **1**
Sample **6** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Total Coliform presumpt	2	cfu/100ml	02/08/2020	Y Cov	W10
Total Coliforms confirmed	2	cfu/100ml	02/08/2020	Y Cov	W10

Analyst Comments for 19545550:

This sample has been analysed for Total Coliforms confirmed, Total Coliform presumpt outside recommended stability times. It is therefore possible that the results provided may be compromised. Total coliforms identified as *Citrobacter gillenii*.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

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Certificate of Analysis

ANALYSED BY



Report Number: **COV/1904559/2020**
Laboratory Number: **19545551**
Sample Source: **ALS Life Sciences Limited**
Sample Point Description:
Sample Description: **22584574 GW02**
Sample Matrix: **Ground Water**
Sample Date/Time: **30 July 2020**
Sample Received: **01 August 2020**
Analysis Complete: **08 August 2020**

SDG: **200731-89**
Sample Reference: **GW02**

Issue **1**
Sample **7** of **7**

Test Description	Result	Units	Analysis Date	Accreditation	Method
Faecal coliforms confirmed	180	cfu/100ml	08/08/2020	N Cov	W57

Analyst Comments for 19545551:

This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues

Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.

Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2SW), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.

For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.

I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

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**ANALYST COMMENTS FOR REPORT COV/1904559/2020****Issue 1**

This issue replaces all previous issues

Date of Issue: 08 August 2020

Sample No	Analysis Comments
19545545	This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that the results provided may be compromised.
19545546	This sample has been analysed for Total Coliforms confirmed, Total Coliform presumpt outside recommended stability times. It is therefore possible that the results provided may be compromised. Total coliforms identified as Raoultella terrigena and Lelliottia amnigena.
19545547	This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that the results provided may be compromised.
19545548	This sample has been analysed for Total Coliforms confirmed, Total Coliform presumpt outside recommended stability times. It is therefore possible that the results provided may be compromised. Total coliforms identified as Serratia fonticola, Lelliottia amnigena and Citrobacter gillenii.
19545549	This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that the results provided may be compromised.
19545550	This sample has been analysed for Total Coliforms confirmed, Total Coliform presumpt outside recommended stability times. It is therefore possible that the results provided may be compromised. Total coliforms identified as Citrobacter gillenii.
19545551	This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that the results provided may be compromised.

Signed:

Name: **B. Paige**Date: **08 August 2020**Title: **Microbiology Team Leader**



DETERMINAND COMMENTS FOR REPORT COV/1904559/2020

ISSUE 1

Date of Issue: 08 August 2020

This issue replaces
all previous issues

Sample No	Description	Determinand	Comments
19545546	22584591 BH1	Total Coliforms confirmed	Total coliforms identified as Raoultella terrigena and Lelliottia amnigena.
19545548	22584607 BH4	Total Coliforms confirmed	Total coliforms identified as Serratia fonticola, Lelliottia amnigena and Citrobacter gillenii.
19545550	22584573 GW01	Total Coliforms confirmed	Total coliforms identified as Citrobacter gillenii.

Signed:

Name: **B. Paige**

Date: **08 August 2020**

Title: **Microbiology Team Leader**

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CERTIFICATE OF ANALYSIS

SDG:	200731-89	Client Reference:	P2282	Report Number:	564886
Location:	New Inn Landfill	Order Number:	P2282	Superseded Report:	562407

Appendix

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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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.

16. 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.

General

17. **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.

18. 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
3	Deviation from method
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

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

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).

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

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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Hawarden

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

Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date of report Generation: 04 September 2020
Customer: Fehily Timoney
Sample Delivery Group (SDG): 200826-90
Your Reference: P2282
Location: New Inn Landfill
Report No: 566041

This report has been revised and directly supersedes 565825 in its entirety.

We received 4 samples on Wednesday August 26, 2020 and 4 of these samples were scheduled for analysis which was completed on Friday September 04, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG:	200826-90	Client Reference:	P2282	Report Number:	566041
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	565825

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22723005	BH1		0.00 - 0.00	25/08/2020
22723016	BH4		0.00 - 0.00	25/08/2020
22722980	GW01		0.00 - 0.00	25/08/2020
22722991	GW02		0.00 - 0.00	25/08/2020

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



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 566041
Superseded Report: 565825

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

<div>Results Legend</div> <div><div>X</div> Test</div> <div><div>N</div> No Determination Possible</div> <div>Sample Types -</div> <div>S - Soil/Solid</div> <div>UNS - Unspecified Solid</div> <div>GW - Ground Water</div> <div>SW - Surface Water</div> <div>LE - Land Leachate</div> <div>PL - Prepared Leachate</div> <div>PR - Process Water</div> <div>SA - Saline Water</div> <div>TE - Trade Effluent</div> <div>TS - Treated Sewage</div> <div>US - Untreated Sewage</div> <div>RE - Recreational Water</div> <div>DW - Drinking Water Non-regulatory</div> <div>UNL - Unspecified Liquid</div> <div>SL - Sludge</div> <div>G - Gas</div> <div>OTH - Other</div>	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	22722991		GW02		0.00 - 0.00		H2SO4 (ALE244)		500ml Plastic (ALE208)		GW	
	22722980		GW01		0.00 - 0.00		Vial (ALE297)		0.5l glass bottle (ALE227)		GW	
	22723016		BH4		0.00 - 0.00		Vial (ALE297)		500ml Plastic (ALE208)		GW	
	22723005		BH1		0.00 - 0.00		Vial (ALE297)		500ml Plastic (ALE208)		GW	
							HNO3 Filtered (ALE204)		H2SO4 (ALE244)		GW	
							NaOH (ALE245)				GW	
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 4	X						X			
Alkalinity as CaCO3	All	NDPs: 0 Tests: 4		X					X			
Ammonium Low	All	NDPs: 0 Tests: 4			X					X		
Anions by Kone (w)	All	NDPs: 0 Tests: 4		X					X			
BOD True Total	All	NDPs: 0 Tests: 4		X					X			
COD Unfiltered	All	NDPs: 0 Tests: 4		X					X			
Coliforms (W)	All	NDPs: 0 Tests: 4		X					X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 4		X					X			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 4			X			X		X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 4		X				X		X		
Dissolved Oxygen by Probe	All	NDPs: 2 Tests: 2			N				X			
Fluoride	All	NDPs: 0 Tests: 4		X					X			
Mercury Dissolved	All	NDPs: 0 Tests: 4		X				X		X		
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 4	X				X			X		
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 4	X				X			X		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 566041
Superseded Report: 565825

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				25/08/2020	25/08/2020	25/08/2020	25/08/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
+	Subcontracted - refer to subcontractor report for accreditation status.									
**	% 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				26/08/2020	26/08/2020	26/08/2020	26/08/2020		
(F)	Trigger breach confirmed				200826-90	200826-90	200826-90	200826-90		
1-3*5@	Sample deviation (see appendix)				22723005	22723016	22722980	22722991		
Component	LOD/Units	Method								
Coliforms, Total*	MPN/100ml	SUB			<1	<1	2	488		
Coliforms, Faecal*	CFU/100ml	SUB			<1	<1	<1	10		
Alkalinity, Total as HCO3	<2 mg/l	TM043			427	434	2280	1230		
BOD, unfiltered	<1 mg/l	TM045			<1	<1	2.29	2.2		
Oxygen, dissolved	<0.3 mg/l	TM046				8.34		9.51		
Organic Carbon, Total	<3 mg/l	TM090			<3	3.63	3.46	3.83		
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099			0.0202	0.558	0.0438	0.526		
Fluoride	<0.5 mg/l	TM104			0.786	0.79	<0.5	0.968		
COD, unfiltered	<7 mg/l	TM107			8.83	13.4	342	106		
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120			0.643	0.798	0.727	1.45		
Arsenic (diss.filt)	<0.5 µg/l	TM152			<0.5	2.96	<0.5	0.541		
Barium (diss.filt)	<0.2 µg/l	TM152			36.9	41.8	1930	111		
Boron (diss.filt)	<10 µg/l	TM152			64.3	136	348	193		
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08	<0.08	<0.08		
Chromium (diss.filt)	<1 µg/l	TM152			<1	5.17	<1	<1		
Copper (diss.filt)	<0.3 µg/l	TM152			7.55	0.618	1.15	1		
Lead (diss.filt)	<0.2 µg/l	TM152			0.616	1.52	<0.2	<0.2		
Manganese (diss.filt)	<3 µg/l	TM152			25.8	105	<3	14.9		
Nickel (diss.filt)	<0.4 µg/l	TM152			8.5	17.1	2.71	3.44		
Phosphorus (diss.filt)	<10 µg/l	TM152			<10	30.7	<10	11.4		
Selenium (diss.filt)	<1 µg/l	TM152			<1	<1	<1	2.77		
Thallium (diss.filt)	<2 µg/l	TM152			<2	<2	<2	<2		
Zinc (diss.filt)	<1 µg/l	TM152			10	5.81	862	<1		
Sodium (Dis.Filt)	<0.076 mg/l	TM152			10.6	46.5	19.3	222		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			18.9	12.8	7.94	35.6		
Potassium (Dis.Filt)	<0.2 mg/l	TM152			1.58	4.5	0.627	5.49		
Calcium (Dis.Filt)	<0.2 mg/l	TM152			109	128	138	64.5		
Iron (Dis.Filt)	<0.019 mg/l	TM152			0.0509	3.75	<0.019	0.0304		
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01	<0.01	<0.01		
Sulphate	<2 mg/l	TM184			12.5	11.8	16.9	235		
Chloride	<2 mg/l	TM184			16.1	66	23.1	55.6		
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184			0.573	0.282	1.98	<0.1		
PCB congener 28	<0.015 µg/l	TM197			<0.015	<0.015	<0.015	<0.015		



CERTIFICATE OF ANALYSIS

Validated

SDG:	200826-90	Client Reference:	P2282	Report Number:	566041
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	565825

Results Legend		Customer Sample Ref.	BH1	BH4	GW01	GW02		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted - refer to subcontractor report for accreditation status.							
**	% 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							
1-3*§@	Sample deviation (see appendix)							
Component	LOD/Units	Method						
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105	<0.105		
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05		
pH	<1 pH Units	TM256	7.3	7.12	7.01	7.46		
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		
delta-HCH	<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		
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		
o,p'-Methoxychlor	<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		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2189**Report Number:** 566041
Superseded Report: 565825

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
sq	Aqueous / settled sample.				25/08/2020	25/08/2020	25/08/2020	25/08/2020		
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				26/08/2020	26/08/2020	26/08/2020	26/08/2020		
*	Subcontracted - refer to subcontractor report for accreditation status.				200826-90	200826-90	200826-90	200826-90		
**	% 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				22723005	22723016	22722980	22722991		
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
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		
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Hexachlorobutadiene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Dichlobenil	<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		
Demeton-S-methyl	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Phorate	<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	<0.01		
Simazine	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
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	<0.01	<0.01		
trans-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
cis-Chlordane	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 566041
Superseded Report: 565825

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				25/08/2020	25/08/2020	25/08/2020	25/08/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				26/08/2020	26/08/2020	26/08/2020	26/08/2020		
*	Subcontracted - refer to subcontractor report for accreditation status.				200826-90	200826-90	200826-90	200826-90		
**	% 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				22723005	22723016	22722980	22722991		
(F)	Trigger breach confirmed									
1-3*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Ethion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Carbophenothion	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Triazophos	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Phosalone	<0.01 µg/l	TM344			<0.01	<0.01	<0.01	<0.01		
Azinphos methyl	<0.02 µg/l	TM344			<0.04	<0.04	<0.04	<0.04		
Azinphos ethyl	<0.02 µg/l	TM344			<0.02	<0.02	<0.02	<0.02		
Etridiazole	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Pentachlorobenzene	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Propachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Quintozone (PCNB)	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Omethoate	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Propazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Propyzamide	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Alachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Prometryn	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Telodrin	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Terbutryn	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Chlorothalonil	<0.01 µg/l	TM345			<0.02	<0.02	<0.02	<0.02		
Etrimphos	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Metazachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Cyanazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Trietazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Coumaphos	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Phosphamidon I	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Phosphamidon II	<0.01 µg/l	TM345			<0.01	<0.01	<0.01	<0.01		
Dinitro-o-cresol	<0.1 µg/l	TM411			<0.1	<0.2	<0.2	<0.2		
Clopyralid	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.08		
MCPA	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.1		
Mecoprop	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.08		
Dicamba	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.08		
MCPB	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.1		
2,4-DB	<0.1 µg/l	TM411			<0.1	<0.2	<0.2	<0.2		
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.1		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2189**Report Number:** 566041
Superseded Report: 565825

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				25/08/2020	25/08/2020	25/08/2020	25/08/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
+	Subcontracted - refer to subcontractor report for accreditation status.									
**	% 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				26/08/2020	26/08/2020	26/08/2020	26/08/2020		
(F)	Trigger breach confirmed		200826-90	200826-90	200826-90	200826-90				
1-3*5@	Sample deviation (see appendix)		22723005	22723016	22722980	22722991				
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2-Chlorophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2-Methylphenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2-Nitroaniline (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
2-Nitrophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
3-Nitroaniline (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
4-Chloroaniline (aq)	<1 µg/l	TM176	<1		<1		<20		<10	
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
4-Methylphenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
4-Nitroaniline (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
4-Nitrophenol (aq)	<1 µg/l	TM176	<1		<1		<20		<10	
Azobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
Acenaphthylene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
Acenaphthene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
Anthracene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2	#	<2	#	<40	#	<20	#
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1	#	<1	#	<20	#	<10	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn LandfillClient Reference: P2282
Order Number: Z2189Report Number: 566041
Superseded Report: 565825

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				25/08/2020	25/08/2020	25/08/2020	25/08/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				26/08/2020	26/08/2020	26/08/2020	26/08/2020		
*	Subcontracted - refer to subcontractor report for accreditation status.				200826-90	200826-90	200826-90	200826-90		
**	% 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				22723005	22723016	22722980	22722991		
(F)	Trigger breach confirmed									
1-3+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Benzo(a)pyrene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Carbazole (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Chrysene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Dibenzofuran (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
n-Dibutyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Diethyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Dimethyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
n-Dioctyl phthalate (aq)	<5 µg/l	TM176			<5	<5	<100	<50		
					#	#	#	#		
Fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Fluorene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Hexachlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Hexachlorobutadiene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Pentachlorophenol (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
Phenol (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Hexachloroethane (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Nitrobenzene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Naphthalene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Isophorone (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
Phenanthrene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		
Pyrene (aq)	<1 µg/l	TM176			<1	<1	<20	<10		
					#	#	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 566041
Superseded Report: 565825

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				25/08/2020	25/08/2020	25/08/2020	25/08/2020		
diss.filt	Dissolved / filtered sample.				26/08/2020	26/08/2020	26/08/2020	26/08/2020		
tot.unfilt	Total / unfiltered sample.				200826-90	200826-90	200826-90	200826-90		
+	Subcontracted - refer to subcontractor report for accreditation status.				22723005	22723016	22722980	22722991		
**	% 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									
1-3*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			120	119	120	118		
Toluene-d8**	%	TM208			99.3	99.4	98.8	98.9		
4-Bromofluorobenzene**	%	TM208			96	98.3	97.7	96.4		
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	<1	<1	<1		
Bromomethane	<1 µg/l	TM208			<1	<1	<1	<1		
Chloroethane	<1 µg/l	TM208			<1	<1	<1	<1		
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1	<1	<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	2.24		
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	<1		
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	<1	<1		
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		



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn LandfillClient Reference: P2282
Order Number: Z2189Report Number: 566041
Superseded Report: 565825

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
sq	Aqueous / settled sample.				25/08/2020	25/08/2020	25/08/2020	25/08/2020		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				26/08/2020	26/08/2020	26/08/2020	26/08/2020		
*	Subcontracted - refer to subcontractor report for accreditation status.				200826-90	200826-90	200826-90	200826-90		
**	% 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				22723005	22723016	22722980	22722991		
(F)	Trigger breach confirmed									
1-3+§@	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	<1	<1		
					#	#	#	#		
m,p-Xylene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
o-Xylene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
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	<1		
					#	#	#	#		
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	<1		
					#	#	#	#		
2-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
1,3,5-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
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			<1	<1	<1	<1		
					#	#	#	#		
sec-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
4-iso-Propyltoluene	<1 µg/l	TM208			<1	<1	<1	<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	<1		
					#	#	#	#		
1,2,3-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
1,3,5-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1		



CERTIFICATE OF ANALYSIS

Validated

SDG:	200826-90	Client Reference:	P2282	Report Number:	566041
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	565825

Notification of NDPs (No determination possible)

Date Received : 26/08/2020 12:34:28

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
22722980	GW01	0.00 - 0.00	Dissolved Oxygen by Probe	Insufficient Sample
22723005	BH1	0.00 - 0.00	Dissolved Oxygen by Probe	Insufficient Sample



CERTIFICATE OF ANALYSIS

Validated

SDG:	200826-90	Client Reference:	P2282	Report Number:	566041
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	565825

Table of Results - Appendix

Method No	Reference	Description
SUB		Subcontracted Test
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
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
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
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
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
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
TM411	Acid_Herbs_GCMS	Acid Herbs in Water 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).



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-90
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 566041
Superseded Report: 565825

Test Completion Dates

Lab Sample No(s)	22723005	22723016	22722980	22722991
Customer Sample Ref.	BH1	BH4	GW01	GW02
AGS Ref.				
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	03-Sep-2020	03-Sep-2020	03-Sep-2020	03-Sep-2020
Alkalinity as CaCO3	29-Aug-2020	29-Aug-2020	29-Aug-2020	29-Aug-2020
Ammonium Low	03-Sep-2020	02-Sep-2020	03-Sep-2020	02-Sep-2020
Anions by Kone (w)	31-Aug-2020	31-Aug-2020	31-Aug-2020	31-Aug-2020
BOD True Total	01-Sep-2020	01-Sep-2020	01-Sep-2020	01-Sep-2020
COD Unfiltered	30-Aug-2020	28-Aug-2020	30-Aug-2020	28-Aug-2020
Coliforms (W)	04-Sep-2020	04-Sep-2020	04-Sep-2020	04-Sep-2020
Conductivity (at 20 deg.C)	27-Aug-2020	27-Aug-2020	27-Aug-2020	27-Aug-2020
Cyanide Comp/Free/Total/Thiocyanate	03-Sep-2020	03-Sep-2020	03-Sep-2020	03-Sep-2020
Dissolved Metals by ICP-MS	02-Sep-2020	01-Sep-2020	02-Sep-2020	01-Sep-2020
Dissolved Oxygen by Probe		28-Aug-2020		28-Aug-2020
Fluoride	01-Sep-2020	01-Sep-2020	01-Sep-2020	01-Sep-2020
Mercury Dissolved	02-Sep-2020	03-Sep-2020	02-Sep-2020	03-Sep-2020
PCB Congeners - Aqueous (W)	03-Sep-2020	03-Sep-2020	03-Sep-2020	03-Sep-2020
Pesticides (Suite I) by GCMS	01-Sep-2020	01-Sep-2020	01-Sep-2020	01-Sep-2020
Pesticides (Suite II) by GCMS	01-Sep-2020	01-Sep-2020	01-Sep-2020	01-Sep-2020
Pesticides (Suite III) by GCMS	01-Sep-2020	01-Sep-2020	01-Sep-2020	01-Sep-2020
pH Value	27-Aug-2020	27-Aug-2020	27-Aug-2020	27-Aug-2020
SVOC MS (W) - Aqueous	30-Aug-2020	30-Aug-2020	30-Aug-2020	30-Aug-2020
Total Organic and Inorganic Carbon	29-Aug-2020	29-Aug-2020	02-Sep-2020	29-Aug-2020
VOC MS (W)	03-Sep-2020	03-Sep-2020	03-Sep-2020	03-Sep-2020

Customer

Customer Services
ALS Life Sciences
Hawarden Business Park
Manor Lane
Hawarden, Deeside
UK
CH5 3US

Certificate Of Analysis

Job Number: 20-82835

Issue Number: 2

Report Date: 4 September 2020

Reason for re-issuing report: Final Report

Site: Fehily Timoney

PO Number: ALS GLOBAL

Date Samples Received: 27/08/2020

Please find attached the results for the samples received at our laboratory on 27/08/2020.

Should you have any queries regarding the report or require any further services, we would be happy to discuss your requirements. For additional information about the company please log-on to our website at the above address.

Thank you for choosing City Analysts Limited. We look forward to assisting you again.

Authorised By:



Louise Morrow

Authorised Date: 1 September 2020

Notes are not INAB accredited

Results relate only to the items tested.

Information on methods of analysis and uncertainty of measurement is available on request.

Any opinions or interpretations indicated are outside the scope of our INAB accreditation.

This test report shall not be reproduced except in full or with written approval of City Analysts Limited.

Certificate Of Analysis

Customer

Customer Services
ALS Life Sciences
Hawarden Business Park
Manor Lane
Hawarden, Deeside
UK
CH5 3US

Report Reference: 20-82835

Report Version: 2

Site: Fehily Timoney
Sample Description: GW01 -NEW INN
Sample Type: Ground
Lab Reference Number: 529044

Date of Sampling: 26/08/2020

Date Sample Received: 27/08/2020

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	2.0	MPN/100ml	-
D/D3221#	27/08/2020	Faecal Coliforms	< 1	cfu/100ml	-

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers.

TVC - Total viable count

Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon

Certificate Of Analysis

Customer

Customer Services
ALS Life Sciences
Hawarden Business Park
Manor Lane
Hawarden, Deeside
UK
CH5 3US

Report Reference: 20-82835

Report Version: 2

Site: Fehily Timoney
Sample Description: GW02 - NEW INN
Sample Type: Ground
Lab Reference Number: 529045

Date of Sampling: 26/08/2020
Date Sample Received: 27/08/2020

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	488.4	MPN/100ml	-
D/D3221#	27/08/2020	Faecal Coliforms	10	cfu/100ml	-

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

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TVC - Total viable count

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Certificate Of Analysis

Customer

Customer Services
ALS Life Sciences
Hawarden Business Park
Manor Lane
Hawarden, Deeside
UK
CH5 3US

Report Reference: 20-82835

Report Version: 2

Site: Fehily Timoney

Sample Description: BH1 - NEW INN

Date of Sampling: 26/08/2020

Sample Type: Ground

Date Sample Received: 27/08/2020

Lab Reference Number: 529046

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	< 1.0	MPN/100ml	-
D/D3221#	27/08/2020	Faecal Coliforms	< 1	cfu/100ml	-

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers.

TVC - Total viable count

Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon

Certificate Of Analysis

Customer

Customer Services
ALS Life Sciences
Hawarden Business Park
Manor Lane
Hawarden, Deeside
UK
CH5 3US

Report Reference: 20-82835

Report Version: 2

Site: Fehily Timoney

Sample Description: BH4 -NEW INN

Sample Type: Ground

Lab Reference Number: 529047

Date of Sampling: 26/08/2020

Date Sample Received: 27/08/2020

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	< 1.0	MPN/100ml	-
D/D3221#	27/08/2020	Faecal Coliforms	< 1	cfu/100ml	-

= INAB Accredited, U = UKAS Accredited, * = Subcontracted

Note:

PV Value is the parametric value, taken from European Communities, (Drinking Water) Regulations, 2014. S.I. No. 122 of 2014 and relates only to drinking water samples.

For queries on results, please contact us within two weeks of the report date to ensure that we can accommodate your query as samples cannot be stored indefinitely.

NAC & ATC - No abnormal change and acceptable to customers.

TVC - Total viable count

Site D = Analysed at City Analysts Dublin. Site S = Analysed at City Analysts Shannon



CERTIFICATE OF ANALYSIS

SDG:	200826-90	Client Reference:	P2282	Report Number:	566041
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	565825

Appendix

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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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.

16. 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.

General

17. **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.

18. 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
3	Deviation from method
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

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

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).

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

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.



Unit 7-8 Hawarden Business Park

Manor Road (off Manor Lane)

Hawarden

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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 of report Generation: 26 July 2021
Customer: Fehily Timoney
Sample Delivery Group (SDG): 210715-116
Your Reference: P2282
Location: New Inn Landfill
Report No: 607026

This report has been revised and directly supersedes 607012 in its entirety.

We received 4 samples on Thursday July 15, 2021 and 4 of these samples were scheduled for analysis which was completed on Monday July 26, 2021. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607026
Superseded Report: 607012

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24638803	BH1		0.00 - 0.00	14/07/2021
24638810	BH4		0.00 - 0.00	14/07/2021
24638784	GW01		0.00 - 0.00	14/07/2021
24638794	GW02		0.00 - 0.00	14/07/2021

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



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607026
Superseded Report: 607012

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

Results Legend	Lab Sample No(s)		24638803	24638810	24638784	24638794
	Customer Sample Reference		BH1	BH4	GW01	GW02
	AGS Reference					
	Depth (m)		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
	Container		0.5l glass bottle (ALE227)	0.5l glass bottle (ALE227)	0.5l glass bottle (ALE227)	0.5l glass bottle (ALE227)
	Sample Type		GW	GW	GW	GW
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 4	X	X	X	X
Alkalinity as CaCO3	All	NDPs: 0 Tests: 4	X	X	X	
Ammonium Low	All	NDPs: 0 Tests: 4		X	X	
Anions by Kone (w)	All	NDPs: 0 Tests: 4	X	X	X	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 4	X	X	X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 4		X	X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 4		X	X	
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 4	X	X	X	
Fluoride	All	NDPs: 0 Tests: 4	X	X	X	
Mercury Dissolved	All	NDPs: 0 Tests: 4		X	X	
Mineral Oil C10-40 Aqueous (W)	All	NDPs: 0 Tests: 4	X	X	X	X
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 4	X	X	X	X
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 4	X	X	X	X
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 4	X	X	X	X
pH Value	All	NDPs: 0 Tests: 4	X	X	X	



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2798**Report Number:** 607026
Superseded Report: 607012

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				14/07/2021	14/07/2021	14/07/2021	14/07/2021		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021	15/07/2021	15/07/2021		
+	Subcontracted - refer to subcontractor report for accreditation status.				210715-116	210715-116	210715-116	210715-116		
..	% 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				24638803	24638810	24638784	24638794		
(F)	Trigger breach confirmed									
1-4\$@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Alkalinity, Total as HCO3	<2 mg/l	TM043			432	459	3340	1460		
Oxygen, dissolved	<0.3 mg/l	TM046			9.8	9.58	12.2	11.5		
Organic Carbon, Total	<3 mg/l	TM090			<3	3.66	3.75	3.26		
					◆ #	◆ #	◆ #	◆ #		
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099			0.013	0.139	0.034	0.443		
					#	#	#	#		
Fluoride	<0.5 mg/l	TM104			<0.5	<0.5	<0.5	1.46		
					#	#	#	#		
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120			0.599	0.823	0.746	2.64		
					#	#	#	#		
Arsenic (diss.filt)	<0.5 µg/l	TM152			<0.5	6.21	<0.5	0.798		
					#	#	#	#		
Barium (diss.filt)	<0.2 µg/l	TM152			19.1	41.5	7.92	190		
					#	#	#	#		
Boron (diss.filt)	<10 µg/l	TM152			21.4	41	15	181		
					#	#	#	#		
Cadmium (diss.filt)	<0.08 µg/l	TM152			0.117	<0.08	<0.08	<0.08		
					#	#	#	#		
Chromium (diss.filt)	<1 µg/l	TM152			<1	<1	<1	<1		
					#	#	#	#		
Copper (diss.filt)	<0.3 µg/l	TM152			24.9	<0.3	0.374	<0.3		
					#	#	#	#		
Lead (diss.filt)	<0.2 µg/l	TM152			12.2	1.75	<0.2	<0.2		
					#	#	#	#		
Manganese (diss.filt)	<3 µg/l	TM152			31.2	136	3.15	146		
					#	#	#	#		
Nickel (diss.filt)	<0.4 µg/l	TM152			9.18	64.2	1.76	2.72		
					#	#	#	#		
Phosphorus (diss.filt)	<10 µg/l	TM152			42.2	<10	<10	15.7		
					#	#	#	#		
Selenium (diss.filt)	<1 µg/l	TM152			1.28	<1	<1	<1		
					#	#	#	#		
Thallium (diss.filt)	<2 µg/l	TM152			<2	<2	<2	<2		
					#	#	#	#		
Zinc (diss.filt)	<1 µg/l	TM152			31.5	19.1	1.27	1.89		
					#	#	#	#		
Sodium (Dis.Filt)	<0.076 mg/l	TM152			5.99	47.2	8.63	486		
					#	#	#	#		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			8.55	8.48	5.99	41		
					#	#	#	#		
Potassium (Dis.Filt)	<0.2 mg/l	TM152			1.42	4.06	1.64	7.23		
					#	#	#	#		
Calcium (Dis.Filt)	<0.2 mg/l	TM152			140	152	170	53.8		
					#	#	#	#		
Iron (Dis.Filt)	<0.019 mg/l	TM152			0.407	5.95	<0.019	0.0415		
					#	#	#	#		
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172			<100	<100	<100	<100		
Mercury (diss.filt)	<0.01 µg/l	TM183			<0.01	<0.01	<0.01	<0.01		
					#	#	#	#		
Sulphate	<2 mg/l	TM184			13.6	13.6	6.5	442		
					#	#	#	#		
Chloride	<2 mg/l	TM184			7.4	71	15.4	90.1		
					#	#	#	#		
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184			0.88	<0.1	1.11	0.107		
					#	#	#	#		
Cyanide, Total	<0.05 mg/l	TM227			<0.05	<0.05	<0.05	<0.05		
					#	#	#	#		
pH	<1 pH Units	TM256			7.34	7.17	7.11	7.67		
					#	#	#	#		
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		
					#	#	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607026
Superseded Report: 607012

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
sq	Aqueous / settled sample.				14/07/2021	14/07/2021	14/07/2021	14/07/2021		
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021	15/07/2021	15/07/2021		
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-116	210715-116	210715-116	210715-116		
**	% 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				24638803	24638810	24638784	24638794		
(F)	Trigger breach confirmed									
1-4-9@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
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	<0.02	<0.02		
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		
delta-HCH	<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		
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	<0.02	<0.02		
o,p'-DDT	<0.01 µg/l	TM343			<0.01	<0.01	<0.05	<0.05		
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			<0.02	<0.02	<0.08	<0.08		
o,p'-Methoxychlor	<0.01 µg/l	TM343			<0.01	<0.01	<0.04	<0.04		
p,p'-Methoxychlor	<0.01 µg/l	TM343			<0.02	<0.02	<0.08	<0.08		
Endosulphan Sulphate	<0.02 µg/l	TM343			<0.02	<0.02	<0.04	<0.04		
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		
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Hexachlorobutadiene	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Dichlorvos	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Dichlobenil	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Mevinphos	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Tecnazene	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Hexachlorobenzene	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607026
Superseded Report: 607012

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
sq	Aqueous / settled sample.				14/07/2021	14/07/2021	14/07/2021	14/07/2021		
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021	15/07/2021	15/07/2021		
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-116	210715-116	210715-116	210715-116		
**	% 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				24638803	24638810	24638784	24638794		
(F)	Trigger breach confirmed									
1-4+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Demeton-S-methyl	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Phorate	<0.01 µg/l	TM344			<0.03	<0.02	<0.05	<0.03		
Diazinon	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Triallate	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Atrazine	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Simazine	<0.01 µg/l	TM344			<0.01	<0.02	0.0763	<0.01		
Disulfoton	<0.01 µg/l	TM344			<0.07	<0.04	<0.1	<0.07		
Propetamphos	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Chlorpyrifos-methyl	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Dimethoate	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Pirimiphos-methyl	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Chlorpyrifos	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Methyl Parathion	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Malathion	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Fenthion	<0.01 µg/l	TM344			<0.02	<0.02	<0.05	<0.02		
Fenitrothion	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Triadimefon	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Pendimethalin	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Parathion	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Chlorfenvinphos	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
trans-Chlordane	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
cis-Chlordane	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Ethion	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Carbophenothion	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Triazophos	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Phosalone	<0.01 µg/l	TM344			<0.01	<0.02	<0.05	<0.01		
Azinphos methyl	<0.02 µg/l	TM344			<0.02	<0.04	<0.1	<0.02		
Azinphos ethyl	<0.02 µg/l	TM344			<0.02	<0.04	<0.1	<0.02		
Etridiazole	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Pentachlorobenzene	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Propachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Quintozone (PCNB)	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Omethoate	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2798**Report Number:** 607026
Superseded Report: 607012

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				14/07/2021	14/07/2021	14/07/2021	14/07/2021		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021	15/07/2021	15/07/2021		
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-116	210715-116	210715-116	210715-116		
**	% 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				24638803	24638810	24638784	24638794		
(F)	Trigger breach confirmed									
1-4*§@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Propazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Propyzamide	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Alachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Prometryn	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Telodrin	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Terbutryn	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Chlorothalonil	<0.01 µg/l	TM345			<0.01	<0.02	<0.2	<0.02		
Etrimphos	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Metazachlor	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Cyanazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Trietazine	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Coumaphos	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Phosphamidon I	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Phosphamidon II	<0.01 µg/l	TM345			<0.01	<0.01	<0.1	<0.01		
Dinitro-o-cresol	<0.1 µg/l	TM411			<0.1	<0.2	<0.2	<0.1		
Clopyralid	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.04		
MCPA	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.05		
Mecoprop	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.04		
Dicamba	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.04		
MCPB	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.05		
2,4-DB	<0.1 µg/l	TM411			<0.1	<0.2	<0.2	<0.1		
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.05		
Dichlorprop	<0.1 µg/l	TM411			<0.1	<0.2	<0.2	<0.1		
Triclopyr	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.05		
Fenoprop (Silvex)	<0.1 µg/l	TM411			<0.1	<0.2	<0.2	<0.1		
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.05		
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.05		
Bromoxynil	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.04		
Benazolin	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.04		
Ioxynil	<0.05 µg/l	TM411			<0.05	<0.1	<0.1	<0.05		
Pentachlorophenol	<0.04 µg/l	TM411			<0.04	<0.08	<0.08	<0.04		
Fluoroxypyr	<0.1 µg/l	TM411			<0.1	<0.2	<0.2	<0.1		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2798**Report Number:** 607026
Superseded Report: 607012

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				14/07/2021	14/07/2021	14/07/2021	14/07/2021		
diss.filt	Dissolved / filtered sample.				15/07/2021	15/07/2021	15/07/2021	15/07/2021		
tot.unfilt	Total / unfiltered sample.				210715-116	210715-116	210715-116	210715-116		
+	Subcontracted - refer to subcontractor report for accreditation status.				24638803	24638810	24638784	24638794		
..	% 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									
1-4*5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2-Chloronaphthalene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2-Chlorophenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2-Methylnaphthalene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2-Methylphenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
2-Nitrophenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
3-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
4-Chloroaniline (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
4-Methylphenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
4-Nitroaniline (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
4-Nitrophenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
Azobenzene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Acenaphthylene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Acenaphthene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Anthracene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176			<2	<2	<16	<8		
					#	#	#	#		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Benzo(a)anthracene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn LandfillClient Reference: P2282
Order Number: Z2798Report Number: 607026
Superseded Report: 607012

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				14/07/2021	14/07/2021	14/07/2021	14/07/2021		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021	15/07/2021	15/07/2021		
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-116	210715-116	210715-116	210715-116		
**	% 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				24638803	24638810	24638784	24638794		
(F)	Trigger breach confirmed									
1-4+9@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Benzo(a)pyrene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Carbazole (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Chrysene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Dibenzofuran (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
n-Dibutyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Diethyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Dimethyl phthalate (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
n-Dioctyl phthalate (aq)	<5 µg/l	TM176			<5	<5	<40	<20		
					#	#	#	#		
Fluoranthene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Fluorene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Hexachlorobenzene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Hexachlorobutadiene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Pentachlorophenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
Phenol (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Hexachloroethane (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Nitrobenzene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Naphthalene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Isophorone (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
Phenanthrene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		
Pyrene (aq)	<1 µg/l	TM176			<1	<1	<8	<4		
					#	#	#	#		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607026
Superseded Report: 607012

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
aq	Aqueous / settled sample.				14/07/2021	14/07/2021	14/07/2021	14/07/2021		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021	15/07/2021	15/07/2021		
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-116	210715-116	210715-116	210715-116		
**	% 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				24638803	24638810	24638784	24638794		
(F)	Trigger breach confirmed									
1-4*\$@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			111	109	109	114		
Toluene-d8**	%	TM208			101	100	99.1	99.8		
4-Bromofluorobenzene**	%	TM208			98.7	101	95.4	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	<1	<1	<1		
Bromomethane	<1 µg/l	TM208			<1	<1	<1	<1		
Chloroethane	<1 µg/l	TM208			<1	<1	<1	<1		
Trichlorofluoromethane	<1 µg/l	TM208			<1	<1	<1	<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	<1		
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	<1	<1		
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		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2798**Report Number:** 607026
Superseded Report: 607012

VOC MS (W)

Results Legend			Customer Sample Ref.		BH1	BH4	GW01	GW02		
#	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.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
sq	Aqueous / settled sample.				14/07/2021	14/07/2021	14/07/2021	14/07/2021		
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.				15/07/2021	15/07/2021	15/07/2021	15/07/2021		
*	Subcontracted - refer to subcontractor report for accreditation status.				210715-116	210715-116	210715-116	210715-116		
**	% 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				24638803	24638810	24638784	24638794		
(F)	Trigger breach confirmed									
1-4*§@	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	<1	<1		
					#	#	#	#		
m,p-Xylene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
o-Xylene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
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	<1		
					#	#	#	#		
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	<1		
					#	#	#	#		
2-Chlorotoluene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
1,3,5-Trimethylbenzene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
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			<1	<1	<1	<1		
					#	#	#	#		
sec-Butylbenzene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
4-iso-Propyltoluene	<1 µg/l	TM208			<1	<1	<1	<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	<1		
					#	#	#	#		
1,2,3-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1		
					#	#	#	#		
1,3,5-Trichlorobenzene	<1 µg/l	TM208			<1	<1	<1	<1		



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2798**Report Number:** 607026
Superseded Report: 607012

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
TM046	Method 4500G, AWWA/APHA, 20th Ed., 1999	Measurement of Dissolved Oxygen by Oxygen Meter
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
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
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
TM411	Acid_Herbs_GCMS	Acid Herbs in Water 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).



CERTIFICATE OF ANALYSIS

Validated

SDG: 210715-116
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2798

Report Number: 607026
Superseded Report: 607012

Test Completion Dates

Lab Sample No(s)	24638803	24638810	24638784	24638794
Customer Sample Ref.	BH1	BH4	GW01	GW02
AGS Ref.				
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	22-Jul-2021	22-Jul-2021	22-Jul-2021	22-Jul-2021
Alkalinity as CaCO3	20-Jul-2021	20-Jul-2021	20-Jul-2021	21-Jul-2021
Ammonium Low	20-Jul-2021	20-Jul-2021	20-Jul-2021	20-Jul-2021
Anions by Kone (w)	21-Jul-2021	21-Jul-2021	21-Jul-2021	21-Jul-2021
Conductivity (at 20 deg.C)	21-Jul-2021	21-Jul-2021	20-Jul-2021	21-Jul-2021
Cyanide Comp/Free/Total/Thiocyanate	19-Jul-2021	19-Jul-2021	19-Jul-2021	19-Jul-2021
Dissolved Metals by ICP-MS	20-Jul-2021	20-Jul-2021	20-Jul-2021	20-Jul-2021
Dissolved Oxygen by Probe	16-Jul-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021
Fluoride	16-Jul-2021	16-Jul-2021	16-Jul-2021	16-Jul-2021
Mercury Dissolved	19-Jul-2021	19-Jul-2021	19-Jul-2021	19-Jul-2021
Mineral Oil C10-40 Aqueous (W)	20-Jul-2021	20-Jul-2021	20-Jul-2021	21-Jul-2021
Pesticides (Suite I) by GCMS	22-Jul-2021	22-Jul-2021	20-Jul-2021	20-Jul-2021
Pesticides (Suite II) by GCMS	22-Jul-2021	22-Jul-2021	22-Jul-2021	22-Jul-2021
Pesticides (Suite III) by GCMS	26-Jul-2021	26-Jul-2021	26-Jul-2021	26-Jul-2021
pH Value	19-Jul-2021	19-Jul-2021	19-Jul-2021	19-Jul-2021
SVOC MS (W) - Aqueous	18-Jul-2021	18-Jul-2021	19-Jul-2021	19-Jul-2021
Total Organic and Inorganic Carbon	24-Jul-2021	24-Jul-2021	26-Jul-2021	24-Jul-2021
VOC MS (W)	18-Jul-2021	18-Jul-2021	16-Jul-2021	16-Jul-2021



CERTIFICATE OF ANALYSIS

SDG:	210715-116	Client Reference:	P2282	Report Number:	607026
Location:	New Inn Landfill	Order Number:	Z2798	Superseded Report:	607012

Appendix

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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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.

16. 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.

General

17. **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.

18. 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
3	Deviation from method
4	Matrix interference
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

19. Asbestos

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.

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).

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung. Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

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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Fehily Timoney
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North Park Offices
North Park Business Park
North Road
Dublin
Dublin 11

Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date of report Generation:	07 August 2020
Customer:	Fehily Timoney
Sample Delivery Group (SDG):	200731-88
Your Reference:	P2282
Location:	New Inn Landfill
Report No:	562221

We received 1 sample on Friday July 31, 2020 and 1 of these samples were scheduled for analysis which was completed on Friday August 07, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG:	200731-88	Client Reference:	P2282	Report Number:	562221
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22583371	BH2		0.00 - 0.00	30/07/2020

Maximum Sample/Coolbox Temperature (°C) :

16.2

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.



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-88 Client Reference: P2282 Report Number: 562221
 Location: New Inn Landfill Order Number: Z2189 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)		22583371		
	Customer Sample Reference		BH2		
	AGS Reference				
	Depth (m)		0.00 - 0.00		
	Container		0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)
	Sample Type		LE	LE	LE
Ammonium Low	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		
COD Unfiltered	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	
Fluoride	All	NDPs: 0 Tests: 1		X	
Mercury Dissolved	All	NDPs: 0 Tests: 1		X	
pH Value	All	NDPs: 0 Tests: 1		X	
Phosphate by Kone (w)	All	NDPs: 0 Tests: 1		X	
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 1			X



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-88
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2189**Report Number:** 562221
Superseded Report:

Results Legend		Customer Sample Ref.					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	BH2				
M	mCERTS accredited.		0.00 - 0.00				
aq	Aqueous / settled sample.		Land Leachate (LE)				
diss.filt	Dissolved / filtered sample.		30/07/2020				
tot.unfilt	Total / unfiltered sample.		31/07/2020				
*	Subcontracted - refer to subcontractor report for accreditation status.		200731-88				
**	% 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		22583371				
(F)	Trigger breach confirmed						
1-3*5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
BOD, unfiltered	<1 mg/l	TM045	28.2	#			
Oxygen, dissolved	<0.3 mg/l	TM046	6.16				
Organic Carbon, Total	<3 mg/l	TM090	12.7				
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	22				
Fluoride	<0.5 mg/l	TM104	<0.5				
COD, unfiltered	<7 mg/l	TM107	303	#			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	5.88				
Arsenic (diss.filt)	<0.5 µg/l	TM152	2.73	2 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08				
Chromium (diss.filt)	<1 µg/l	TM152	<1	2 #			
Copper (diss.filt)	<0.3 µg/l	TM152	<0.3				
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	2 #			
Manganese (diss.filt)	<3 µg/l	TM152	525				
Nickel (diss.filt)	<0.4 µg/l	TM152	55.2	2 #			
Phosphorus (diss.filt)	<10 µg/l	TM152	13.6				
Selenium (diss.filt)	<1 µg/l	TM152	<1	2 #			
Zinc (diss.filt)	<1 µg/l	TM152	7.37				
Sodium (Dis.Filt)	<0.076 mg/l	TM152	1250	2 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	28.2				
Potassium (Dis.Filt)	<0.2 mg/l	TM152	25.7	2 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152	3.87				
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	2 #			
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	<0.05				
Sulphate	<2 mg/l	TM184	29.4				
Chloride	<2 mg/l	TM184	1720				
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	<0.1				
pH	<1 pH Units	TM256	6.88	#			



CERTIFICATE OF ANALYSIS

Validated

SDG: 200731-88 **Client Reference:** P2282 **Report Number:** 562221
Location: New Inn Landfill **Order Number:** Z2189 **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
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
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
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).



CERTIFICATE OF ANALYSIS

SDG: 200731-88
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 562221
Superseded Report:

Test Completion Dates

Lab Sample No(s) 22583371
Customer Sample Ref. BH2
AGS Ref.
Depth 0.00 - 0.00
Type Land Leachate

Ammonium Low	06-Aug-2020
Anions by Kone (w)	04-Aug-2020
BOD True Total	06-Aug-2020
COD Unfiltered	04-Aug-2020
Conductivity (at 20 deg.C)	05-Aug-2020
Dissolved Metals by ICP-MS	07-Aug-2020
Dissolved Oxygen by Probe	04-Aug-2020
Fluoride	04-Aug-2020
Mercury Dissolved	05-Aug-2020
pH Value	04-Aug-2020
Phosphate by Kone (w)	04-Aug-2020
Total Organic and Inorganic Carbon	06-Aug-2020



CERTIFICATE OF ANALYSIS

SDG:	200731-88	Client Reference:	P2282	Report Number:	562221
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	

Appendix

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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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.

16. 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.

General

17. **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.

18. 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
3	Deviation from method
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

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

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).

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

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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Fehily Timoney
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Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date of report Generation:	03 September 2020
Customer:	Fehily Timoney
Sample Delivery Group (SDG):	200826-96
Your Reference:	P2282
Location:	New Inn Landfill
Report No:	565743

We received 1 sample on Wednesday August 26, 2020 and 1 of these samples were scheduled for analysis which was completed on Thursday September 03, 2020. 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).

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-96
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565743
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22723184	BH2		0.00 - 0.00	25/08/2020

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



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-96
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565743
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)		22723184		
	Customer Sample Reference		BH2		
	AGS Reference				
	Depth (m)		0.00 - 0.00		
	Container		250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)
	Sample Type		LE	LE	LE
Ammonium Low	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		
COD Unfiltered	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	
Fluoride	All	NDPs: 0 Tests: 1		X	
Mercury Dissolved	All	NDPs: 0 Tests: 1		X	
pH Value	All	NDPs: 0 Tests: 1		X	
Phosphate by Kone (w)	All	NDPs: 0 Tests: 1		X	
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 1			X



CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-96
Location: New Inn Landfill**Client Reference:** P2282
Order Number: Z2189**Report Number:** 565743
Superseded Report:

Results Legend		Customer Sample Ref.					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	BH2 0.00 - 0.00 Land Leachate (LE) 25/08/2020 26/08/2020 200826-96 22723184				
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted - refer to subcontractor report for accreditation status.						
**	% 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						
1-3*5@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
BOD, unfiltered	<1 mg/l	TM045	30.4	#			
Oxygen, dissolved	<0.3 mg/l	TM046	3.95				
Organic Carbon, Total	<3 mg/l	TM090	12.6				
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	10.8				
Fluoride	<0.5 mg/l	TM104	<0.5				
COD, unfiltered	<7 mg/l	TM107	101	#			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	3.03	#			
Arsenic (diss.filt)	<0.5 µg/l	TM152	3.55	2 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	2 #			
Chromium (diss.filt)	<1 µg/l	TM152	<1	2 #			
Copper (diss.filt)	<0.3 µg/l	TM152	0.622	2 #			
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	2 #			
Manganese (diss.filt)	<3 µg/l	TM152	465	2 #			
Nickel (diss.filt)	<0.4 µg/l	TM152	52.7	2 #			
Phosphorus (diss.filt)	<10 µg/l	TM152	13.4	2 #			
Selenium (diss.filt)	<1 µg/l	TM152	<1	2 #			
Zinc (diss.filt)	<1 µg/l	TM152	6.14	2 #			
Sodium (Dis.Filt)	<0.076 mg/l	TM152	449	2 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	14.2	2 #			
Potassium (Dis.Filt)	<0.2 mg/l	TM152	14.7	2 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152	3.79	2 #			
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	2 #			
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	<0.05				
Sulphate	<2 mg/l	TM184	23.9				
Chloride	<2 mg/l	TM184	740				
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.266				
pH	<1 pH Units	TM256	6.74	#			



CERTIFICATE OF ANALYSIS

Validated

SDG:	200826-96	Client Reference:	P2282	Report Number:	565743
Location:	New Inn Landfill	Order Number:	Z2189	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
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
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
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).



CERTIFICATE OF ANALYSIS

SDG: 200826-96
Location: New Inn Landfill

Client Reference: P2282
Order Number: Z2189

Report Number: 565743
Superseded Report:

Test Completion Dates

Lab Sample No(s) 22723184
Customer Sample Ref. BH2
AGS Ref.
Depth 0.00 - 0.00
Type Land Leachate

Ammonium Low	02-Sep-2020
Anions by Kone (w)	31-Aug-2020
BOD True Total	01-Sep-2020
COD Unfiltered	28-Aug-2020
Conductivity (at 20 deg.C)	27-Aug-2020
Dissolved Metals by ICP-MS	01-Sep-2020
Dissolved Oxygen by Probe	28-Aug-2020
Fluoride	01-Sep-2020
Mercury Dissolved	03-Sep-2020
pH Value	27-Aug-2020
Phosphate by Kone (w)	27-Aug-2020
Total Organic and Inorganic Carbon	30-Aug-2020



CERTIFICATE OF ANALYSIS

SDG:	200826-96	Client Reference:	P2282	Report Number:	565743
Location:	New Inn Landfill	Order Number:	Z2189	Superseded Report:	

Appendix

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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

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

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

14. 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.

15. 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.

16. 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.

General

17. **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.

18. 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
3	Deviation from method
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples

19. Asbestos

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

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).

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Standing Committee of Analysts, *The Quantification of Asbestos in Soil* (2017).

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.



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

Attention: Daniel Hayden

CERTIFICATE OF ANALYSIS

Date of report Generation:	17 June 2022
Customer:	Fehily Timoney
Sample Delivery Group (SDG):	220606-24
Your Reference:	Galway Historic Landfills P22-040
Location:	New Inn Landfill
Report No:	651144
Order Number:	Z3385

We received 6 samples on Monday June 06, 2022 and 6 of these samples were scheduled for analysis which was completed on Friday June 17, 2022. 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.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26388789	BH01		0.00 - 0.00	02/06/2022
26388800	BH04		0.00 - 0.00	02/06/2022
26388770	GW01		0.00 - 0.00	02/06/2022
26388781	GW02		0.00 - 0.00	02/06/2022
26388814	SW01		0.00 - 0.00	02/06/2022
26388824	SW02		0.00 - 0.00	02/06/2022

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

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

[illegible]

26388824	SW02		0.00 - 0.00	Vial (ALE297)	SW						X
				NaOH (ALE245)	SW						
				HNO3 Filtered (ALE204)	SW						
				H2SO4 (ALE244)	SW				X		
				500ml Plastic (ALE208)	SW	X					
				250ml BOD (ALE212)	SW						
				0.5l glass bottle (ALE227)	SW		X				
				Vial (ALE297)	SW					X	
				NaOH (ALE245)	SW						
				HNO3 Filtered (ALE204)	SW						
26388814	SW01		0.00 - 0.00	H2SO4 (ALE244)	SW				X		
				500ml Plastic (ALE208)	SW						
				250ml BOD (ALE212)	SW	X					
				0.5l glass bottle (ALE227)	SW						
				Vial (ALE297)	SW		X				
				NaOH (ALE245)	SW						
				HNO3 Filtered (ALE204)	SW						
				H2SO4 (ALE244)	SW						
				500ml Plastic (ALE208)	SW						
				250ml BOD (ALE212)	SW						
26388781	GW02		0.00 - 0.00	0.5l glass bottle (ALE227)	SW						
				Vial (ALE297)	GW					X	
				NaOH (ALE245)	GW						
				HNO3 Filtered (ALE204)	GW						
				H2SO4 (ALE244)	GW				X		
				500ml Plastic (ALE208)	GW						



CERTIFICATE OF ANALYSIS

Validated

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

Results Legend		Customer Sample Ref.	BH01	BH04	GW01	GW02	SW01	SW02	
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % 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 1-4*# 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 Ground Water (GW) 02/06/2022 . 06/06/2022 220606-24 26388789	0.00 - 0.00 Ground Water (GW) 02/06/2022 . 06/06/2022 220606-24 26388800	0.00 - 0.00 Ground Water (GW) 02/06/2022 . 06/06/2022 220606-24 26388770	0.00 - 0.00 Ground Water (GW) 02/06/2022 . 06/06/2022 220606-24 26388781	0.00 - 0.00 Surface Water (SW) 02/06/2022 . 06/06/2022 220606-24 26388814	0.00 - 0.00 Surface Water (SW) 02/06/2022 . 06/06/2022 220606-24 26388824	
Component	LOD/Units		Method						
Alkalinity, Total as HCO3	<2 mg/l		TM043	440	464	1420	1830	442	439
BOD, unfiltered	<1 mg/l		TM045	<1	<3	<1	<1	<1	<1
Oxygen, dissolved	<0.3 mg/l		TM046	5.46	2.58	4.86	5.54	9.19	9.27
Organic Carbon, Total	<3 mg/l		TM090	<3	4.36	3.4	3.19	<3	<3
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l		TM099	0.122	0.212	0.0656	0.321	0.0399	0.049
Fluoride	<0.5 mg/l		TM104	<0.5	<0.5	<0.5	1.71	<0.5	<0.5
COD, unfiltered	<7 mg/l		TM107	16.3	70.2	83.4	214	<7	8.94
Arsenic (diss.filt)	<0.5 µg/l	TM152	<0.5	3.02	<0.5	0.804	<0.5	<0.5	
Barium (diss.filt)	<0.2 µg/l	TM152	22.4	38.8	7.87	151	9.54	9.4	
Boron (diss.filt)	<10 µg/l	TM152	16.6	52.9	14.6	166	10.8	<10	
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1	
Copper (diss.filt)	<0.3 µg/l	TM152	11.9	<0.3	0.98	1.2	0.481	0.538	
Lead (diss.filt)	<0.2 µg/l	TM152	0.497	<0.2	<0.2	0.252	<0.2	<0.2	
Manganese (diss.filt)	<3 µg/l	TM152	7.96	131	<3	117	<3	3.6	
Nickel (diss.filt)	<0.4 µg/l	TM152	7.94	2.57	1.65	3.78	0.917	0.927	
Phosphorus (diss.filt)	<10 µg/l	TM152	33.5	11.8	33.6	36.4	<10	<10	
Selenium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1	
Thallium (diss.filt)	<2 µg/l	TM152	<2	<2	<2	<2	<2	<2	
Zinc (diss.filt)	<1 µg/l	TM152	29.7	3.2	9.58	8.15	2	6.26	
Sodium (Dis.Filt)	<0.076 mg/l	TM152	7.95	43.6	10.8	670	24	24.2	
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	9.22	9.11	5.48	34.5	5.73	5.7	
Potassium (Dis.Filt)	<0.2 mg/l	TM152	1.31	3.88	2.15	6.98	2.07	2.09	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	131	142	160	31.9	141	141	
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0802	2.44	<0.019	0.0509	<0.019	<0.019	
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Sulphate	<2 mg/l	TM184	11.4	20.2	10.6	492	9.4	8.9	
Chloride	<2 mg/l	TM184	10.9	69	22	94.9	43.1	43.1	
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	1.13	<0.1	1.87	0.291	0.618	0.649	
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	



CERTIFICATE OF ANALYSIS

Validated

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

Results Legend			Customer Sample Ref.	BH01	BH04	GW01	GW02	SW01	SW02
# ISO17025 accredited. M mCERTS accredited. aq. Aqueous / settled sample. dis. fil. Dissolved / filtered sample. tot. unfil. Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % 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 1-4-5@ 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 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388789	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388800	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388770	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388781	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388814	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388824
Component	LOD/Units	Method							
PCB congener 138	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 153	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 180	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Sum of detected EC7 PCB's	<0.105 µg/l	TM197		<0.105	<0.105	<0.105	<0.105	<0.105	<0.105
Cyanide, Total	<0.05 mg/l	TM227		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
pH	<1 pH Units	TM256		7.26	7.26	7.07	7.74	7.96	7.99
Conductivity @ 20 deg.C	<0.02 mS/cm	TM256		0.646	0.826	0.711	2.9	0.713	0.709
Trifluralin	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
alpha-HCH	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
gamma-HCH (Lindane)	<0.01 µg/l	TM343		<0.04	<0.11	<0.05	<0.1	<0.03	<0.02
Heptachlor	<0.01 µg/l	TM343		<0.01	<0.2	<0.1	<0.2	<0.01	<0.01
Aldrin	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
beta-HCH	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
Isodrin	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
delta-HCH	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
Heptachlor epoxide	<0.01 µg/l	TM343		<0.02	<0.1	<0.05	<0.1	<0.02	<0.02
o,p'-DDE	<0.01 µg/l	TM343		<0.02	<0.1	<0.05	<0.1	<0.02	<0.02
Endosulphan I	<0.01 µg/l	TM343		<0.02	<0.1	<0.05	<0.1	<0.02	<0.02
trans-Chlordane	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
cis-Chlordane	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
p,p'-DDE	<0.01 µg/l	TM343		<0.02	<0.1	<0.05	<0.1	<0.02	<0.02
Dieldrin	<0.01 µg/l	TM343		0.175	<0.1	<0.05	<0.1	<0.01	0.0146
o,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
Endrin	<0.01 µg/l	TM343		<0.02	<0.5	<0.25	<0.5	<0.02	<0.02
o,p'-DDT	<0.01 µg/l	TM343		<0.02	<0.4	<0.2	<0.4	<0.02	<0.02
p,p'-DDD (TDE)	<0.01 µg/l	TM343		<0.02	<0.2	<0.1	<0.2	<0.02	<0.02
Endosulphan II	<0.02 µg/l	TM343		<0.02	<0.2	<0.1	<0.2	<0.02	<0.02
p,p'-DDT	<0.01 µg/l	TM343		<0.02	<0.6	<0.3	<0.6	<0.02	<0.02
o,p'-Methoxychlor	<0.01 µg/l	TM343		<0.02	<0.5	<0.25	<0.5	<0.02	<0.02
p,p'-Methoxychlor	<0.01 µg/l	TM343		<0.02	<0.8	<0.4	<0.8	<0.02	<0.02
Endosulphan Sulphate	<0.02 µg/l	TM343		<0.02	<0.8	<0.4	<0.8	<0.02	<0.02
Permethrin I	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01
Permethrin II	<0.01 µg/l	TM343		<0.01	<0.1	<0.05	<0.1	<0.01	<0.01



CERTIFICATE OF ANALYSIS

Validated

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

Results Legend			Customer Sample Ref.	BH01	BH04	GW01	GW02	SW01	SW02
# ISO17025 accredited. M mCERTS accredited. A Aqueous / settled sample. dis. fil. Dissolved / filtered sample. tot.unfilt. Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % 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 1-4-5@ 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 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388789	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388800	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388770	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388781	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388814	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388824
Component	LOD/Units	Method							
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02
Hexachlorobutadiene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Dichlorvos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Dichlobenil	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Mevinphos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Tecnazene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Hexachlorobenzene	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Demeton-S-methyl	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Phorate	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02
Diazinon	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Triallate	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Atrazine	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Simazine	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Disulfoton	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Propetamphos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Chlorpyrifos-methyl	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Dimethoate	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Pirimiphos-methyl	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Chlorpyrifos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Methyl Parathion	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Malathion	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Fenthion	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Fenitrothion	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Triadimefon	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Pendimethalin	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Parathion	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Chlorfenvinphos	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
trans-Chlordane	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
cis-Chlordane	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Ethion	<0.01 µg/l	TM344		<0.01	<0.01	<0.01	<0.02	<0.01	<0.01
Carbophenothion	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02



CERTIFICATE OF ANALYSIS

Validated

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

Results Legend			Customer Sample Ref.	BH01	BH04	GW01	GW02	SW01	SW02
# ISO17025 accredited. M mCERTS accredited. dis. fil. Dissolved / filtered sample. tot.unfilt. Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % 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 1-4-5@ 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 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388789	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388800	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388770	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388781	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388814	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388824
Component	LOD/Units	Method							
Triazophos	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.04	<0.01	<0.02
Phosalone	<0.01 µg/l	TM344		<0.02	<0.02	<0.02	<0.04	<0.01	<0.02
Azinphos methyl	<0.02 µg/l	TM344		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02
Azinphos ethyl	<0.02 µg/l	TM344		<0.02	<0.02	<0.02	<0.04	<0.02	<0.02
Etridiazole	<0.01 µg/l	TM345		<0.02	<0.02	<0.1	<0.2	<0.02	<0.02
Pentachlorobenzene	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Propachlor	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Quintozene (PCNB)	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Omethoate	<0.01 µg/l	TM345		<0.02	<0.02	<0.1	<0.2	<0.02	<0.02
Propazine	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Propyzamide	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Alachlor	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Prometryn	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Telodrin	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Terbutryn	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Chlorothalonil	<0.01 µg/l	TM345		<0.01	<0.01	<0.1	<0.2	<0.01	<0.01
Etrimpfos	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Metazachlor	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Cyanazine	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Trietazine	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Coumaphos	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Phosphamidon I	<0.01 µg/l	TM345		<0.02	<0.02	<0.1	<0.2	<0.02	<0.02
Phosphamidon II	<0.01 µg/l	TM345		<0.01	<0.01	<0.05	<0.1	<0.01	<0.01
Dinitro-o-cresol	<0.1 µg/l	TM411		<0.1	<0.5	<0.5	<0.5	<0.1	<0.1
Clopyralid	<0.04 µg/l	TM411		<0.04	<0.2	<0.2	<0.2	<0.04	<0.04
MCPA	<0.05 µg/l	TM411		<0.05	<0.25	<0.25	<0.25	<0.05	<0.05
Mecoprop	<0.04 µg/l	TM411		<0.04	<0.2	<0.2	<0.2	<0.04	<0.04
Dicamba	<0.04 µg/l	TM411		<0.04	<0.2	<0.2	<0.2	<0.04	<0.04
MCPB	<0.05 µg/l	TM411		<0.05	<0.25	<0.25	<0.25	<0.05	<0.05
2,4-DB	<0.1 µg/l	TM411		<0.1	<0.5	<0.5	<0.5	<0.1	<0.1
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411		<0.05	<0.25	<0.25	<0.25	<0.05	<0.05
Dichlorprop	<0.1 µg/l	TM411		<0.1	<0.5	<0.5	<0.5	<0.1	<0.1
Triclopyr	<0.05 µg/l	TM411		<0.05	<0.25	<0.25	<0.25	<0.05	<0.05



Superseded Report:

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CERTIFICATE OF ANALYSIS

Validated

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.		BH01	BH04	GW01	GW02	SW01	SW02		
# ISO17025 accredited.	M mCERTS accredited.		Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Surface Water (SW) 02/06/2022	0.00 - 0.00 Surface Water (SW) 02/06/2022		
aq Aqueous / settled sample.												
diss.filter Dissolved / filtered sample.												
tot.unfilt Total / unfiltered sample.												
* Subcontracted - refer to subcontractor report for accreditation status.												
** % 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												
1-4*§ Sample deviation (see appendix)												
Component	LOD/Units	Method										
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2-Chlorophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2-Methylphenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2-Nitroaniline (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
2-Nitrophenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
3-Nitroaniline (aq)	<1 µg/l	TM176	<1		<1		<4		<8		<1	
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
4-Chloroaniline (aq)	<1 µg/l	TM176	<1		<1		<4		<8		<1	
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
4-Methylphenol (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
4-Nitroaniline (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
4-Nitrophenol (aq)	<1 µg/l	TM176	<1		<1		<4		<8		<1	
Azobenzene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
Acenaphthylene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
Acenaphthene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
Anthracene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2	#	<2	#	<8	#	<16	#	<2	#
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1	#	<1	#	<4	#	<8	#	<1	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	BH01	BH04	GW01	GW02	SW01	SW02
# ISO17025 accredited. M mCERTS accredited. aq. Aqueous / settled sample. dis.filt. Dissolved / filtered sample. tot.unfilt. Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % 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 1-4+§@ 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 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388789	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388800	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388770	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388781	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388814	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388824
Component	LOD/Units	Method							
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Carbazole (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Chrysene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Dibenzofuran (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Diethyl phthalate (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5	#	#	<20	#	<40	#
Fluoranthene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Fluorene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Pentachlorophenol (aq)	<1 µg/l	TM176	<1		<1	<4	<8	<1	<1
Phenol (aq)	<1 µg/l	TM176	<1		<1	<4	<8	<1	<1
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Hexachloroethane (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Nitrobenzene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Naphthalene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Isophorone (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1		<1	<4	<8	<1	<1
Phenanthrene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#
Pyrene (aq)	<1 µg/l	TM176	<1	#	#	<4	#	<8	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 220606-24
Client Ref.: Galway Historic Landfills P22-040

Report Number: 651144
Location: New Inn Landfill

Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		BH01	BH04	GW01	GW02	SW01	SW02
# ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Method	0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Ground Water (GW) 02/06/2022	0.00 - 0.00 Surface Water (SW) 02/06/2022	0.00 - 0.00 Surface Water (SW) 02/06/2022	0.00 - 0.00 Surface Water (SW) 02/06/2022
M mCERTS accredited.										
aq Aqueous / settled sample.										
diss.filt Dissolved / filtered sample.										
tot.unfilt Total / unfiltered sample.										
* Subcontracted - refer to subcontractor report for accreditation status.	% 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	TM208	06/06/2022 220606-24 26388789	06/06/2022 220606-24 26388800	06/06/2022 220606-24 26388770	06/06/2022 220606-24 26388781	06/06/2022 220606-24 26388814	06/06/2022 220606-24 26388824	06/06/2022 220606-24 26388824	06/06/2022 220606-24 26388824
** % 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										
1-4*% Sample deviation (see appendix)										
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208	98.2	100	97.4	99.5	99.8	117		
Toluene-d8**	%	TM208	103	102	103	102	102	103		
4-Bromofluorobenzene**	%	TM208	105	106	104	102	102	105		
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Dichloromethane	<3 µg/l	TM208	<4	<4	<4	<4	<4	<4	<4	<4
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Benzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	<1



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Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.	BH01	BH04	GW01	GW02	SW01	SW02
# ISO17025 accredited. M mCERTS accredited. dis. fil. Aqueous / settled sample. tot.unfilt. Dissolved / filtered sample. Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % 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 1-4# 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 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388789	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388800	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388770	0.00 - 0.00 Ground Water (GW) 02/06/2022 06/06/2022 220606-24 26388781	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388814	0.00 - 0.00 Surface Water (SW) 02/06/2022 06/06/2022 220606-24 26388824
Component	LOD/Units	Method							
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Bromofom	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1
			#	#	#	#	#	#	#



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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
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
TM152	ISO 17294-2:2016 Water quality - Application of inductively coupled plasma mass spectrometry (ICP-MS)	Analysis of Aqueous Samples by ICP-MS
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
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
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, Standard Methods for the examination of waters and wastewaters 20th Edition, PHA, Washington DC, USA. ISBN 0-87553-235-7 and The Determination of Alkalinity and Acidity in water HMSO, 1981, ISBN 0 11 751601 5.	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
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
TM411	Acid_Herbs_GCMS	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Life Sciences Ltd Hawarden.



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Test Completion Dates

Lab Sample No(s)
Customer Sample Ref.

AGS Ref.

Depth

Type

	26388789	26388800	26388770	26388781	26388814	26388824
	BH01	BH04	GW01	GW02	SW01	SW02
	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
	Ground Water	Ground Water	Ground Water	Ground Water	Surface Water	Surface Water
Acid Herbicides by GCMS	13-Jun-2022	13-Jun-2022	13-Jun-2022	15-Jun-2022	17-Jun-2022	13-Jun-2022
Alkalinity as CaCO ₃	09-Jun-2022	09-Jun-2022	13-Jun-2022	13-Jun-2022	09-Jun-2022	09-Jun-2022
Ammonium Low	10-Jun-2022	09-Jun-2022	10-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022
Anions by Kone (w)	09-Jun-2022	09-Jun-2022	09-Jun-2022	10-Jun-2022	09-Jun-2022	09-Jun-2022
BOD True Total	12-Jun-2022	12-Jun-2022	12-Jun-2022	12-Jun-2022	11-Jun-2022	11-Jun-2022
COD Unfiltered	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022
Cyanide Comp/Free/Total/Thiocyanate	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022
Dissolved Metals by ICP-MS	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022
Dissolved Oxygen by Probe	07-Jun-2022	07-Jun-2022	07-Jun-2022	07-Jun-2022	07-Jun-2022	07-Jun-2022
Fluoride	09-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	09-Jun-2022
Mercury Dissolved	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022
PCB Congeners - Aqueous (W)	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022	13-Jun-2022
Pesticides (Suite I) by GCMS	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022
Pesticides (Suite II) by GCMS	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022
Pesticides (Suite III) by GCMS	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022	10-Jun-2022
pH Value	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022	08-Jun-2022
SVOC MS (W) - Aqueous	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022
Total Organic and Inorganic Carbon	07-Jun-2022	07-Jun-2022	07-Jun-2022	07-Jun-2022	07-Jun-2022	07-Jun-2022
VOC MS (W)	14-Jun-2022	14-Jun-2022	14-Jun-2022	14-Jun-2022	14-Jun-2022	14-Jun-2022



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Appendix

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. 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.

3. 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.

4. 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.

5. 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.

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

7. Results relate only to the items tested.

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

9. **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.

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

11. 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.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury.

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

14. 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.

15. 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.

16. 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.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **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.

19. 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
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

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 (2021), 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.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils 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 (2021).

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.

Asbestos 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.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

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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