

CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

HISTORIC LANDFILL AT GORT, CO. GALWAY

ENVIRONMENTAL REPORT

Prepared for:

Galway County Council



Comhairle Chontae na Gaillimhe Galway County Council

Date: March 2023

Core House, Pouladuff Road, Cork, T12 D773, Ireland

T: +353 21 496 4133 | E: info@ftco.ie

CORK | DUBLIN | CARLOW

www.fehilytimoney.ie



HISTORIC LANDFILL AT GORT, CO. GALWAY ENVIRONMENTAL REPORT

REVISION CONTROL TABLE, CLIENT, KEYWORDS AND ABSTRACT

User is responsible for Checking the Revision Status of This Document

Rev. No.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:					
0	Issue for Client Comment	DH/MG	JON	BG	06/03/2023					
Client:	ient: Galway County Council									
Keywords:	words: Environmental report, surface water, groundwater, leachate sampling, landfill gas									

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



TABLE OF CONTENTS

1.	INTR	ODUCTION 1
	1.1	Background1
	1.2	Scope of Works1
2.	ENV	IRONMENTAL ASSESSMENT 2
	2.1	Chemical Assessment Criteria2
	2.2	Groundwater Monitoring2
		2.2.1 Groundwater Quality Monitoring2
		2.2.2 Groundwater Analysis Discussion6
	2.3	Leachate Monitoring6
		2.3.1 Leachate Analysis Discussion9
	2.4	Landfill Gas Monitoring9
		2.4.1 Monitoring Results9
	2.5	Surface Water Monitoring10
		2.5.1 Monitoring Locations10
		2.5.2 Monitoring Parameters
		2.5.3 Surface Water Analysis Discussion15
3.	CON	CLUSION

LIST OF APPENDICES

Appendix 1 – 2022 Groundwater, Leachate and Surface Water Laboratory Certificates

-



LIST OF FIGURES

	Pag	e
Figure 2-1:	Groundwater Sampling Locations	3
Figure 2-2:	Surface Water Sampling Locations1	1

LIST OF TABLES

		Page
Table 2-1:	Groundwater Sampling Results	4
Table 2-2:	Leachate Sampling Results	7
Table 2-3:	Perimeter Well Monitoring Results	9
Table 2-4:	Surface Water Sampling Results	12



INTRODUCTION 1

1.1 Background

Galway County Council (GCC) appointed Fehily Timoney and Company (FT) to undertake a Tier 2 & 3 Environmental Risk Assessment and prepare a Certificate of Authorisation application of a historic landfill in Gort, Co. Galway. Gort Historic Landfill is located in the immediate urban environs of Gort town Co. Galway, and the site is currently utilised for rough unorganised grazing. The historic landfill site covers an area of c.2ha located to the west of the L85075 road. The site is bound along its western and northern boundary by the Gort River and the L85075 local road runs along the eastern boundary of the site.

As part of the assessment works between 2020 and 2021, FT conducted groundwater, leachate, and surface water monitoring at Gort historic landfill. The monitoring comprised sampling and analysis of groundwater at all existing wells previously established at the site, two new groundwater and one new leachate well and surface water sampling at two locations along the Gort River.

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

1.2 Scope of Works

FT's scope of work was to undertake one additional round of groundwater, surface water and leachate sampling. Sampling was undertaken at Gort historic 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 surface water, leachate and groundwater is presented in Appendix 1.

This report presents the findings of the assessment.



2. ENVIRONMENTAL ASSESSMENT

The results of the environmental assessment at the Gort historic landfill site 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 Monitoring

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 1st 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 3 No. groundwater monitoring wells (BH01, 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 round are presented in Appendix 1.

The groundwater sampling locations are presented in Figure 2.1.



World Imagery: Maxar, Microsoft World Topographic Map: Esri LIK Esri HERE Garmin LISGS NGA

Site Boundary Brehole Locations Im Ground Elevation Contours Im Ground Water Flow Direction Indicative Groundwater Flow Direction TITLE: Groundwater Flow Direction PIOJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 PAGES 21: CLIENT: Galway County Council SCALE: 1:2,500 PAGES 22: A3	Gort									
Site Boundary Borehole Locations Im Ground Elevation Contours Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction ITTLE: Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: DATE: 15/10/2020 PAGE SIZE: Cork Dublin Carlow										
Borehole Locations Im Ground Elevation Contours Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Image: State Stat										
Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction Indicative Groundwater Flow Direction		ns								
Initiative Groundwater Flow Direction ITTLE: Constant of the storic Landfill ERA PROJECT: Constant of the storic Landfill ERA FIGURE NO: 1: CLIENT: Galway County Council SCALE: 1: 1: SCALE: 1:										
TITLE: Groundwater Flow Direction PROJECT: Gott Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow	Indicative Groundwater Flow Direction									
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Groundwater Flow Direction PROJECT: Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 Cork Dublin Carlow										
Gort Historic Landfill ERA FIGURE NO: 2.1 CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3		Flow Direction								
CLIENT: Galway County Council SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 FEHILY Cork Dublin Carlow		: Landfill ERA								
SCALE: 1:2,500 REVISION: 0 DATE: 15/10/2020 PAGE SIZE: A3 FEHILY Cork Dublin Carlow	FIGURE NO: 2	.1								
DATE: 15/10/2020 PAGE SIZE: A3 FEHILY Cork Dublin Carlow										
FEHILY Cork Dublin Carlow										
	FEHILY	Cork Dublin Carlow								

Table 2-1: Groundwater Sampling Results

				Rour	nd 1 (30/07/	/2020)	Roun	d 2 (25/08/	2020)	Round 3 (14/07/2021)		Round 4 (01/06/2022)	
Parameter	Units	S.I. No. 9 of 2010 Standards ¹	EPA IGV Standards ²	BH01	GW01	GW02	BH01	GW01	GW02	BH01	GW01	BH01	GW01
				UG	UG	UG	UG	UG	UG	UG	UG	UG	UG
			Inorganics										
Conductivity @ 20 deg.C	mS/cm	0.8 - 1.875		0.62	0.623	0.593	0.664	0.699	0.609	0.659	0.737	0.702	0.715
Fluoride	mg/l	1	1	<0.5	<0.5	<0.5	0.972	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Oxygen, dissolved	mg/l		NAC	9.4	9.5	9.12	9.71	-	-	10.6	11	5.77	6.02
рН	pH Units			7.55	7.76	7.59	7.24	7.45	7.29	7.33	7.45	7.21	7.5
Sulphate	mg/l	187.5	200	12.9	39.8	49.8	8.1	31.2	13.5	11.8	26.8	13	23.2
Chloride	mg/l	24	30	20.2	45.7	20.7	21.4	58.6	19.4	16.6	48.5	19.3	40.4
COD, unfiltered	mg/l			94.5	116	412	150	25.6	135	64.2	14.2	73.2	18.8
Ammoniacal Nitrogen as N (low level)	mg/l	0.065	0.15	0.0297	0.0331	0.0627	0.0572	0.0516	0.0745	0.029	0.021	0.0148	0.0222
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
Total Oxidised Nitrogen as N	mg/l		NAC	1.86	1.76	1.35	1.78	1.76	1.92	1.57	2.21	<0.1	4.16
Alkalinity, Total as HCO3	mg/l		NAC	952	744	1710	1050	382	1180	511	439	479	427
		Fil	tered (Dissolved)	Vetals				•	•				
Mercury	μg/l	0.75	1	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.022	<0.02	<0.01	<0.01
Arsenic	μg/l	7.5	10	0.532	0.642	0.754	0.982	1.6	0.939	6.04	<2	<0.5	0.563
Barium	μg/l		100	20.3	22.7	38.4	23.2	20	28.9	30.3	15.6	14.6	11.5
Boron	μg/l	750	1000	12.5	21.9	25.1	33.4	22.9	17.4	76.3	74	14.9	13.6
Cadmium	μg/l	3.75	5	<0.08	<0.08	<0.08	<0.08	0.0863	<0.08	<0.5	<0.5	<0.08	<0.08
Chromium	μg/l	37.5	30	<1	<1	<1	<1	<1	<1	4.44	<3	<1	<1
Copper	μg/l	1500	30	1.46	0.926	3.77	<0.3	0.895	0.932	16.7	1.33	0.551	0.79
Lead	μg/l	7.5	10	<0.2	<0.2	<0.2	<0.2	1.01	<0.2	16.2	5.83	<0.2	<0.2
Manganese	μg/l		50	<3	<3	5.72	15.2	30.3	13.8	263	178	<3	<3
Nickel	μg/l	15	20	1.78	3.64	7.68	1.39	15	4.78	12	9.31	0.962	2.41
Zinc	μg/l	75	100	1.52	1.49	2.6	1.03	10.8	2.69	23.4	10.1	1.04	3.51
Sodium	mg/l	150	150	9.71	33.9	17.2	9.23	39.5	9.51	12.1	29.1	10.2	22.1
Magnesium	mg/l		50	7.69	12.8	9.62	7.72	15.4	8.09	14.8	18.7	8.74	14.8
Potassium	mg/l		5	1.83	4.19	2.43	1.77	4.38	1.94	2.31	3.81	2.02	4.3
Calcium	mg/l		200	130	91	112	129	102	128	326	228	148	133
Iron	mg/l		0.2	<0.019	<0.019	<0.019	<0.019	0.0433	<0.019	5	1.23	<0.019	<0.019



				Rour	nd 1 (30/07/	/2020)	Roun	nd 2 (25/08/	2020)	Round 3 (1	4/07/2021)	Round 4 (01/06/2022)	
Parameter	Units	S.I. No. 9 of 2010 Standards ¹	EPA IGV Standards ²	BH01	GW01	GW02	BH01	GW01	GW02	BH01	GW01	BH01	GW01
				UG	UG	UG	UG	UG	UG	UG	UG	UG	UG
	•	Semi-	volatile Organic Co	mpounds				•					
Chloroform	μg/l			<1	8.44	7.39	<1	<1	<1	<1	<1	<1	<1
Bromodichloromethane	μg/l			<1	4.04	3.94	<1	<1	<1	<1	<1	<1	<1
Dibromochloromethane	μg/l			<1	1.31	1.04	<1	<1	<1	<1	<1	<1	<1
Altrazine	μg/l	0.075	1	0.0305	0.0605	<0.01	<0.02	0.0233	0.0125	<0.01	0.0211	<0.01	<0.01
Simazine	μg/l	0.075	1	<0.01	0.0362	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			Microbiological	l									
Coliforms, Total*	MPN/10 0ml		0	-	-	-	345	425	146	-	-	-	-
Coliforms, Faecal*	CFU/100 ml		0	-	-	-	47	2	21	-	-	-	-
		I	Miscellaneous Orga	inics									
МСРА	μg/l	0.075		<0.05	<0.25	<0.25	<0.05	<0.1	<0.05	<0.1	<0.1	<0.1	<0.05
Mecoprop	μg/l	0.075	10	<0.04	<0.2	<0.2	<0.08	<0.08	<0.04	<0.08	<0.08	<0.08	<0.04
Dichlorprop	μg/l		100	<0.1	<0.5	<0.5	<0.1	<0.2	<0.1	<0.2	<0.2	<0.2	<0.1
2,4-Dichlorophenoxyacetic acid	μg/l	0.075		<0.05	<0.25	<0.25	<0.05	<0.1	<0.05	<0.1	<0.1	<0.1	<0.05
Bromoxynil	μg/l		5	<0.04	<0.2	<0.2	<0.04	<0.08	<0.04	<0.08	<0.08	<0.08	<0.04
Pentachlorophenol	μg/l		2	<0.04	<0.2	<0.2	<0.08	<0.08	<0.04	<0.08	<0.08	<0.08	<0.04

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

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

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

* Sampling from GW02 not possible in 2021 and 2022 due to the well becoming lost / damaged in 2021.

* UG = upgradient





2.2.2 <u>Groundwater Analysis Discussion</u>

The results of the groundwater monitoring from BH01, GW01 and GW02 have reported some exceedances of the IGVs and European Groundwater limit values.

Samples recovered from monitoring well GW02 reported an ammoniacal nitrogen concentration of 0.0745 mg/l, which exceed groundwater regulations limit value. Based on the estimated groundwater flow direction GW02 is upgradient of the historic landfill. Ammoniacal nitrogen concentration at upgradient borehole could be considered representative of background levels possibly due to agricultural activities or septic tanks. The ammonia concentration differences between upgradient and downgradient monitoring locations are not that significant to consider that the historic landfill could be impacting water quality.

Elevated concentrations of chloride, above the OTV and EPA IGV are observed in borehole GW01 during each monitoring event. Chloride concentrations ranged from 40.7 - 58.6 mg/l during the monitoring period. Landfill leachate has the potential to contain high concentrations of chloride ions however the location of GW01 upgradient of the site, and its distance from the landfill means that it is unlikely that the elevated chloride concentration recorded are attributed to the migration of leachate from the historic landfill to this location.

Sampling in July 2021 detected iron levels above the IGV limit at upgradient monitoring wells BH01 (5 mg/l) and GW01 (1.23 mg/l). Iron levels broadly remained below the limit of detection (LOD) during the other monitoring events. Other metal compounds detected above the IGV at BH01 during the July 2021 monitoring event included lead (16.2 mg/l), manganese (263 μ g/l) and calcium (326 mg/l). Trace levels of heavy metals arsenic, barium and boron were detected below the respective IGV/OTV limit, however concentrations were notably higher during the July 2021 sampling event compared to other rounds.

Faecal and total coliforms were detected in all three boreholes on the second monitoring round in August 2020. However, the presence of this pollutant in the upgradient monitoring wells is not likely attributed to the historic landfill, but more likely present due to agricultural or domestic sources i.e. human/animal waste, slurry, septic tanks etc.

The results of groundwater monitoring are below groundwater threshold values for List 1 and List 2 substances (SVOCs, pesticides, herbicides, organics).

Groundwater monitoring wells BH01, GW01 and GW02 are upgradient of the landfill site with respect to groundwater flow direction, therefore it is not expected that leachate migration from the site would impact groundwater quality at these locations or influence the characteristics of the groundwater.

2.3 Leachate Monitoring

Four rounds of leachate monitoring were undertaken at the site on the 30th July 2020, 25th August 2020, 14th July 2021 and 1st June 2022 at borehole LH01.

A summary of the findings from the monitoring can be found in Table 2.2 below and the laboratory reports for the 2022 monitoring round can be found in Appendix 1.

Note Manhole MH-1 was inaccessible during the monitoring events in July 2021 and June 2022 due to extensive overgrowth.



Table 2-2: Leachate Sampling Results

		LH01	LH01	MH-1	MH-1	LH01	LH01
Parameter	Units	30/07/2020	25/08/2020	30/07/2020	25/08/2020	14/07/2021	01/06/2022
Carbon							
Organic Carbon, Total	mg/l	26.6	28.4	5.71	6.67	32.3	31
Inorganics							
Conductivity @ 20 deg.C	mS/cm	1.87	1.77	0.624	0.603	2.68	2.38
Fluoride	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Oxygen, dissolved	mg/l	7.64	6.13	9.64	9.33	6.96	4.96
рН	pH Units	7.06	7.1	7.75	7.41	7.1	7.01
Phosphate (Ortho as PO4)	mg/l	<0.05	<0.05	0.095	0.2	<0.05	<0.05
Sulphate	mg/l	223	128	22.5	18.3	<2	<2
Chloride	mg/l	95.1	49	24.5	22.3	137	104
COD, unfiltered	mg/l	640	143	16.8	25.8	1640	684
Ammoniacal Nitrogen as N (low level)	mg/l	59.2	42	0.573	0.63	159	122
BOD, unfiltered	mg/l	61.9	7.95	<1	2.18	6.48	8.79
Total Oxidised Nitrogen as N	mg/l	0.558	<0.1	4.37	4.69	0.175	<0.1
Alkalinity, Total as HCO3	mg/l	-	-	-	-	3600	2300
Filtered (Dissolved) Metals							
Mercury	μg/l	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Arsenic	μg/l	3.16	2.14	<0.5	<0.5	9.58	19.5
Cadmium	μg/l	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08

CLIENT:

Galway County Council Environmental Report – Gort Historic Landfill

Section 2

PROJECT NAME:

December	Units	LH01	LH01	MH-1	MH-1	LH01	LH01
Parameter	Onits	30/07/2020	25/08/2020	30/07/2020	25/08/2020	14/07/2021	01/06/2022
Chromium	μg/l	<1	<1	<1	<1	1.37	1.7
Copper	μg/l	1.19	3.02	1.09	1.3	34.1	0.584
Lead	μg/l	0.308	<0.2	<0.2	<0.2	1.49	0.413
Manganese	μg/l	1920	4310	32.7	19.2	676	1030
Nickel	μg/l	16.3	13.7	1.35	1.73	8.34	3.64
Phosphorus	μg/l	30.9	23.6	67.9	82.3	13.6	337
Selenium	μg/l	1.12	<1	<1	<1	<1	<1
Zinc	μg/l	11.3	19	22.9	26.3	7.99	3.43
Sodium	mg/l	69.5	37.3	18.7	16.8	116	85.8
Magnesium	mg/l	44.7	27.1	10.9	9.92	60.2	52.1
Potassium	mg/l	53.1	36.4	7.65	6.97	109	85.7
Iron	mg/l	0.0299	0.0492	0.0943	0.0494	0.0502	27.8



2.3.1 Leachate Analysis Discussion

Leachate monitoring results from 2021 and 2022 were similar to 2020 levels and the concentrations of pollutant parameters detected at typical of leachate quality encountered within MSW landfills (i.e. ammoniacal nitrogen, chloride and COD). The results shown are typical of MSW landfill leachate.

2.4 Landfill Gas Monitoring

FT carried out monitoring of landfill gas (LFG) parameters at each monitoring borehole location BH01, GW01, GW02 and LH01 inclusive. Methane, carbon dioxide, oxygen and atmospheric pressure were analysed at the 3 No. groundwater monitoring wells located outside the waste body and 1 No. leachate monitoring well (LH01) located within the waste body using a Landfill Gas analyser.

2.4.1 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 2.3:

Table 2-3: Perimeter Well Monitoring Results

		1	Date: 29/07/202	20		
Sample Station	CH₄	CO2	O ₂	Atmospheric Pressure	Staff Member	Weather
Station	(% v/v)	(% v/v)	(% v/v)	(mbar)	Member	
	Perimeter Mo	nitoring Wells				
BH01	0	0.4	20.7		Daniel	Overcast, Light Rain,
GW01	0	0.3	20.8	1008		
GW02	0	0.2	21.1		Hayden	Warm, 18- 20°C
	In-Waste Mo	nitoring Well				20 0
LH01	19.8	7.1	12.1			
		I	Date: 24/08/202	20		
Sample Station	CH₄	CO₂	O ₂	Atmospheric Pressure	Staff Member	Weather
Station	(% v/v)	(% v/v)	(% v/v)	(mbar)	Weniber	
	Perimeter Mo	nitoring Wells				
BH01	0	0.7	19.9	1000	Daniel	Overcast, Light Rain,
GW01	0	0.4	20.3	1009	Hayden	Warm, 16- 18°C
GW02	0	0.1	21			10 C

	In-Waste Mo	nitoring Well					
LH01	51	16	0.5				
			Date: 14/07/202	21			
Sample	CH₄	CO ₂	O ₂	Atmospheric Pressure	Staff	Weather	
Station	(% v/v)	(% v/v)	(% v/v)	(mbar)	Member		
	Perimeter Mo	nitoring Wells					
BH01	0	0.6	20.2			Clear, Sunny,	
GW01	0	0.4	20.5	1028	Daniel Hayden	Light Wind,	
	In-Waste Mo	nitoring Well		- ,	16 - 18°C		
LH01	26.8	13.6	4.5				

Note – GW02 lost during 2021 and no monitoring possible at this location.

As can be seen in Table 2.3, concentrations of both methane and carbon dioxide at all offsite monitoring boreholes were below the threshold values during both monitoring rounds. Monitoring results for BH01, GW01 and GW02 indicate that lateral migration of landfill gas to these locations is not occurring.

The methane and carbon dioxide concentrations measured at in-waste well LH01 indicate that the site is still biologically active and landfill gas is still being produced.

2.5 Surface Water Monitoring

2.5.1 Monitoring Locations

The surface water monitoring locations were selected upstream and downstream of the landfill footprint, as shown on Figure 2.2. Monitoring location SW1 was selected as the upstream location on Gort river to the south of the landfill. Monitoring location SW2 samples the Gort River downstream of the landfill.

The surface water sampling locations at the site are presented in Figure 2.2.

Four rounds of surface water monitoring were carried out on the 1st and 30th of July 2020, 14th July 2021 and 1st June 2022.

2.5.2 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.





TIMONEY www.fehilytimoney.ie

CLIENT: Galway County Council PROJECT NAME: Environmental Report – Gort Historic Landfill Section 2 Section 2



Table 2-4:Surface Water Sampling Results

				Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Parameter	Units	EQS ¹	MAC ²	SW01	SW02	SW01	SW02	SW01	SW02	SW01	SW02
				01/07/2020	01/07/2020	30/07/2020	30/07/2020	14/07/2021	14/07/2021	01/06/2022	01/06/2022
Inorganics											
Fluoride	mg/l	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
рН	-	6.0 <ph<9.0< td=""><td></td><td>7.52</td><td>7.52</td><td>7.37</td><td>7.54</td><td>7.85</td><td>7.99</td><td>8.06</td><td>8.17</td></ph<9.0<>		7.52	7.52	7.37	7.54	7.85	7.99	8.06	8.17
Orthophosphate (as PO ₄)	mg/l	≤0.075 (95%ile)		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ammoniacal Nitrogen as N (low level)	mg/l	≤0.140 (95%ile)		0.03	0.0653	0.0229	0.0246	0.023	0.036	0.0314	0.0347
Cyanide, Total	mg/l	0.01		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
					Filtered (Diss	olved) 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
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

Galway County Council CLIENT: Environmental Report – Gort Historic Landfill PROJECT NAME:

Section 2



				Upstream	Downstream	Upstream	Downstream	Upstream	Downstream	Upstream	Downstream
Parameter	Units	EQS ¹	MAC ²	SW01	SW02	SW01	SW02	SW01	SW02	SW01	SW02
				01/07/2020	01/07/2020	30/07/2020	30/07/2020	14/07/2021	14/07/2021	01/06/2022	01/06/2022
				Semi-	Volatile Organic	: Compounds (SVOCs)				
1,2,4- Trichlorobenzene	µg/I	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/I	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/I	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
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/I		not applicable	<1	<1	<8	<10	<1	<1	<1	<1

Notes:

- 1. 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.
- 2. 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



2.5.3 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 show no exceedances of the EQS and MAC quality threshold values.

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 in the Gort River.



3. CONCLUSION

Galway County Council requested FT to undertake one additional round of environmental monitoring at Gort Historic Landfill in 2022. 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 the monitoring wells BH01, GW01 and GW02 have reported one sample with ammoniacal nitrogen concentrations exceeding the OTV limit on the second round (August 2020). Results from 2021 and 2022 showed ammoniacal N levels remained below the OTV. Previous site investigations showed that wells BH01, GW01 and GW02 are upgradient of the site are not likely to be impacted by leachate migration from the site. Ammoniacal nitrogen concentrations at upgradient boreholes could be considered representative of background levels possibly due to agricultural activities.

Elevated chloride concentrations were also measured at well GW01 during each of the four monitoring rounds, however, due to its location with respect to the landfill these concentrations are not expected to be attributed to leachate migration.

Landfill gas monitoring carried out at groundwater monitoring wells BH01, GW01 and GW02 at the site indicates gas concentrations detected are below threshold levels for offsite boreholes and monitoring locations as set by the EPA Landfill Manuals - Landfill Monitoring (2nd Edition). The results at LH01 (in waste borehole) indicate that the site remains biologically active with landfill gas remaining, however results at offsite wells indicate that there is no lateral landfill gas migration to these locations.

Leachate monitoring results from 2021 and 2022 were similar to 2020 levels and the concentrations of pollutant parameters detected at typical of leachate quality encountered within MSW landfills.

Analysis of surface water samples from the Gort River found all results to be below the MAC and EQS guideline limit values in all assessments between 2020 and 2022. The results indicate the landfill is not having a measurable impact on surface water quality.



CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 1

Groundwater, Leachate and Surface Water Sampling Analysis Results





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

Attention: Daniel Hayden

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

CERTIFICATE OF ANALYSIS

Date of report Generation: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 07 August 2020 Fehily Timoney 200731-87 P2282 Gort Landfill 562220

We received 2 samples on Friday July 31, 2020 and 2 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:

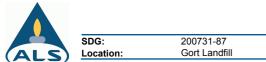
Sonia McWhan Operations Manager



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.4 Version Issued: 07/08/2020

P2282

Z2189



Client Reference: Order Number:

Report Number: Superseded Report: Validated

562220

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22583355	LH01		0.00 - 0.00	30/07/2020
22583349	MH-1		0.00 - 0.00	30/07/2020

Maximum Sample/Coolbox Temperature (°C) : ISO5667-3 Water quality - Sampling - Part3 -

16.2

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.

During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of $(5\pm3)^{\circ}$ C.

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

RTIFICATE OF ANALYSIS

		CEF	TIFI	CAT	ΈO	F A	NALYS	IS			L	V	/al	ic
SDG: Location:	200731-87 Gort Landfill		ient Ro rder No			P22 Z21			Repo Super	rt Number: seded Report:	562220			
Results Legend		J												
X Test	Lab Sample No(s)			22583355			22583349							
				3355			3349							
No Determination Possible		_												
	Customer			_			-							
	Sample Reference				Ē		MH-1							
Sample Types -														
S - Soil/Solid UNS - Unspecified Solid														
GW - Ground Water SW - Surface Water	AGS Reference													
LE - Land Leachate PL - Prepared Leachate		_												
PR - Process Water SA - Saline Water TE - Trade Effluent	Depth (m)			0.00 - 0.00			0.00 - 0.00							
TS - Treated Sewage US - Untreated Sewage	Deptir (iii)			0.00			0.00							
RE - Recreational Water DW - Drinking Water Non-regulatory			0.5		0.5	5	H2:							
UNL - Unspecified Liquid SL - Sludge	Container	(ALE2	ALE2		l glass (ALE2)0ml P (ALE2	304 (A							
G - Gas OTH - Other		(ALE227)	(ALE208) (ALE208) 0.5l glass bottle		0.5l glass bottle (ALE227)	lastic 208)	H2SO4 (ALE244)							
	Sample Type	_		-	-									
Ammonium Low	All NDPs:	_	FF F	i F	i	Ē	Ē							
	Tests:			X			x							
Anions by Kone (w)	All NDPs:)		<u>^</u>			<u>^</u>							
	Tests:	2	X			x								
BOD True Total	All NDPs: Tests:													
		· ,			x									
COD Unfiltered	All NDPs: Tests:													
Conductivity (at 20 deg.C)	All NDPs:		×			X								
	Tests:		X			X								
Dissolved Metals by ICP-MS	All NDPs:)	^			^								
	Tests:	2	X			x								
Dissolved Oxygen by Probe	All NDPs: Tests:					_								
			x			x								
Fluoride	All NDPs: Tests:													
Mercury Dissolved	All NDPs:		X			X								
	Tests:		X			X								
pH Value	All NDPs:													
	Tests:	2	x			x								
Phosphate by Kone (w)	All NDPs: Tests:													
			x			X								
Total Organic and Inorganic Carbon	All NDPs: Tests:													
				x			x							

ALS

CERTIFICATE OF ANALYSIS

SDG:	2	200731-87		t Reference:	P22	ber: 562220	
ALS Location:		Sort Landfill		r Number:	Z21		
Results Legend # ISO17025 accredited.	C	ustomer Sample Ref.	LH01	MH-1			
M mCERTS accredited. aq Aqueous / settled sample.							
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	0.00 - 0.00 Land Leachate (LE)	0.00 - 0.00 Land Leachate (LE	E)		
* Subcontracted - refer to subcontractor report accreditation status. ** % recovery of the surrogate standard to check		Date Sampled Sample Time	30/07/2020	30/07/2020	<i>.</i>		
efficiency of the method. The results of individ compounds within samples aren't corrected for	dual	Date Received	31/07/2020	31/07/2020			
recovery (F) Trigger breach confirmed	or the	SDG Ref Lab Sample No.(s)	200731-87 22583355	200731-87 22583349			
1-3+§@ Sample deviation (see appendix)	LOD/Units	AGS Reference					
Component BOD, unfiltered	<1 mg/l	Method TM045	61.9	2.18			
			#		#		
Oxygen, dissolved	<0.3 mg/l	TM046	7.64	9.33			
Organic Carbon, Total	<3 mg/l	TM090	26.6	6.67			
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	59.2	0.63			
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5		<u> </u>	
	, in the second						
COD, unfiltered	<7 mg/l	TM107	640 #	25.8	#		
Conductivity @ 20 deg.C	<0.02	TM120	1.87	0.603	#	 	
	mS/cm		#		#		
Arsenic (diss.filt)	<0.5 µg/l	TM152	3.16	<0.5	о <i>щ</i>		
Cadmium (diss.filt)	<0.08 µg/l	TM152	2 #	<0.08	2 #	+	
	0.00 µg,1		2#	0.00	2#		
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1			
Copper (diss.filt)	<0.3 µg/l	TM152	2#	1.3	2 #	 +	
	<0.0 μg/i	TWITUZ	2#	1.0	2#		
Lead (diss.filt)	<0.2 µg/l	TM152	0.308	<0.2	0.11		
Manganese (diss.filt)	<3 µg/l	TM152	2 #	19.2	2 #	+	
	- 1-3-		2#		2 #		
Nickel (diss.filt)	<0.4 µg/l	TM152	16.3	1.73			
Phosphorus (diss.filt)	<10 µg/l	TM152	2 #	82.3	2 #	 +	
r nosphorus (diss.int)	s to pg/i	111102	2 #	02.0	2 #		
Selenium (diss.filt)	<1 µg/l	TM152	1.12	<1			
Zinc (diss.filt)	<1 µg/l	TM152	2#	26.3	2 #	 +	
		THITCE	2#	20.0	2 #		
Sodium (Dis.Filt)	<0.076 mg/l	TM152	69.5	16.8			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	2#	9.92	2 #	 +	
Magnesium (Dis.i nit)	<0.000 mg/i	TWITUZ	2#	5.52	2#		
Potassium (Dis.Filt)	<0.2 mg/l	TM152	53.1	6.97			
Iron (Dis.Filt)	<0.019 mg/l	TM152	2 #	0.0494	2 #	 	
IION (DIS.FIII)	<0.019 mg/i	111152	0.0299	0.0494	2#		
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01			
Dheamhaia (Orthe as DO4)	<0.05 mg/l	TN404	2#	0.0	2 #		
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	<0.05	0.2			
Sulphate	<2 mg/l	TM184	223	18.3			
Oblacida	10 mm/l	TN404	05.4	00.0		 	
Chloride	<2 mg/l	TM184	95.1	22.3			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.558	4.69			
	ct al I I aita	TMOEC	7.00	7.41		 	
pH	<1 pH Units	TM256	7.06 #	7.41	#		
						1	
						 ───┤	
					+	<u>† </u>	
					\square	 ↓	
					\dashv	 +	



SDG:

Location:

Gort Landfill

CERTIFICATE OF ANALYSIS Client Reference: P2282

Report Number: Superseded Report: Validated

562220

Order Number:

Table of Results - Appendix

Z2189

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).

562220

CERTIFICATE OF ANALYSIS



pH Value

Phosphate by Kone (w)

Total Organic and Inorganic Carbon

04-Aug-2020

04-Aug-2020

06-Aug-2020

04-Aug-2020

04-Aug-2020

06-Aug-2020

Client Reference: P2282 Order Number: Z2189

Report Number: Superseded Report:

22583355 22583349 Lab Sample No(s) LH01 MH-1 **Customer Sample Ref.** AGS Ref. Depth 0.00 - 0.00 0.00 - 0.00 Type Land Leachate Land Leachate Ammonium Low 06-Aug-2020 06-Aug-2020 Anions by Kone (w) 04-Aug-2020 04-Aug-2020 BOD True Total 06-Aug-2020 06-Aug-2020 04-Aug-2020 COD Unfiltered 04-Aug-2020 Conductivity (at 20 deg.C) 05-Aug-2020 05-Aug-2020 Dissolved Metals by ICP-MS 07-Aug-2020 07-Aug-2020 04-Aug-2020 02-Aug-2020 Dissolved Oxygen by Probe Fluoride 04-Aug-2020 04-Aug-2020 Mercury Dissolved 05-Aug-2020 05-Aug-2020

Test Completion Dates

CERTIFICATE OF ANALYSIS

SDG:	200731-87	Client Reference:	P2282	Report Number:	562220
Location:	Gort 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 will be 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).

Asbe stos Type	Common Name
Chrysof le	White Asbestos
Amosite	Brow n Asbestos
Cro d dolite	Blue Asbe stos
Fibrous Act nolite	-
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

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

CERTIFICATE OF ANALYSIS

Date of report Generation: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 03 September 2020 Fehily Timoney 200826-93 P2282 Gort Landfill 565742

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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.5 Version Issued: 03/09/2020

		Validated				
SDG:	200826-93	Client Reference:	P2282	Report Number:	565742	
Location:	Gort Landfill	Order Number:	Z2189	Superseded Report:		

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22723140	LH01		0.00 - 0.00	25/08/2020

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

		C	ERT	IFIC	ATE	OF ANALYSIS			Valida
SDG: Location:	200826-93 Gort Landfill			nt Ref er Nur	erence: nber:	P2282 Z2189	Report Number: Superseded Report:	565742	
Results Legend X Test N No Determination	Lab Sample No(s)			22723140				
Possible	Customer Sample Referenc	Customer Sample Reference AGS Reference			LH01				
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	AGS Reference								
	Depth (m)				0.00 - 0.00				
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Container		250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)				
	Sample Type		Ē	Ē	Ē				
Ammonium Low		NDPs: 0 Fests: 1			×				
Anions by Kone (w)		NDPs: 0 Fests: 1		x	x				
BOD True Total		NDPs: 0 Fests: 1	x						
COD Unfiltered		NDPs: 0 Fests: 1	x						
Conductivity (at 20 deg.C)		NDPs: 0 Fests: 1		x					
Dissolved Metals by ICP-MS		NDPs: 0 Fests: 1		x					
Dissolved Oxygen by Probe		NDPs: 0 Fests: 1		x					
Fluoride	Т	NDPs: 0 Fests: 1		x					
Mercury Dissolved	Т	NDPs: 0 Fests: 1		x					
pH Value		NDPs: 0 Fests: 1		x					
Phosphate by Kone (w)		NDPs: 0 Fests: 1		x					
Total Organic and Inorganic Carbon		NDPs: 0 Fests: 1			x				

ALS

CERTIFICATE OF ANALYSIS

_

SDG:		00826-93	Clier	nt Reference:	P2282	Report Number:	565742
(ALS) Location:	G	Sort Landfill	Orde	er Number:	Z2189	Superseded Report	
Results Legend	Ci	ustomer Sample Ref.	LH01	1			
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.fill Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report accreditation status. ** % recovery of the surrogate standard to check		Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Land Leachate (LE) 25/08/2020				
efficiency of the method. The results of indivi compounds within samples aren't corrected for recovery	dual	Date Received SDG Ref	26/08/2020 200826-93				
(F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix) Component	LOD/Units	Lab Sample No.(s) AGS Reference Method	22723140				
BOD, unfiltered	<1 mg/l	TM045	7.95				
Oxygen, dissolved	<0.3 mg/l	TM046	6.13				
Organic Carbon, Total	<3 mg/l	TM090	28.4				
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	42				
Fluoride	<0.5 mg/l	TM104	<0.5				
COD, unfiltered	<7 mg/l	TM107	143				
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	# 1.77 #				
Arsenic (diss.filt)	ms/cm <0.5 μg/l	TM152	2.14 2 #				
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08				
Chromium (diss.filt)	<1 µg/l	TM152	<1				
Copper (diss.filt)	<0.3 µg/l	TM152	2 #				
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2				
Manganese (diss.filt)	<3 µg/l	TM152	2 # 4310				
Nickel (diss.filt)	<0.4 µg/l	TM152	2 #				
Phosphorus (diss.filt)	<10 µg/l	TM152	2 #				
Selenium (diss.filt)	<1 µg/l	TM152	2 # <1				
Zinc (diss.filt)	<1 µg/l	TM152	2 # 19				
Sodium (Dis.Filt)	<0.076 mg/l	TM152	2 # 37.3 2 #				
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	27.1				
Potassium (Dis.Filt)	<0.2 mg/l	TM152	2 # 36.4 2 #				
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0492				
Mercury (diss.filt)	<0.01 µg/l	TM183	2 # <0.01				
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	2 # <0.05				
Sulphate	<2 mg/l	TM184	128				
Chloride	<2 mg/l	TM184	49				
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	<0.1				
рН	<1 pH Units	TM256	7.1				
			#				



SDG:

Location:

CERTIFICATE OF ANALYSIS Client Reference: P2282 Order Number: Z2189 Validated

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).

565742



Total Organic and Inorganic Carbon

30-Aug-2020

Client Reference:P2282Order Number:Z2189

Report Number: Superseded Report:

Lab Sample No(s)	22723140
Customer Sample Ref.	LH01
AGS Ref.	
Depth	0.00 - 0.00
Туре	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

Test Completion Dates

CERTIFICATE OF ANALYSIS

	SDG:	200826-93	Client Reference:	P2282	Report Number:	565742
	Location:	Gort Landfill	Order Number:	Z2189	Superseded Report:	
ALS	/					

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 will be 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.

Incorrect container received
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).

Asbe stos Type	Common Name
Chrysof le	White Asbestos
Amosite	BrownAsbestos
Cro d dolite	Blue Asbe stos
Fibrous Act nolite	-
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.



Manor Road (off Manor Lane) Hawarden Deeside CH5 3US Tel: (01244) 528700 Fax: (01244) 528701 email: hawardencustomerservices@alsglobal.com Website: www.alsenvironmental.co.uk

Unit 7-8 Hawarden Business Park

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: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 26 July 2021 Fehily Timoney 210715-111 P2282 Gort Landfill 607016

We received 1 sample on Thursday July 15, 2021 and 1 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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.8 Version Issued: 26/07/2021

		Validated				
SDG:	210715-111	Client Reference:	P2282	Report Number:	607016	
Location:	Gort Landfill	Order Number:	Z2798	Superseded Report:		
		a a burned Carrow				

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24638580	LH01		0.00 - 0.00	14/07/2021

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

		C					F AI	NAL	_YSIS		
ALS	SDG: Location:	210715-111 Gort Landfill			nt Rei er Nu	erenc nber:	e:	P228 Z279		Report Number: Superseded Report:	607016
Results Legend X Test N No Deter Possible	rmination	Lab Sample I	No(s)						24638580		
Sample Types -		Customer Sample Reference							LH01		
S - Soil/Solid UNS - Unspecified S GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leach		AGS Refere									
PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewag US - Untreated Sew	e rage	Depth (m)							0.00 - 0.00		
RE - Recreational W DW - Drinking Water N UNL - Unspecified L SL - Sludge G - Gas OTH - Other	Ion-regulatory	Containe	r	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)		
		Sample Ty	ре	SM	WS	WS	SM	SM	WS		
Acid Herbicides by GCMS	6	All	NDPs: 0 Tests: 1	x							
Alkalinity as CaCO3		All	NDPs: 0 Tests: 1			x					
Ammonium Low		All	NDPs: 0 Tests: 1				x				
Anions by Kone (w)		All	NDPs: 0 Tests: 1			x					
BOD True Total		All	NDPs: 1 Tests: 0		N						
COD Unfiltered		All	NDPs: 0 Tests: 1		X						
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1			x					
Cyanide Comp/Free/Tota	I/Thiocyanate	All	NDPs: 0 Tests: 1					x			
Dissolved Metals by ICP-	MS	All	NDPs: 0 Tests: 1			x					
Dissolved Oxygen by Pro	be	All	NDPs: 0 Tests: 1			x					
Fluoride		All	NDPs: 0 Tests: 1			x					
Mercury Dissolved		All	NDPs: 0 Tests: 1			x					
Mineral Oil C10-40 Aqueo	bus (W)	All	NDPs: 0 Tests: 1	x							
PCB Congeners - Aqueou	us (W)	All	NDPs: 0 Tests: 1	x							
Pesticides (Suite I) by GC	CMS	All	NDPs: 0 Tests: 1	x							
				-						•	

		CI	ERT	IFIC	САТ	E OI	F AI	NAL	YSIS		Validated
SDG: Location:	210715-111 Gort Landfill			nt Re er Nu			P228 Z279		Report Number: Superseded Report:	607016	
Results Legend X Test N No Determination	Lab Sample No(s)						24638580				
Sample Types -	Customer Sample Reference AGS Reference							LH01			
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	Depth (m)						0.00 - 0.00				
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Container			250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)			
	Sample Type		SW	WS	WS	SM	WS	WS			
Pesticides (Suite II) by GCMS	All NDP Test	Ps: 0 its: 1	x								
Pesticides (Suite III) by GCMS	All NDP Test		x								
H Value	All NDP Test	Ps: 0 its: 1			x						
Suspended Solids	All NDP Test				X						
SVOC MS (W) - Aqueous		Ps: 0 its: 1			X						
Fotal Organic and Inorganic Carbon		Ps: 0 its: 1				X					
VOC MS (W)		Ps: 0 its: 1						X			

SDG:	2	10715-111	Client Refere		Report Number:	607016
(ALS) Location:	G	Sort Landfill	Order Numbe	er: Z2798	Superseded Report:	
Results Legend # ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample.	Ci	ustomer Sample Ref.	LH01			
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor repo accreditation status. * % recovery of the surrogate standard to ch	eck the	Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Surface Water (SW) 14/07/2021			
efficiency of the method. The results of indi compounds within samples aren't corrected recovery (F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)	I for the	Date Received SDG Ref Lab Sample No.(s) AGS Reference	15/07/2021 210715-111 24638580			
Component Suspended solids, Total	LOD/Units <2 mg/l	Method TM022	5610			
Alkalinity, Total as HCO3	<2 mg/l	TM043	#			
Oxygen, dissolved	<0.3 mg/l	TM046	6.96			
Organic Carbon, Total	<3 mg/l	TM090	32.3			
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	159 #			
Fluoride	<0.5 mg/l	TM104	<0.5			
COD, unfiltered	<7 mg/l	TM107	1640 #			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	2.68			
Arsenic (diss.filt)	<0.5 µg/l	TM152	9.58 2 #			
Barium (diss.filt)	<0.2 µg/l	TM152	105 2 #			
Boron (diss.filt)	<10 µg/l	TM152	614 2 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08			
Chromium (diss.filt)	<1 µg/l	TM152	1.37			
Copper (diss.filt)	<0.3 µg/l	TM152	34.1			
Lead (diss.filt)	<0.2 µg/l	TM152	1.49 2#			
Manganese (diss.filt)	<3 µg/l	TM152	676 2#			
Nickel (diss.filt)	<0.4 µg/l	TM152	8.34 2 #			
Phosphorus (diss.filt)	<10 µg/l	TM152	13.6 2 #			
Selenium (diss.filt)	<1 µg/l	TM152	<1 2 #			
Thallium (diss.filt)	<2 µg/l	TM152	<2 2 #			
Zinc (diss.filt)	<1 µg/l	TM152	7.99 2#			
Sodium (Dis.Filt)	<0.076 mg/l	TM152	116 2#			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	60.2 2 #			
Potassium (Dis.Filt)	<0.2 mg/l	TM152	109 2 #			
Calcium (Dis.Filt)	<0.2 mg/l	TM152	160 2 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0502 2 #			
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172	2090			
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01			
Sulphate	<2 mg/l	TM184	<2 #			
Chloride	<2 mg/l	TM184	137 #			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.175 #			
PCB congener 28	<0.015 µg/l	TM197	<0.015			
PCB congener 52	<0.015 µg/l	TM197	<0.015			

12:03:09 26/07/2021

(ALS)

PCB congener 138

PCB congener 153

PCB congener 180

Cyanide, Total

pН

Trifluralin

Sum of detected EC7 PCB's

TM197

TM197

TM197

TM197

TM227

TM256

TM343

<0.015 µg/l

<0.015 µg/l

<0.015 µg/l

<0.105 µg/l

<0.05 mg/l

<1 pH Units

<0.01 µg/l

<0.015

<0.015

<0.015

<0.105

< 0.05

7.1

< 0.01

#

											Validated
					CERT	FICATE C	OF ANALYS	SIS			
		SDG:		210715-111	Clien	t Reference:	P2282	Re	port Number:	607016	
	LS	Location:		Gort Landfill	Orde	r Number:	Z2798	Su	perseded Report:		
						÷					
#	ISO17025 accredited.	s Legend		Customer Sample Ref.	LH01						
"	mCERTS accredited.										
aq	Aqueous / settled sar										
diss.filt	Dissolved / filtered sa			Depth (m)							
tot.unfilt	Total / unfiltered sam	ple. to subcontractor report fe		Sample Type	Surface Water (SW)						
	accreditation status.	to aubcontractor report in	^	Date Sampled	14/07/2021						
**		rogate standard to check		Sample Time							
		od. The results of individe mples aren't corrected for		Date Received	15/07/2021						
	recovery	imples aren t corrected to	the	SDG Ref	210715-111						
(F)	Trigger breach confir	med		Lab Sample No.(s)	24638580						
1-4+§@	Sample deviation (se	e appendix)		AGS Reference							
Comp	onent		LOD/Units	Method							
PCB co	ongener 101		<0.015 µg	1 TM197	<0.015						
PCB co	ongener 118		<0.015 µg	1 TM197	<0.015						

IS		

TM343 <0.01 alpha-HCH <0.01 µg/l TM343 gamma-HCH (Lindane) <0.01 <0.01 µg/l <0.01 µg/l TM343 < 0.02 Heptachlor Aldrin <0.01 µg/l TM343 < 0.01 beta-HCH <0.01 µg/l TM343 < 0.01 Isodrin <0.01 µg/l TM343 < 0.01 delta-HCH <0.01 µg/l TM343 < 0.01 <0.01 µg/l TM343 <0.01 Heptachlor epoxide o,p'-DDE <0.01 µg/l TM343 <0.01 TM343 <0.01 Endosulphan I <0.01 µg/l TM343 trans-Chlordane <0.01 µg/l < 0.01 cis-Chlordane TM343 <0.01 <0.01 µg/l p,p'-DDE TM343 <0.01 <0.01 µg/l Dieldrin <0.01 µg/l TM343 < 0.01 o,p'-DDD (TDE) <0.01 µg/l TM343 < 0.01 Endrin <0.01 µg/l TM343 < 0.02 o,p'-DDT <0.01 µg/l TM343 < 0.05 p,p'-DDD (TDE) <0.01 µg/l TM343 < 0.01 TM343 <0.02 Endosulphan II <0.02 µg/l p,p'-DDT TM343 <0.08 <0.01 µg/l o,p'-Methoxychlor <0.01 µg/l TM343 < 0.04 p,p'-Methoxychlor <0.01 µg/l TM343 <0.08 Endosulphan Sulphate <0.02 µg/l TM343 < 0.04 Permethrin I <0.01 µg/l TM343 < 0.01 12:03:09 26/07/2021 Page 6 of 17

Validated

г

	SDG:
(ALS)	Location:

210715-111 Gort Landfill

	<u> </u>	Sont Landini	Olue	r Number: Z	2790	Superseueu K	,perti	
Results Legend # IS017025 accredited.	C	ustomer Sample Ref.	LH01					
M mCERTS accredited. aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	0.00 - 0.00 Surface Water (SW)					
* Subcontracted - refer to subcontractor report accreditation status.	for	Date Sampled	Surface Water (SW) 14/07/2021					
** % recovery of the surrogate standard to check efficiency of the method. The results of individ	k the dual	Sample Time Date Received	15/07/2021					
compounds within samples aren't corrected for recovery	or the	SDG Ref	210715-111					
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638580					
Component	LOD/Units	Method						
Permethrin II	<0.01 µg/l	TM343	<0.01					
1,3,5-Trichlorobenzene	<0.01 µg/l	TM344	<0.05					
,.,								
Hexachlorobutadiene	<0.01 µg/l	TM344	<0.05					
	0.01 //	T 1044	0.05					
1,2,4-Trichlorobenzene	<0.01 µg/l	TM344	<0.05					
1,2,3-Trichlorobenzene	<0.01 µg/l	TM344	<0.05					
,,,								
Dichlorvos	<0.01 µg/l	TM344	<0.05					
Dichlobenil	<0.01 µg/l	TM344	<0.05					
Mevinphos	<0.01 µg/l	TM344	<0.05		-			
	5.61 µg/i		-0.00					
Tecnazene	<0.01 µg/l	TM344	<0.05					
Hexachlorobenzene	<0.01 µg/l	TM344	<0.05					
Demeton-S-methyl	<0.01 µg/l	TM344	<0.05					
Demeton-o-metny	<0.01 µg/i		-0.00					
Phorate	<0.01 µg/l	TM344	<0.05					
Diazinon	<0.01 µg/l	TM344	<0.05					
Triallate	<0.01 µg/l	TM344	<0.05					
Indiale	<0.01 µg/i	1101344	<0.05					
Atrazine	<0.01 µg/l	TM344	<0.05					
Simazine	<0.01 µg/l	TM344	<0.05					
Disulfoton	<0.01 µg/l	TM344	<0.1					
Districtor	<0.01 µg/i		50.1					
Propetamphos	<0.01 µg/l	TM344	<0.05					
Chlorpyriphos-methyl	<0.01 µg/l	TM344	<0.05					
Dimethoate	<0.01 µg/l	TM344	<0.05					
Dimethodie	-0.01 µg/i		40.00					
Pirimiphos-methyl	<0.01 µg/l	TM344	<0.05					
Chlorpyriphos	<0.01 µg/l	TM344	<0.05					
Methyl Parathion	<0.01 µg/l	TM344	<0.05		+			
	-0.01 µg/i	11110-74	~0.00					
Malathion	<0.01 µg/l	TM344	<0.05					
				ļ				
Fenthion	<0.01 µg/l	TM344	<0.05					
Fenitrothion	<0.01 µg/l	TM344	<0.05		+			
	-0.01 µg/i	11110-74	~0.00					
Triadimefon	<0.01 µg/l	TM344	<0.05					
				ļ				
Pendimethalin	<0.01 µg/l	TM344	<0.05					
Parathion	<0.01 µg/l	TM344	<0.05		+			
i aialiillii	~0.01 µg/i	11/1044	NU.UU					
Chlorfenvinphos	<0.01 µg/l	TM344	<0.05					
trans-Chlordane	<0.01 µg/l	TM344	<0.05					
aia Chlardana	<0.01"	T A D A A	~0 0E					
cis-Chlordane	<0.01 µg/l	TM344	<0.05					
Ethion	<0.01 µg/l	TM344	<0.05					
	F 5*							
12.02.00 26/07/2021								

			CERT	IFICATE OF		S	Validated
SDG: Location:		210715-111 Gort Landfill			P2282 Z2798	Report Number: Superseded Repo	
Results Logond SO17025 accredited. M mCERTS accredited. M accentised. dis.fit: Dissolved filtered sample. dis.fit: Dissolved filtered sample. totumfit Total unfiltered sample. * Subcontracted - refer to subcontractor report accreditation status. * % recovery of the surrogate standard to check efficiency of the method. The results of indivi compounds within samples aren't corrected firecovery (F) Trigger breach confirmed 1-4+s@ Sample deviation (see appendix)	for k the dual or the	Depth (m) Sample Type Date Sample Type Date Received SDG Ref Lab Sample No.(s) AGS Reference	LH01 0.00 - 0.00 Surface Water (SW) 14/07/2021				
Component Carbophenothion	LOD/Units <0.01 μg/l	Method TM344	<0.05				
Triazophos	<0.01 µg/l	TM344	<0.05				
Phosalone	<0.01 µg/l	TM344	<0.05				
Azinphos methyl	<0.02 µg/l	TM344	<0.1				
Azinphos ethyl	<0.02 µg/l	TM344	<0.1				
Etridiazole	<0.01 µg/l	TM345	<0.1				
Pentachlorobenzene	<0.01 µg/l	TM345	<0.1				
Propachlor	<0.01 µg/l	TM345	<0.1				
Quintozene (PCNB)	<0.01 µg/l	TM345	<0.1				
Omethoate	<0.01 µg/l	TM345 TM345	<0.1				
Propazine	<0.01 µg/l	1101345	<u.1< td=""><td></td><td></td><td></td><td></td></u.1<>				
Propyzamide	<0.01 µg/l	TM345	<0.1				
Alachlor	<0.01 µg/l	TM345	<0.1				
Prometryn	<0.01 µg/l	TM345	<0.1		_		
	<0.01 µg/l	TM345	<0.1		_		
Terbutryn	<0.01 µg/l	TM345	<0.1				
Chlorothalonil	<0.01 µg/l	TM345	<0.2				
Etrimphos	<0.01 µg/l	TM345	<0.1				
Metazachlor	<0.01 µg/l	TM345	<0.1				
Cyanazine	<0.01 µg/l	TM345	<0.1				
Trietazine	<0.01 µg/l	TM345	<0.1				
Coumaphos	<0.01 µg/l	TM345	<0.1				

<0.01 µg/l

<0.01 µg/l

<0.1 µg/l

<0.04 µg/l

<0.05 µg/l

<0.04 µg/l

<0.04 µg/l

<0.05 µg/l

<0.1 µg/l

<0.05 µg/l

<0.1 µg/l

Phosphamidon I Phosphamidon II

Dinitro-o-cresol

Clopyralid

MCPA

Mecoprop

Dicamba

MCPB

2,4-DB

Dichlorprop

2,3,6-Trichlorobenzoic acid

12:03:09 26/07/2021

TM345

TM345

TM411

TM411

TM411

TM411

TM411

TM411

TM411

TM411

TM411

<0.1

<0.1

<0.2

<0.08

<0.1

6.13

<0.08

<0.1

<0.2

<0.1

<0.2

			OFDT			C	Validated
SDG: Location:		210715-111 Gort Landfill	Clien	FICATE O t Reference: r Number:	F ANALYSI P2282 Z2798	S Report Number: Superseded Report	607016 t:
Results Legend	С	ustomer Sample Ref.	LH01	İ			
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settide dample. diss.fit Dissolved / filtered sample. totumfit Total / unfiltered sample. totumfit Total / unfiltered sample. vsbcontracted - refer to subcontractor report accreditation status. % recovery of the surrogate standard to check efficiency of the method. The results of indivi compounds within samples aren't corrected for recovery (F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)	k the dual	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 210715-111 24638580				
Component	LOD/Units	Method	-0.4				
Triclopyr	<0.05 µg/l	TM411	<0.1				
Fenoprop (Silvex)	<0.1 µg/l	TM411	<0.2				
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411	<0.1				
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411	<0.1				
Bromoxynil	<0.04 µg/l	TM411	<0.08				
Benazolin	<0.04 µg/l	TM411	<0.08				
loxynil	<0.05 µg/l	TM411	<0.1				
Pentachlorophenol	<0.04 µg/l	TM411	<0.08				
Fluoroxypyr	<0.1 µg/l	TM411	<0.2				

		10717		IFICATEO			007010
SDG: Location:		10715-111 Gort Landfill		nt Reference: er Number:	P2282 Z2798	Report Number: Superseded Report	607016 ::
SVOC MS (W) - Aqueous	S						
Results Legend ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.fill: Disolved / filtered sample. tot.unfit: Total / unfiltered sample. Subcontracted - refer to subcontractor report accreditation staus. % recovery of the surrogate standard to chec efficiency of the method. The results of indivi compounds within samples aren't corrected f recovery	for k the dual	ustomer Sample Ref. Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref	LH01 0.00 - 0.00 Surface Water (SW) 14/07/2021 15/07/2021 210715-111				
(F) Trigger breach confirmed 1-4•§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638580				
Component 1,2,4-Trichlorobenzene (aq)	LOD/Units <1 µg/l	Method TM176	<8				
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	=======================================				
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	# <8				
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	# <8				
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	# <8 #				
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	# <8 #				
2,4-Dichlorophenol (aq)	<1 µg/l	TM176					
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<8 #				
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<8 #				
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<8 #				
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<8 #				
2-Chlorophenol (aq)	<1 µg/l	TM176	<8 #				
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<8 #				
2-Methylphenol (aq) 2-Nitroaniline (aq)	<1 µg/l	TM176 TM176	<8 				
2-Nitrophenol (aq)	<1 µg/l	TM176	<0 # _<8				
3-Nitroaniline (aq)	<1 µg/l	TM176	<8				
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	# _<8				
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	# <8				
4-Chloroaniline (aq)	<1 µg/l	TM176	#				
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<8				
4-Methylphenol (aq)	<1 µg/l	TM176	=======================================				
4-Nitroaniline (aq)	<1 µg/l	TM176	#				
4-Nitrophenol (aq)	<1 µg/l	TM176	# <8				
Azobenzene (aq)	<1 µg/l	TM176	<8				
Acenaphthylene (aq)	<1 µg/l	TM176	# <8 #				
Acenaphthene (aq)	<1 µg/l	TM176	* <8 #				
Anthracene (aq)	<1 µg/l	TM176	<8 #				
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<8 #				
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<8 #				
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<16 #				
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<8 #				
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<8 #				

Validated

SDG: Location

CERTIFICATE OF ANALYSIS

SDG: Location:		10715-111 Sort Landfill	Client Referer Order Numbe		Report Number: Superseded Report:	607016
SVOC MS (W) - Aqueou			Order Humbe	. 22100		
Results Legend		ustomer Sample Ref.	LH01			
# ISO17025 accredited. M mCERTS accredited.	Ĩ		LINU			
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.00 - 0.00			
tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report	t for	Sample Type	Surface Water (SW)			
accreditation status.		Date Sampled Sample Time	14/07/2021			
** % recovery of the surrogate standard to che efficiency of the method. The results of indiv	vidual	Date Received	15/07/2021			
compounds within samples aren't corrected recovery	for the	SDG Ref	210715-111			
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638580			
Component	LOD/Units	Method				
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<8			
			#			
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<8 #			
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<8			
201120(0)))10110 (04)	. 1997.		#			
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<8			
Carbazole (aq)	<1 µg/l	TM176	<8 #			
Carbazole (aq)	<1 µg/i	TIMITO	<o #</o 			
Chrysene (aq)	<1 µg/l	TM176	<8			
		Th 44.70	#			
Dibenzofuran (aq)	<1 µg/l	TM176	<8 #			
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<8			
			#			
Diethyl phthalate (aq)	<1 µg/l	TM176	<8 #			
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<8			
			#			
Dimethyl phthalate (aq)	<1 µg/l	TM176	<8 "			
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	# <40			
n Brooty printing (aq)	° µ9,		#			
Fluoranthene (aq)	<1 µg/l	TM176	<8 "			
Fluorene (aq)	<1 µg/l	TM176	# <8			
	1 µg/i	IMITO				
Hexachlorobenzene (aq)	<1 µg/l	TM176	<8			
Hexachlorobutadiene (aq)	<1 µg/l	TM176				
ricxdeniorobatadiene (aq)	1 µg/i	IMITO				
Pentachlorophenol (aq)	<1 µg/l	TM176	<8			
Phenol (aq)	<1 µg/l	TM176	<8			
Filehol (aq)	<1 µg/i	TIMITIO	~0			
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<8			
	4	TM470	#			
Hexachloroethane (aq)	<1 µg/l	TM176	<8 #			
Nitrobenzene (aq)	<1 µg/l	TM176	<8			
			#			
Naphthalene (aq)	<1 µg/l	TM176	<8 #			
Isophorone (aq)	<1 µg/l	TM176	<8			
			#			
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<8			
Phenanthrene (aq)	<1 µg/l	TM176	<8			
			#			
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<8 #			
Pyrene (aq)	<1 µg/l	TM176	<8			
	P.97		#			
		[

		40745 411					007040
SDG: Location:		210715-111 Gort Landfill		nt Reference: er Number:	P2282 Z2798	Report Number: Superseded Report	607016
VOC MS (W) Results Legend							
ISO17023 accordited. M mCETS accredited. aq Aqueous / settled sample. diss.filt. Dissolved / filtered sample. tounnit: Total / unittered sample. Subcontracted - refer to subcontractor repo- accreditation status. Sincovery of the surrogate standard to ch efficiency of the method. The results of indi compounds within samples aren't corrected recovery (F) Trigger breach confirmed	rt for sck the vidual	ustomer Sample Ref. Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s)	LH01 0.00 - 0.00 Surface Water (SW) 14/07/2021 15/07/2021 2107/15-111 24638580				
1-4+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method					
Dibromofluoromethane**	%	TM208	110				
Toluene-d8**	%	TM208	101				
4-Bromofluorobenzene**	%	TM208	101				
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #				
Chloromethane	<1 µg/l	TM208	<1 #				
Vinyl chloride	<1 µg/l	TM208	* <1 #				
Bromomethane	<1 µg/l	TM208	* <1 #				
Chloroethane	<1 µg/l	TM208	* <1 #				
Trichlorofluoromethane	<1 µg/l	TM208	* <1 #				
1,1-Dichloroethene	<1 µg/l	TM208	* <1 #				
Carbon disulphide	<1 µg/l	TM208	* <1 #				
Dichloromethane	<3 µg/l	TM208					
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208					
trans-1,2-Dichloroethene	<1 µg/l	TM208	* <1 #				
1,1-Dichloroethane	<1 µg/l	TM208	* <1 #				
cis-1,2-Dichloroethene	<1 µg/l	TM208	* <1 #				
2,2-Dichloropropane	<1 µg/l	TM208	<1				
Bromochloromethane	<1 µg/l	TM208	<1 #				
Chloroform	<1 µg/l	TM208	<1 #				
1,1,1-Trichloroethane	<1 µg/l	TM208	* <1 #				
1,1-Dichloropropene	<1 µg/l	TM208	* <1 #				
Carbontetrachloride	<1 µg/l	TM208					
1,2-Dichloroethane	<1 µg/l	TM208	" <1 #				
Benzene	<1 µg/l	TM208					
Trichloroethene	<1 µg/l	TM208	* <1 #				
1,2-Dichloropropane	<1 µg/l	TM208	* <1 #				
Dibromomethane	<1 µg/l	TM208	* <1 #				
Bromodichloromethane	<1 µg/l	TM208	* <1 #				
cis-1,3-Dichloropropene	<1 µg/l	TM208	# <1 #				
Toluene	<1 µg/l	TM208	<1				
trans-1,3-Dichloropropene	<1 µg/l	TM208	# <1				
1,1,2-Trichloroethane	<1 µg/l	TM208	# <1				
1,3-Dichloropropane	<1 µg/l	TM208	# <1				

Validated

#

(ALS)

SDG: Location:		210715-111 Gort Landfill		P2282 Z2798	Report Number: Superseded Report:	607016
VOC MS (W)						
Results Legend # ISO17025 accredited.	С	ustomer Sample Ref.	LH01			
M mCERTS accodied. aq Aquocoi / attilde sample. diss.fit Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. subcontracted - refer to subcontractor report accreditation status. * % recovery of the surrogate standard to che efficiency of the method. The results of inductor of the method. The results of motion	ck the	Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Surface Water (SW) 14/07/2021			
compounds within samples aren't corrected recovery	for the	Date Received SDG Ref	15/07/2021 210715-111 24638580			
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24636560			
Component Tetrachloroethene	LOD/Units <1 µg/l	Method TM208	<1 #			
Dibromochloromethane	<1 µg/l	TM208	<1 #			
1,2-Dibromoethane	<1 µg/l	TM208	<1 #			
Chlorobenzene	<1 µg/l	TM208	<1 #			
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #			
Ethylbenzene	<1 µg/l <1 µg/l	TM208 TM208	<1 #	_		
m,p-Xylene o-Xylene	<1 µg/l	TM208	<1 <1			
Styrene	<1 µg/l	TM200	<1 *1	_		
Bromoform	<1 µg/l	TM208	# <1			
Isopropylbenzene	<1 µg/l	TM208	=======================================	_		
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	# <1			
1,2,3-Trichloropropane	<1 µg/l	TM208	# <1			
Bromobenzene	<1 µg/l	TM208	# <1			
Propylbenzene	<1 µg/l	TM208	# <1 #			
2-Chlorotoluene	<1 µg/l	TM208	<1 #			
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1 #			
4-Chlorotoluene	<1 µg/l	TM208	<1 #			
tert-Butylbenzene	<1 µg/l	TM208	<1 #			
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1 #			
sec-Butylbenzene	<1 µg/l	TM208	<1 #	_		
4-iso-Propyltoluene 1,3-Dichlorobenzene	<1 µg/l <1 µg/l	TM208 TM208	<1 #			
1,4-Dichlorobenzene	<1 µg/l	TM208	<1 #	_		
n-Butylbenzene	<1 µg/l	TM200	<1 #			
1,2-Dichlorobenzene	<1 µg/l	TM208	# <1	_		
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	# <1			
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	-		
Hexachlorobutadiene	<1 µg/l	TM208	# <1 #			
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	# <1 #			
Naphthalene	<1 µg/l	TM208	<1 #			
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #			
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1			

							Validated
				OF ANALYS	IS		
	SDG:	210715-111	Client Reference:	P2282	Report Number:	607016	
(ALS)	Location:	Gort Landfill	Order Number:	Z2798	Superseded Report:		

Notification of NDPs (No determination possible)

Date Received : 15/07/2021 12:37:25

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
24638580	LH01	0.00 - 0.00	BOD True Total	Unable to confirm result



SDG:

Location:



607016

Cli Or

210715-111

Gort Landfill

Client Reference: P2282 Order Number: Z2798 Report Number: 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
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).

P2282

Z2798

Client Reference:

Order Number:

607016

Test Completion Dates

Lab Sample No(s)	24638580
Customer Sample Ref.	LH01
-	
AGS Ref.	
Depth	0.00 - 0.00
Туре	Surface Water
Acid Herbicides by GCMS	22-Jul-2021
Alkalinity as CaCO3	20-Jul-2021
Ammonium Low	20-Jul-2021
Anions by Kone (w)	21-Jul-2021
COD Unfiltered	18-Jul-2021
Conductivity (at 20 deg.C)	21-Jul-2021
Cyanide Comp/Free/Total/Thiocyanate	21-Jul-2021
Dissolved Metals by ICP-MS	21-Jul-2021
Dissolved Oxygen by Probe	16-Jul-2021
Fluoride	16-Jul-2021
Mercury Dissolved	20-Jul-2021
Mineral Oil C10-40 Aqueous (W)	21-Jul-2021
PCB Congeners - Aqueous (W)	20-Jul-2021
Pesticides (Suite I) by GCMS	20-Jul-2021
Pesticides (Suite II) by GCMS	22-Jul-2021
Pesticides (Suite III) by GCMS	26-Jul-2021
pH Value	19-Jul-2021
Suspended Solids	19-Jul-2021
SVOC MS (W) - Aqueous	19-Jul-2021
Total Organic and Inorganic Carbon	25-Jul-2021
VOC MS (W)	18-Jul-2021

SDG:	210715-111	Client Reference:	P2282	Report Number:	607016
Location:	Gort Landfill	Order Number:	Z2798	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 will be 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
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
Chrysof le	White Asbestos
Amosite	Brow n Asbestos
Cio d dolite	Blue Asbe stos
Fibrous Act nolite	-
Fibious Anthophyllite	-
Fibrous Tremol ite	-

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 μ m diameter, longer than 5 μ m 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 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: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 27 August 2020 Fehily Timoney 200731-86 Galway Historic Landfills Gort Landfill 564885

This report has been revised and directly supersedes 562437 in its entirety.

We received 3 samples on Friday July 31, 2020 and 3 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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.4 Version Issued: 27/08/2020

	SDG:
(ALS)	Location:

CERTIFICATE OF ANALYSIS 200731-86

Client Reference: Galway Historic Landfills Z2189 Order Number:

Report Number:

564885 Superseded Report: 562437 Validated

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22583337	BH1		0.00 - 0.00	30/07/2020
22583320	GW01		0.00 - 0.00	30/07/2020
22583328	GW02		0.00 - 0.00	30/07/2020

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -During Transportation samples shall be stored in a cooling device capable of maintaining

16.2 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.

Gort Landfill

a temperature of (5±3)°C.

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

		С	ERT	IFIC	CATE	E OI	F A	NAI	LYS	IS							[Validated
SDG: Location:	200731-86 Gort Landfill			nt Ref er Nui	erenc nber:	e:	Galv Z21		listori	c Land	dfills			Numb led Re			56488 5624	
Results Legend X Test N No Determination Possible	Lab Sample I	No(s)					22583337					22583320					22583328	
Sample Types -	Custome Sample Refe						BH1					GW01					GW02	
S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate	AGS Refere	nce																
PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	Depth (m)					0.00 - 0.00					0.00 - 0.00					0.00 - 0.00	
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Containe	r	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5I glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5I glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	
	Sample Ty	ре	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 3	x					X					x					
Alkalinity as CaCO3	All	NDPs: 0 Tests: 3		X					X					X				
Ammonium Low	All	NDPs: 0 Tests: 3		^	X				^	X				^	X			
Anions by Kone (w)	All	NDPs: 0 Tests: 3		x	^				X	^				x	^			
BOD True Total	All	NDPs: 0 Tests: 3		×					x					×				
COD Unfiltered	All	NDPs: 0 Tests: 3		x					x					x				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3		x					x					x				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3				x					X					X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3	-	x					X					x				
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 3		x					X					x				
Faecal Coliforms (W)*	All	NDPs: 0 Tests: 3		x					X					x				
Fluoride	All	NDPs: 0 Tests: 3		x					X					x				
Mercury Dissolved	All	NDPs: 0 Tests: 3		x					X					x				
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 3	x					X					x					
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 3	x					X					x					

																		Validated
SDG:	200731-86	C	Clie	TIFIC	erenc	e:	Galv	way H		S Land	lfills			Numb			56488	
(ALS) Location:	Gort Landfill		Ord	er Nui	nber:		Z21	89				Su	perse	ded Re	port:		5624	37
Results Legend X Test N No Determination Possible	Lab Sample No((s)					22583337					22583320					22583328	
Sample Types -	Customer Sample Referen	ce					BH1					GW01					GW02	
S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate	AGS Reference	e																
PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	Depth (m)						0.00 - 0.00					0.00 - 0.00					0.00 - 0.00	
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Container		0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5I glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	
	Sample Type		GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
Pesticides (Suite II) by GCMS		NDPs: 0 Tests: 3	x					x					X					
Pesticides (Suite III) by GCMS		NDPs: 0 Tests: 3	x					x					x					
pH Value		NDPs: 0 Tests: 3		x					x					x				
SVOC MS (W) - Aqueous		NDPs: 0 Tests: 3					x					x					x	
Total Coliforms(W)*	T	NDPs: 0 Tests: 2		x					x									
Total Organic and Inorganic Carbon		NDPs: 0 Tests: 3			x					x					x			
VOC MS (W)		NDPs: 0 Tests: 3					x					X					x	

ALS

CERTIFICATE OF ANALYSIS

SDG: 200731-86 **Client Reference:** Galway Historic Landfills Report Number: 564885 Superseded Report: Location: Gort Landfill Order Number: Z2189 562437 Customer Sample R Results Leg ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subc BH1 GW01 GW02 aq diss.filt tot.unfilt Depth (m 0.00 - 0.00 0.00 - 0.00 0.00 - 0.00 Sample Type Ground Water (GW) Ground Water (GW) Ground Water (GW) . Date Sar 30/07/2020 30/07/2020 30/07/2020 ditation status. overy of the surrogate standard to check the ency of the method. The results of individual ounds within samples aren't corrected for the Sample Tim 31/07/2020 31/07/2020 31/07/2020 Date Receiv SDG Re 200731-86 200731-86 200731-86 22583337 22583320 22583328 Lab Sample No.(s (F) 1-3+§@ ion (see appendix) AGS Referenc LOD/Units Component Method 4 19 620 Faecal coliforms confirmed 0 SUB (M7M)* CFU/100ml Total Coliform Presumptive CFU/100ml SUB >100 >100 (M16)* CFU/100ml SUB >100 >100 Total Coliform Confirmed (M14)* Alkalinity, Total as HCO3 <2 mg/l TM043 952 744 1710 BOD, unfiltered <1 mg/l TM045 <1 <1 4.52 # # # Oxygen, dissolved <0.3 mg/l TM046 9.4 9.5 9.12 Organic Carbon, Total <3 mg/l TM090 <3 <3 <3 # # Ħ Ammoniacal Nitrogen as N (low <0.01 mg/l TM099 0.0297 0.0331 0.0627 level) # # # Fluoride <0.5 mg/l TM104 <0.5 <0.5 <0.5 # # # COD, unfiltered <7 mg/l TM107 94.5 116 412 # # # Conductivity @ 20 deg.C <0.02 TM120 0.62 0.623 0.593 mS/cm # # # <0.5 µg/l TM152 Arsenic (diss.filt) 0.532 0.642 0 754 2# 2 # 2# Barium (diss.filt) <0.2 µg/l TM152 20.3 227 38.4 2# 2 # 2 # Boron (diss.filt) <10 µg/l TM152 12.5 21.9 25.1 2# 2 # 2# Cadmium (diss.filt) <0.08 µg/l TM152 <0.08 <0.08 <0.08 2# 2 # 2# Chromium (diss.filt) TM152 <1 <1 <1 <1 µg/l 2# 2# 2 # Copper (diss.filt) <0.3 µg/l TM152 1.46 0.926 3.77 2# 2# 2# Lead (diss.filt) <0.2 µg/l TM152 <0.2 <0.2 <0.2 2# 2 # 2# TM152 <3 <3 5.72 Manganese (diss.filt) <3 µg/l 2# 2 # 2 # TM152 178 3 64 7 68 Nickel (diss.filt) <0.4 µg/l 2# 2 # 2 # <10 µg/l TM152 11.2 Phosphorus (diss.filt) 18 <10 2# 2 # 2 # TM152 Selenium (diss.filt) <1 µg/l 1.42 2.33 3.64 2# 2 # 2 # Thallium (diss.filt) <2 µg/l TM152 <2 <2 <2 2# 2 # 2 # Zinc (diss.filt) TM152 1.52 1.49 2.6 <1 µg/l 2# 2# 2# Sodium (Dis.Filt) <0.076 mg/l TM152 9.71 33.9 17.2 2# 2# 2# Magnesium (Dis.Filt) <0.036 mg/l TM152 7.69 12.8 9.62 2# 2 # 2# 1.83 Potassium (Dis.Filt) <0.2 mg/l TM152 4.19 2.43 2# 2 # 2# Calcium (Dis.Filt) <0.2 mg/l TM152 91 112 130 2# 2 # 2 # Iron (Dis.Filt) <0.019 mg/l TM152 <0.019 < 0.019 < 0.019 2 # 2 # 2 # Mercury (diss.filt) TM183 < 0.01 < 0.01 <0.01 µg/l < 0.01 2# 2 # 2 # Sulphate <2 mg/l TM184 12.9 39.8 49.8 # # # Chloride <2 mg/l TM184 20.2 45.7 20.7 # # #

Total Oxidised Nitrogen as N

TM184

<0.1 mg/l

1.86

#

#

1.35

#

1.76



	Descrited						 	,
M aq diss.filt tot.unfilt *	Results Legend ISO17025 accredited. MCRTS accredited. Aqueous / settled sample. Disolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report f accreditation status.		Customer Sample Ref. Depth (m) Sample Type Date Sampled	BH1 0.00 - 0.00 Ground Water (GW) 30/07/2020	GW01 0.00 - 0.00 Ground Water (GW) 30/07/2020	GW02 0.00 - 0.00 Ground Water (GW) 30/07/2020		
	% recovery of the surrogate standard to check efficiency of the method. The results of individ	the ual	Sample Time Date Received	31/07/2020	31/07/2020	31/07/2020		
	compounds within samples aren't corrected fo recovery		SDG Ref	200731-86	200731-86	200731-86		
(F)	Trigger breach confirmed Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22583337	22583320	22583328		
Compon		LOD/Units	Method					
PCB con	gener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB con	gener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB con	gener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB con	gener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB con	gener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB con	gener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB con	gener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
Sum of d	etected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105		
Cyanide,	Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05		
pН		<1 pH Units	TM256	7.55 #	7.76 #	7.59 #		
Trifluralin	1	<0.01 µg/l	TM343	<0.01	** <0.01	<0.01		
alpha-HC	ЭН	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
gamma-H	HCH (Lindane)	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Heptachl	or	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Aldrin		<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
beta-HCł	Η	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Isodrin		<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
delta-HC	Н	<0.01 µg/l	TM343	<0.02	<0.02	<0.02		
Heptachl	or epoxide	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
o,p'-DDE		<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Endosulp	bhan l	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
trans-Chl	lordane	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
cis-Chlor	dane	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
p,p'-DDE		<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Dieldrin		<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
o,p'-DDD) (TDE)	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Endrin		<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
o,p'-DDT		<0.01 µg/l	TM343	<0.04	<0.04	<0.04		
p,p'-DDD) (TDE)	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Endosulp	ohan II	<0.02 µg/l	TM343	<0.02	<0.02	<0.02		
p,p'-DDT		<0.01 µg/l	TM343	<0.07	<0.07	<0.07		
o,p'-Meth	noxychlor	<0.01 µg/l	TM343	<0.04	<0.04	<0.04		
p,p'-Meth	noxychlor	<0.01 µg/l	TM343	<0.07	<0.07	<0.07		
17.16.10	27/08/2020				Į			



	Results Legend	(ustomer Sample Ref.	BH1	GW01	GW02			
# M diss.filt tot.unfilt *	ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report f accreditation satus.	ior	Depth (m) Sample Type Date Sampled	0.00 - 0.00 Ground Water (GW) 30/07/2020	0.00 - 0.00 Ground Water (GW) 30/07/2020	0.00 - 0.00 Ground Water (GW) 30/07/2020			
	% recovery of the surrogate standard to check efficiency of the method. The results of individ	lual	Sample Time Date Received	31/07/2020	31/07/2020	31/07/2020			
(F)	compounds within samples aren't corrected fo recovery Trigger breach confirmed	r the	SDG Ref Lab Sample No.(s)	200731-86 22583337	200731-86 22583320	200731-86 22583328			
1-3+§@ Compo	Sample deviation (see appendix)	LOD/Units	AGS Reference Method						
	lphan Sulphate	<0.02 µg/l	TM343	<0.04	<0.04	<0.04			
Permet	hrin I	<0.01 µg/l	TM343	<0.01	<0.01	<0.01			
Permet	hrin II	<0.01 µg/l	TM343	<0.01	<0.01	<0.01			
1,3,5-Ti	ichlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Hexach	lorobutadiene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
1,2,4-Ti	ichlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
1,2,3-Ti	ichlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Dichlory	/05	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Dichlob	enil	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Mevinp	hos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Tecnaz	ene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Hexach	lorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Demeto	n-S-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Phorate	1	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Diazino	n	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Triallate)	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Atrazine)	<0.01 µg/l	TM344	0.0305	0.0605	<0.01			
Simazir	ie	<0.01 µg/l	TM344	<0.01	0.0362	<0.01			
Disulfot	on	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Propeta	Imphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Chlorpy	riphos-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Dimeth	pate	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Pirimiph	nos-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Chlorpy	riphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Methyl	Parathion	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Malathi	on	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Fenthio	n	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Fenitro	hion	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Triadim	efon	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Pendim	ethalin	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Parathi	on	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
Chlorfe	nvinphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
trans-C	hlordane	<0.01 µg/l	TM344	<0.01	<0.01	<0.01			
17.16.1	9 27/08/2020						<u> </u>	1	



	Results Legend	(ustomer Sample Ref.	BH1	GW01	GW02		
# M diss.filt tot.unfilt *	ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report f accreditation satus.		Depth (m) Sample Type Date Sampled	0.00 - 0.00 Ground Water (GW) 30/07/2020	0.00 - 0.00 Ground Water (GW) 30/07/2020	0.00 - 0.00 Ground Water (GW) 30/07/2020		
	accreation status. % recovery of the surrogate standard to check efficiency of the method. The results of individ compounds within samples aren't corrected fo	lual	Sample Time Date Received	31/07/2020	31/07/2020	31/07/2020		
(F) 1-3 + §@	recovery Trigger breach confirmed Sample deviation (see appendix)	i tie	SDG Ref Lab Sample No.(s) AGS Reference	200731-86 22583337	200731-86 22583320	200731-86 22583328		
Compo	nent	LOD/Units	Method					
cis-Chlo	ordane	<0.01 µg/l	TM344	<0.01	<0.01	<0.01		
Ethion		<0.01 µg/l	TM344	<0.01	<0.01	<0.01		
	henothion	<0.01 µg/l	TM344	<0.01	<0.01	<0.01		
Triazop	hos	<0.01 µg/l	TM344	<0.01	<0.01	<0.01		
Phosald	ne	<0.01 µg/l	TM344	<0.01	<0.01	<0.01		
Azinpho	os methyl	<0.02 µg/l	TM344	<0.02	<0.02	<0.02		
Azinpho	os ethyl	<0.02 µg/l	TM344	<0.02	<0.02	<0.02		
Etridiaz	ole	<0.01 µg/l	TM345	<0.02	<0.02	<0.02		
Pentacl	llorobenzene	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Propac	nlor	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Quintoz	ene (PCNB)	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Ometho	ate	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Propazi	ne	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Propyza	amide	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Alachlo	r	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Promet	yn	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Telodrir	1	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Terbutr	'n	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Chlorot	nalonil	<0.01 µg/l	TM345	<0.03	<0.03	<0.03		
Etrimph	os	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Metaza	chlor	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Cyanaz	ine	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Trietazi	ne	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Couma	phos	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Phosph	amidon I	<0.01 µg/l	TM345	<0.02	<0.02	<0.02		
Phosph	amidon II	<0.01 µg/l	TM345	<0.02	<0.02	<0.02		
Dinitro-	o-cresol	<0.1 µg/l	TM411	<0.1	<0.5	<0.5		
Clopyra	lid	<0.04 µg/l	TM411	<0.04	<0.2	<0.2		
MCPA		<0.05 µg/l	TM411	<0.05	<0.25	<0.25		
Mecopr	ор	<0.04 µg/l	TM411	<0.04	<0.2	<0.2		
Dicamb	a	<0.04 µg/l	TM411	<0.04	<0.2	<0.2		
MCPB		<0.05 µg/l	TM411	<0.05	<0.25	<0.25		
2,4-DB		<0.1 µg/l	TM411	<0.1	<0.5	<0.5		
47.40.4	9 27/08/2020				!		1	ļ



Results Legend	С	ustomer Sample Ref.	BH1	GW01	GW02		
# ISO17023 accredited. M mCERTS accredited. aq Aqueous / settlifed sample. diss.filt Dissolved filtered sample. totumitt Total / unfiltered sample. * Subcontracted - refer to subcontractor report 1 accreditation status. * % recovery of the surrogate standard to check	ior	Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Ground Water (GW) 30/07/2020	0.00 - 0.00 Ground Water (GW) 30/07/2020	0.00 - 0.00 Ground Water (GW) 30/07/2020		
efficiency of the method. The results of individ compounds within samples aren't corrected for recovery (F) Trigger breach confirmed	lual	Date Received SDG Ref Lab Sample No.(s) AGS Reference	31/07/2020 200731-86 22583337	31/07/2020 200731-86 22583320	31/07/2020 200731-86 22583328		
1-3+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method					
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411	<0.05	<0.25	<0.25		
Dichlorprop	<0.1 µg/l	TM411	<0.1	<0.5	<0.5		
Triclopyr	<0.05 µg/l	TM411	<0.05	<0.25	<0.25		
Fenoprop (Silvex)	<0.1 µg/l	TM411	<0.1	<0.5	<0.5		
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411	<0.05	<0.25	<0.25		
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411	<0.05	<0.25	<0.25		
Bromoxynil	<0.04 µg/l	TM411	<0.04	<0.2	<0.2		
Benazolin	<0.04 µg/l	TM411	<0.04	<0.2	<0.2		
loxynil	<0.05 µg/l	TM411	<0.05	<0.25	<0.25		
Pentachlorophenol	<0.04 µg/l	TM411	<0.04	<0.2	<0.2		
Fluoroxypyr	<0.1 µg/l	TM411	<0.1	<0.5	<0.5		
17:16:19 27/08/2020				Į	ļ		I

ALS

CERTIFICATE OF ANALYSIS

_

				FICATE OF A			
SDG: Location:		200731-86 Gort Landfill			Ilway Historic Landfil 189	ls Report Number: Superseded Report:	564885 562437
			Order	Nullibel. 22	105		302431
SVOC MS (W) - Aqueou Results Legend		ustomer Sample Ref.	BH1	GW01	GW02		
# ISO17025 accredited. M mCERTS accredited.			Diff	Gilli	01102		
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report	t for	Sample Type Date Sampled	Ground Water (GW) 30/07/2020	Ground Water (GW) 30/07/2020	Ground Water (GW) 30/07/2020		
accreditation status. ** % recovery of the surrogate standard to chec	k the	Sample Time					
efficiency of the method. The results of indiv compounds within samples aren't corrected recovery	for the	Date Received SDG Ref	31/07/2020 200731-86	31/07/2020 200731-86	31/07/2020 200731-86		
(F) Trigger breach confirmed 1-3•§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22583337	22583320	22583328		
Component	LOD/Units	Method					
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<10	<10	<20		
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	# <10	# <10	# <20		
	<1 µg/i	TIVIT70	×10 #	<10 #	~20 #		
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<10	<10	<20		
			#	#	#		
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<10 #	<10 #	<20 #		
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<10	<10	~20		
-, .,	· F3·		#	#	#		
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<10	<10	<20		
		714470	#	#	#		
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<10 #	<10 #	<20 #		
2,4-Dimethylphenol (aq)	<1 µg/l	TM176		<10	<i>*</i>		
	10		#	#	#		
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<10	<10	<20		
0 C Disitatekees (cs)	14	TN470	#	#	#		
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<10 #	<10 #	<20 #		
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<10	<10	~20		
			#	#	#		
2-Chlorophenol (aq)	<1 µg/l	TM176	<10	<10	<20		
2 Mathylaaphthalana (ag)	<1.00//	TM176	# <10	# <10	# <20		
2-Methylnaphthalene (aq)	<1 µg/l	TIMITO	<10 #	<10 #	<20 #		
2-Methylphenol (aq)	<1 µg/l	TM176	<10	<10	<20		
			#	#	#		
2-Nitroaniline (aq)	<1 µg/l	TM176	<10 #	<10	<20 #		
2-Nitrophenol (aq)	<1 µg/l	TM176	# <10	# <10	# <20		
	·		#	#	#		
3-Nitroaniline (aq)	<1 µg/l	TM176	<10	<10	<20		
A December of the second state of (and	44	TN470	#	# <10	#		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<10 #	<10 #	<20 #		
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<10	<10	<20		
			#	#	#		
4-Chloroaniline (aq)	<1 µg/l	TM176	<10	<10	<20		
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<10	<10	<20		
+ onloiophenyiphenyiether (uq)	1 µg/i	TIMIT70	#	#			
4-Methylphenol (aq)	<1 µg/l	TM176	<10	<10	<20		
			#	#	#		
4-Nitroaniline (aq)	<1 µg/l	TM176	<10 #	<10 #	<20 #		
4-Nitrophenol (aq)	<1 µg/l	TM176	# <10	<10	<i>*</i>		
····· (·····//	· """						
Azobenzene (aq)	<1 µg/l	TM176	<10	<10	<20		
	- A 11	T14470	#	#	#		
Acenaphthylene (aq)	<1 µg/l	TM176	<10 #	<10 #	<20 #		
Acenaphthene (aq)	<1 µg/l	TM176	<10	<10	~20		
			#	#			
Anthracene (aq)	<1 µg/l	TM176	<10 #	<10	<20 #		
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	# <10	# <10	# <20		
SOLE ONOIGENIANDENIEL (ay)	~ ' µ9/i	1111170	<10 #	<10 #			
bis(2-Chloroethoxy)methane	<1 µg/l	TM176	<10	<10	<20		
(aq)			#	#			
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<20 #	<20 #	<40 #		
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	# <10	<10	<i>*</i>		
· · · · · · · · · · · · · · · · · · ·	1-0-		.*	#			
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<10	<10	<20		
			#	#	#		

ALS

CERTIFICATE OF ANALYSIS

SDG: Location:		200731-86 Gort Landfill			Galway Historic Lan 22189	dfills Report Number Superseded Repo	
SVOC MS (W) - Aqueous						· · ·	
Rosults Legend # ISO17028 accredited. M mCERTS accredited. aq Aqueous / settide sample. diss.filt Dissolved filtered sample. totunfilt Total / unfiltered sample. Subcontracted - refor to subcontractor report	c	ustomer Sample Ref. Depth (m) Sample Type Date Sampled	BH1 0.00 - 0.00 Ground Water (GW) 30/07/2020	GW01 0.00 - 0.00 Ground Water (GW) 30/07/2020	GW02 0.00 - 0.00 Ground Water (GW) 30/07/2020		
accreditation status. ** %, recovery of the surrogate standard to chec efficiency of the method. The results of indiv compounds within samples aren't corrected to recovery (F) Trigger breach confirmed 1-3+5@ Sample deviation (see appendix)	idual for the	Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	31/07/2020 200731-86 22583337	31/07/2020 200731-86 22583320	31/07/2020 200731-86 22583328		
Component Benzo(b)fluoranthene (aq)	LOD/Units <1 µg/l	Method TM176	<10	<10	<20		
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	# <10	<10	# <20	#	
Benzo(a)pyrene (aq)	<1 µg/l	TM176	# <10	<10	# <20	#	
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	# <10 #	<10	# <20 #	#	
Carbazole (aq)	<1 µg/l	TM176		<10	#<20 #	#	
Chrysene (aq)	<1 µg/l	TM176	<10 #	<10	// <20 #	#	
Dibenzofuran (aq)	<1 µg/l	TM176	<10 #	<10	<i>"</i> <20 #	#	
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<10 #	<10	<20 #	#	
Diethyl phthalate (aq)	<1 µg/l	TM176	<10 #	<10	<20	#	
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<10 #	<10	<20	#	
Dimethyl phthalate (aq)	<1 µg/l	TM176	<10 #	<10	<20 #	#	
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<50 #	<50	<100 #	#	
Fluoranthene (aq)	<1 µg/l	TM176	<10 #	<10	<20	#	
Fluorene (aq)	<1 µg/l	TM176	<10 #	<10	<20 #	#	
Hexachlorobenzene (aq)	<1 µg/l	TM176	<10 #		<20	#	
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<10 #		<20 #	#	
Pentachlorophenol (aq)	<1 µg/l	TM176	<10	<10	<20		
Phenol (aq)	<1 µg/l	TM176	<10	<10	<20		
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<10 #		<20	#	
Hexachloroethane (aq)	<1 µg/l	TM176	<10 #		<20 #	#	
Nitrobenzene (aq)	<1 µg/l	TM176	<10 #		<20 #	#	
Naphthalene (aq)	<1 µg/l	TM176	<10 #		<20 #	#	
Isophorone (aq) Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176 TM176	<10 # <10	<10	# <20 # <20	#	
Phenanthrene (aq)	<1 µg/l	TM176	<10	<10	<20		
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<10 #		# <20	#	
Pyrene (aq)	<1 µg/l	TM176	<10 #		# <20	#	
. , , , , , , , , , , , , , , , , , , ,	- i µ9/i		~10 #		#	#	
17:16:10 27/08/2020							

_

SDG:		200731-86	Clien		alway Historic Landfil		564885
	(Gort Landfill	Orde	r Number: Z2	189	Superseded Report:	562437
VOC MS (W) Results Legend # ISO17025 accredited.	С	ustomer Sample Ref.	BH1	GW01	GW02		
M mCERTS accredited. aq Aqueous / settled sample. diss.fill / Dissolved / filtered sample. toLunfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report accreditation status.	for	Depth (m) Sample Type Date Sampled	0.00 - 0.00 Ground Water (GW) 30/07/2020	0.00 - 0.00 Ground Water (GW) 30/07/2020	0.00 - 0.00 Ground Water (GW) 30/07/2020		
** % recovery of the surrogate standard to check efficiency of the method. The results of individ compounds within samples aren't corrected for recovery	dual	Sample Time Date Received SDG Ref	31/07/2020 200731-86 22583337	31/07/2020 200731-86 22583320	31/07/2020 200731-86 22583328		
(F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22003337	22303320	22303320		
Component Dibromofluoromethane**	LOD/Units %	Method TM208	108	105	107		
Toluene-d8**	%	TM208	96.9	97.2	96.8		
4-Bromofluorobenzene**	%	TM208	99.5	101	99.5		
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Chloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Vinyl chloride	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Bromomethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Chloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Trichlorofluoromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
1,1-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Carbon disulphide	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Dichloromethane	<3 µg/l	TM208	<3 #	<3 #	<3		
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #	<1 #		
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #		
1,1-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1		
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #		
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1		
Bromochloromethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Chloroform	<1 µg/l	TM208	<1 #	8.44 #	7.39		
1,1,1-Trichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
1,1-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Carbontetrachloride	<1 µg/l	TM208	<1 #	<1 #	<1		
1,2-Dichloroethane	<1 µg/l	TM208	<1 #	<1 #	<1		
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1		
Trichloroethene	<1 µg/l	TM208	<1 #	<1 #	<1		
1,2-Dichloropropane	<1 µg/l	TM208	<1 #	<1 #	<1		
Dibromomethane	<1 µg/l	TM208	<1 #	<1 #	<1		
Bromodichloromethane	<1 µg/l	TM208	<1 #	4.04 #	3.94		
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	<1 #	<1		
Toluene	<1 µg/l	TM208	<1 #	<1 #	<1		
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1 #	 <1 #	<1		
1,1,2-Trichloroethane	<1 µg/l	TM208	<1 #	" <1 #	<1		
1,3-Dichloropropane	<1 µg/l	TM208	* <1 #	* <1 #	<1		
I		<u>ل</u> ــــــــــــــــــــــــــــــــــــ	#	#	#		

Control Contro <thcontro<< th=""> <thcontro<< th=""> <thco< th=""><th>SDG: Location:</th><th></th><th>200731-86 Gort Landfill</th><th></th><th></th><th>alway Historic Landfills 2189</th><th>Report Number: Superseded Report:</th><th>564885 562437</th></thco<></thcontro<<></thcontro<<>	SDG: Location:		200731-86 Gort Landfill			alway Historic Landfills 2189	Report Number: Superseded Report:	564885 562437
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$								
a. and answer	Results Legend	Ci	ustomer Sample Ref.	BH1	GW01	GW02		
	M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.	ort for	Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)		
Note Descention Descentin Descentin <td>** % recovery of the surrogate standard to ch efficiency of the method. The results of ind compounds within samples aren't corrected</td> <td>lividual</td> <td>Sample Time Date Received</td> <td>31/07/2020</td> <td>31/07/2020</td> <td>31/07/2020</td> <td></td> <td></td>	** % recovery of the surrogate standard to ch efficiency of the method. The results of ind compounds within samples aren't corrected	lividual	Sample Time Date Received	31/07/2020	31/07/2020	31/07/2020		
conceptorOD/WIPMethodMethodConceptorConc	(F) Trigger breach confirmed		Lab Sample No.(s)					
Image: constraint of the point of	1-3+§@ Sample deviation (see appendix) Component	LOD/Units						
Image: state		<1 µg/l	TM208					
1 1	Dibromochloromethane	<1 µg/l	TM208					
1 1	1,2-Dibromoethane	<1 µg/l	TM208					
1 1				#	#	# #		
1 1	1,1,1,2-Tetrachloroethane			#	#	# #		
1 1	·			#	#	# #		
NormalNorm	m,p-Xylene			#	ŧ	# #		
1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 +	-			#	#	# #		
1 + 0 $1 + 0$ <	-			#	#	# #		
1.1.2.2 μ <				#	#	# #		
Image: second				#	#	# #		
And the second secon				#	ŧ	# #		
Phopybenzene $< 1 \downarrow gal$ TM208 $< 1 \downarrow gal$ $< 1 \downarrow gal$ TM208 $< 1 \downarrow gal$				#	ŧ	# #		
μ				#	ŧ	# #		
Image: constraint of the symbol of the sy				#	ŧ	# #		
Image: constraint of the sector of				#	#	# #		
International and the second seco				#	#	# #		
12.4-Trimethylbenzene $<1 \mu g/l$ TM208 <1 TM208 <1 # <1 				#	#	# #		
Image: constraint of the sector of the s				#	#	# #		
1.0^{-1} </td <td></td> <td></td> <td></td> <td>#</td> <td>#</td> <td># #</td> <td></td> <td></td>				#	#	# #		
1.3.1.4.1	•			#	#	# #		
$1,4$ -Dichlorobenzene $<1 \ \mu g/l$ $TM208$ $<1 \ \mu g/l$ $<1 \ \mu g$				#	#	# #		
Image: Constraint of the second s				#	#	# #		
1.0^{-1} </td <td></td> <td></td> <td></td> <td>#</td> <td>#</td> <td># #</td> <td></td> <td></td>				#	#	# #		
Image: Section of the section of t				#	#	# #		
Image: series of the series				#	#	# #		
Image: second secon								
Image: Section of the section of t				#	#	# #		
Naphthalene <1 µg/l TM208 <1 # # <td></td> <td></td> <td></td> <td>#</td> <td>#</td> <td># #</td> <td></td> <td></td>				#	#	# #		
Image: https://www.image: https://wwww.image: https://wwww.image: https://www.image: https://www.image: https://www.image: https://www.image: https://www.image: https://www.image: https://www.image: https://www.image: https://www.image: https://www.image				#	#	# #		
1,3,5-Trichlorobenzene <1 µg/l TM208 <1 <1 <1 <1				#	#	# #		



SDG:

Location:

CERTIFICATE OF ANALYSIS Client Reference: Galway Historic Landfills

Z2189

ndfills Report Number: Superseded Report: 564885 562437 Validated

Table of Results - Appendix

Order Number:

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
Client Reference: Galway Historic Landfills

Z2189

Report Number: Superseded Report: Validated

564885 562437

		-	
		les	st Com
Lab Sample No(s)	22583337	22583320	22583328
Customer Sample Ref.	BH1	GW01	GW02
AGS Ref.			
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Туре	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	07-Aug-2020	07-Aug-2020	07-Aug-2020
Alkalinity as CaCO3	06-Aug-2020	06-Aug-2020	05-Aug-2020
Ammonium Low	06-Aug-2020	06-Aug-2020	06-Aug-2020
Anions by Kone (w)	04-Aug-2020	04-Aug-2020	04-Aug-2020
BOD True Total	06-Aug-2020	06-Aug-2020	06-Aug-2020
COD Unfiltered	04-Aug-2020	04-Aug-2020	04-Aug-2020
Conductivity (at 20 deg.C)	05-Aug-2020	05-Aug-2020	05-Aug-2020
Cyanide Comp/Free/Total/Thiocyanate	07-Aug-2020	07-Aug-2020	07-Aug-2020
Dissolved Metals by ICP-MS	07-Aug-2020	07-Aug-2020	07-Aug-2020
Dissolved Oxygen by Probe	02-Aug-2020	02-Aug-2020	02-Aug-2020
Faecal Coliforms (W)*	10-Aug-2020	10-Aug-2020	10-Aug-2020
Fluoride	04-Aug-2020	04-Aug-2020	04-Aug-2020
Mercury Dissolved	05-Aug-2020	05-Aug-2020	05-Aug-2020
PCB Congeners - Aqueous (W)	10-Aug-2020	10-Aug-2020	10-Aug-2020
Pesticides (Suite I) by GCMS	06-Aug-2020	06-Aug-2020	06-Aug-2020
Pesticides (Suite II) by GCMS	07-Aug-2020	07-Aug-2020	07-Aug-2020
Pesticides (Suite III) by GCMS	05-Aug-2020	05-Aug-2020	05-Aug-2020
pH Value	04-Aug-2020	04-Aug-2020	04-Aug-2020
SVOC MS (W) - Aqueous	09-Aug-2020	09-Aug-2020	10-Aug-2020
Total Coliforms(W)*	10-Aug-2020	10-Aug-2020	
Total Organic and Inorganic Carbon	06-Aug-2020	06-Aug-2020	06-Aug-2020
VOC MS (W)	05-Aug-2020	05-Aug-2020	05-Aug-2020

Test Completion Dates

Order Number:



ALS Environmental Ltd Torrington Avenue Coventry CV4 9GU

T: +44 (0)24 7642 1213 F: +44 (0)24 7685 6575 www.alsenvironmental.co.uk

08 August 2020

Test Report: COV/1904555/2020

Dear Subcon Results

Subcon Results

Torrington Avenue

Tile Hill CV4 9GU

ALS Life Sciences Limited

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:

e: 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	ANALYSED BY
Hawarden Subcon Results ALS Life Sciences Limited Torrington Avenue Tile Hill CV4 9GU	
Date of Issue: 08 August 2020	E/2020
Report Number: COV/190455	55/2020 Issue 1 all previous issues
Job Description: 2020 Analysis	
Job Location: 200731-86	
Number of Samples included in this report 5	Job Received: 01 August 2020
Number of Test Results included in this report 7	Analysis Commenced: 01 August 2020
Signed: Bpaige	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.

(c) ALS Environmental Ltd 2020. All rights reserved. We, ALS Environmental Ltd, are the owner of all copyright in this report. You must not copy, reproduce, amend or adapt this report, its contents or any format in which it is delivered without our prior written agreement. If you copy, reproduce, amend, or adapt this report in any way without our agreement you will be liable for any damage or loss to us. In the event of a dispute the copy of the report held by us shall be the reference copy.

ALS Environmental Ltd

Page 17 of 26

Certificate o	of Analysis	A	NALYSED BY				
		UKAS TESTING 1314	ALS				
Report Number:	COV/1904555/2020				Issue	1	
Laboratory Number:	19545528				Sample	1	of 5
Sample Source: Sample Point Description:	ALS Life Sciences Limite	ed					
Sample Description:	22584567 BH1						
Sample Matrix:	Ground Water						
Sample Date/Time: Sample Received:	30 July 2020 01 August 2020						
Analysis Complete:	08 August 2020						
SDG:	200731-86						
Sample Reference:	BH1						
Test Des	cription	Result	Units	Analysis Date	Accredita	tion	Method
aecal coliforms confirmed		4	cfu/100ml	08/08/2020	N Co	v	W57

Analyst Comments for 19545528:

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: / Spaige

Name: B. Paige

Date: 08 August 2020

Title: **Microbiology Team Leader**

Page 18 of 26

Certificate	of Analysis		NALYSED BY	>			
Report Number:	COV/1904555/2020				Issue	1	
Laboratory Number:	19545529				Sample	2	of 5
Sample Source: Sample Point Description	ALS Life Sciences Limit	ed					
Sample Description:	22584568 BH1						
Sample Matrix:	Ground Water						
Sample Date/Time:	30 July 2020						
Sample Received:	01 August 2020						
Analysis Complete:	08 August 2020						
SDG:	200731-86						
Sample Reference:	BH1						
	scription	Result	Units	Analysis Date	Accreditat	ion	Method
Total Coliform presump		>100	cfu/100ml	02/08/2020	Y Co	v	W10
Total Coliforms confirmed		>100	cfu/100ml	02/08/2020	Y Co	v	W10

Analyst Comments	for 19545529:	

This sample has been analysed for Total Coliforms confirmed, Total Coliform presump outside recommended stability times. It is therefore possible that the results provided may be compromised. Confirmation process not been carried out for coliforms due to nature of the sample.

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: / Spaige

B. Paige Name:

Date: 08 August 2020

Title: **Microbiology Team Leader**

Page 19 of 26

Certificate of	of Analysis	А	NALYSED BY			
		UKAS TESTING 1314	ALS			
Report Number:	COV/1904555/2020				Issue 1	
Laboratory Number:	19545530				Sample 3	of 5
Sample Source: Sample Point Description:	ALS Life Sciences Limit	ed				
Sample Description:	22584558 GW01					
Sample Matrix:	Ground Water					
Sample Date/Time:	30 July 2020					
Sample Received: Analysis Complete:	01 August 2020 08 August 2020					
SDG:	200731-86					
Sample Reference:	GW01					
Test Des	scription	Result	Units	Analysis Date	Accreditation	Method
aecal coliforms confirmed		19	cfu/100ml	08/08/2020	N Cov	W57

Analyst Comments for 19545530:

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: / Spaige

B. Paige Name:

Date: 08 August 2020

Title: **Microbiology Team Leader**

Page 20 of 26

Certificate o	of Analysis	AI	NALYSED BY					
		UKAS TESTING 1314	ALS	>				
Report Number:	COV/1904555/2020				Issue	1		
Laboratory Number:	19545531				Sample	4	of 5	
Sample Source: Sample Point Description:	ALS Life Sciences Limite	d						
Sample Description:	22584559 GW01							
Sample Matrix:	Ground Water							
Sample Date/Time:	30 July 2020							
Sample Received: Analysis Complete:	01 August 2020 08 August 2020							
SDG:	200731-86							
Sample Reference:	GW01							
Test Des	scription	Result	Units	Analysis Date	Accreditat	ion	Metho	bd
Total Coliform presump		>100	cfu/100ml	02/08/2020	Y Co	v	W10	l.
Total Coliforms confirmed		>100	cfu/100ml	02/08/2020	Y Co	v	W10	Ê

Analyst Comments for 19545531:

This sample has been analysed for Total Coliforms confirmed, Total Coliform presump outside recommended stability times. It is therefore possible that the results provided may be compromised. Confirmation process not been carried out for coliforms due to nature of the sample.

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.

spaige Signed: /

B. Paige Name:

Date: 08 August 2020

Title: **Microbiology Team Leader**

Certificate o	of Analysis	A	NALYSED BY	ſ		
		UKAS IESTING 1314	ALS			
Report Number:	COV/1904555/2020				Issue 1	
Laboratory Number:	19545532				Sample 5	of 5
Sample Source: Sample Point Description:	ALS Life Sciences Limit	ed				
Sample Description:	22584565 GW02					
Sample Matrix:	Ground Water					
Sample Date/Time:	30 July 2020					
Sample Received: Analysis Complete:	01 August 2020 08 August 2020					
SDG:	200731-86					
Sample Reference:	GW02					
Test Des	scription	Result	Units	Analysis Date	Accreditation	n Method
aecal coliforms confirmed		620	cfu/100ml	08/08/2020	N Cov	W57

Analyst Comments for 19545532:

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: / Spaige

B. Paige Name:

Date: 08 August 2020

Title: **Microbiology Team Leader**



ANALYST COMMENTS FOR REPORT COV/1904555/2020

Issue 1

This issue replaces all previous issues

Date of Issue: 08 August 2020

Sample No	Analysis Comments
19545528	This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that th results provided may be compromised.
19545529	This sample has been analysed for Total Coliforms confirmed, Total Coliform presump outside recommended stability times. It is therefore possible that the results provided may be compromised. Confirmation process not been carried out for coliforms due to nature of the sample.
19545530	This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that th results provided may be compromised.
19545531	This sample has been analysed for Total Coliforms confirmed, Total Coliform presump outside recommended stability times. It is therefore possible that the results provided may be compromised. Confirmation process not been carried out for coliforms due to nature of the sample.
19545532	This sample has been analysed for Faecal coliforms confirmed outside recommended stability times. It is therefore possible that th results provided may be compromised.

Signed:

/spaige

Name: B. Paige

Date: 08 August 2020

Title: Microbiology Team Leader



DETERMINAND COMMENTS FOR REPORT COV/1904555/2020

Date of Issue: 08 August 2020

Sample No	Description	Determinand	Com	iments						
19545529	22584568 BH1	Total Coliform presump	Confirmation process not been carried out for coliforms due to nature of the sample							
19545531	22584559 GW01	Total Coliform presump	Confi	rmation process not been	carried out for coliform	is due to nature of the sample.				
Signed:	Bepaige		Name: Fitle:	B. Paige Microbiology Te		08 August 2020				

Page Intentionally Left Blank

SDG:	200731-86	Client Reference:	Galway Historic Landfills	Report Number:	564885
Location:	Gort Landfill	Order Number:	Z2189	Superseded Report:	562437
/					



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 will be 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).

Asbe stos Type	Common Name
Chrysof le	White Asbestos
Amosite	Brow n Asbestos
Cro d dolite	Blue Asbe stos
Fibrous Act nolite	-
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

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

CERTIFICATE OF ANALYSIS

Date of report Generation: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 03 September 2020 Fehily Timoney 200826-91 Galway Historic Landfills Gort Landfill 565822

This report has been revised and directly supersedes 565524 in its entirety.

We received 3 samples on Wednesday August 26, 2020 and 3 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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.5 Version Issued: 03/09/2020

				OF ANALYSIS			Validated
	SDG: Location:	200826-91 Gort Landfill	Client Reference: Order Number:	Galway Historic Landfills Z2189	Report Number: Superseded Report:	565822 565524	
(ALS)	Location.	Gont Lanumi	Order Number.	22109	Superseued Report.	303324	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22723066	BH1		0.00 - 0.00	25/08/2020
22723048	GW01		0.00 - 0.00	25/08/2020
22723058	GW02		0.00 - 0.00	25/08/2020

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

		с	ERT	IFIC	CATI	E OI	FA	NAL	_YS	IS							[Validated
SDG: Location:	200826-91 Gort Landfill			nt Ref er Nui			Galv Z21		istorio	c Land	lfills			Numb ded Re		5	56582 5655	
Results Legend																		
X Test	Lab Sample N	lo(s)					22723066					22723048					22723058	
No Determination							066					048					058	
Possible																		
Sample Types -	Custome Sample Refer						BH1					GW01					GW02	
S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate	AGS Refere	nce																
PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	Depth (m)					0.00 - 0.00					0.00 - 0.00					0.00 - 0.00	
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Containe	r	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	
	Sample Ty	ре	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 3	x		-			x					X				-	
Alkalinity as CaCO3	All	NDPs: 0 Tests: 3		X					X					X				
Ammonium Low	All	NDPs: 0 Tests: 3			X					x					X			
Anions by Kone (w)	All	NDPs: 0 Tests: 3		x					X					x				
BOD True Total	All	NDPs: 0 Tests: 3	_	x					х					x				
COD Unfiltered	All	NDPs: 0 Tests: 3		x					Х					X				
Coliforms (W)	All	NDPs: 0 Tests: 3	-	x					х					X				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 3		X					X					X				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 3				X					X					X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3		X					X					X				
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 1		X														
Fluoride	All	NDPs: 0 Tests: 3		X					X					X				
Mercury Dissolved	All	NDPs: 0 Tests: 3		x					Х					x				
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 3	x					x					X					
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 3	x					x					x					

		С	ERT	IFIC	CATE	E OI	F A	NAL	.YSI	S								Validated	
SDG: Location:	200826-91 Gort Landfill			nt Ref er Nur		e:	Galv Z218		istoric	: Land	dfills			Numb ded Re		1	565822 56552		
Results Legend X Test N No Determination Possible	Lab Sample I	No(s)					22723066					22723048					22723058		
Sample Types -	Custome Sample Refei						BH1					GW01					GW02		
S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate BL Prepared Leachate	AGS Refere	nce																	
PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	- Saline Water Depth (m) - Trade Effluent Depth (m) - Treated Sewage						0.00 - 0.00					0.00 - 0.00					0.00 - 0.00		
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Containe	r	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)		
	Sample Ty	ре	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW		
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 3	x					x					X						
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 3	x					x					x						
pH Value	All	NDPs: 0 Tests: 3		x					x					x					
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 3		x					x					x					
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 3			x					x					x				
VOC MS (W)	All	NDPs: 0 Tests: 3					x					x					x		

ALS

CERTIFICATE OF ANALYSIS

Validated

SDG: 200826-91 **Client Reference:** Galway Historic Landfills Report Number: 565822 Superseded Report: Location: Gort Landfill Order Number: Z2189 565524 Customer Sample R Results Leg ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subc BH1 GW01 GW02 aq diss.filt tot.unfilt 0.00 - 0.00 Depth (m 0.00 - 0.00 0.00 - 0.00 Sample Type Ground Water (GW) Ground Water (GW) Ground Water (GW) . Date Sar 25/08/2020 25/08/2020 25/08/2020 ditation status. overy of the surrogate standard to check the ncy of the method. The results of individual ounds within samples aren't corrected for the Sample Tim 26/08/2020 26/08/2020 26/08/2020 Date Receiv SDG Re 200826-91 200826-91 200826-91 22723066 22723048 22723058 Lab Sample No.(s Trigger breach confirmed Sample deviation (see appendix) breach confin (F) 1-3+§@ AGS Referenc LOD/Units Method Component 345 425 146 Coliforms, Total* MPN/100ml SUB Coliforms, Faecal* CFU/100ml SUB 47 2 21 Alkalinity, Total as HCO3 TM043 1050 382 1180 <2 mg/l BOD, unfiltered <1 mg/l TM045 <1 7 2.45 # # # Oxygen, dissolved <0.3 mg/l TM046 9.71 Organic Carbon, Total <3 mg/l TM090 3.29 <3 3.33 # # ♦ # Ammoniacal Nitrogen as N (low <0.01 mg/l TM099 0.0572 0.0516 0.0745 # level) # # Fluoride <0.5 mg/l TM104 0.972 <0.5 <0.5 # # # COD, unfiltered 135 <7 mg/l TM107 150 25.6 # # # Conductivity @ 20 deg.C <0.02 TM120 0.664 0.699 0.609 # mS/cm # # Arsenic (diss.filt) <0.5 µg/l TM152 0.982 1.6 0.939 2# 2 # 2 # <0.2 µg/l TM152 Barium (diss.filt) 23.2 20 28.9 2# 2 # 2 # 22.9 Boron (diss.filt) <10 µg/l TM152 33.4 174 2# 2 # 2 # Cadmium (diss.filt) <0.08 µg/l TM152 < 0.08 0.0863 <0.08 2# 2 # 2# Chromium (diss.filt) <1 µg/l TM152 <1 <1 <1 2# 2 # 2# Copper (diss.filt) <0.3 µg/l TM152 <0.3 0.895 0.932 2# 2# 2 # Lead (diss.filt) <0.2 µg/l TM152 <0.2 1.01 <0.2 2# 2# 2# TM152 30.3 Manganese (diss.filt) <3 µg/l 15.2 13.8 2 # 2 # 2 # Nickel (diss.filt) TM152 1.39 15 4.78 <0.4 µg/l 2# 2 # 2 # TM152 194 <10 <10 Phosphorus (diss.filt) <10 µg/l 2# 2 # 2 # <1 µg/l TM152 Selenium (diss.filt) 1.4 1.07 <1 2# 2 # 2 # Thallium (diss.filt) TM152 <2 µg/l <2 <2 <2 2# 2 # 2 # Zinc (diss.filt) <1 µg/l TM152 1.03 10.8 2.69 2# 2 # 2 # Sodium (Dis.Filt) <0.076 mg/l TM152 9.23 39.5 9.51 2# 2# 2# <0.036 mg/l TM152 7.72 15.4 8.09 Magnesium (Dis.Filt) 2# 2 # 2# Potassium (Dis.Filt) <0.2 mg/l TM152 1.77 4.38 1.94 2# 2 # 2# Calcium (Dis.Filt) 102 <0.2 mg/l TM152 129 128 2# 2 # 2# Iron (Dis.Filt) TM152 < 0.019 0.0433 <0.019 <0.019 mg/l 2# 2 # 2 # Mercury (diss.filt) <0.01 µg/l TM183 < 0.01 < 0.01 <0.01 2 # 2 # 2 # TM184 31.2 13.5 Sulphate <2 mg/l 8.1 # # # Chloride <2 mg/l TM184 21.4 58.6 19.4 ŧ Total Oxidised Nitrogen as N <0.1 mg/l TM184 1.78 1.76 1.92

<0.015 µg/l

TM197

PCB congener 28

< 0.015

< 0.015

#

< 0.015



Image: Second							 	
Bar stratement Lower all bar stratement			Customer Sample Ref.	BH1	GW01	GW02		
Image of the second s	aq Aqueous / settled sample.							
Normal Section Normal	tot.unfilt Total / unfiltered sample.							
Normal Normal<	* Subcontracted - refer to subcontractor repo	rt for						
And the set of th	** % recovery of the surrogate standard to che	eck the						
AlternationAlternationProcessProce	compounds within samples aren't corrected							
banageUnityVertorVVV	(F) Trigger breach confirmed		Lab Sample No.(s)	22723066	22723048	22723058		
Relaxemention Number of the set of th		LOD/Unite						
RCR compare 100 0.015 µJ TMT7 0.016 0.015 µJ 0.016 </td <td>G.</td> <td></td> <td></td> <td><0.015</td> <td><0.015</td> <td><0.015</td> <td></td> <td></td>	G.			<0.015	<0.015	<0.015		
Non-service ParticularNon-service ParticularNon-service ParticularNon-service 		0.010 µg,		01010	0.010	01010		
Non-service Particular	PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
RCR congener 13 Coll 5 and 5 0 0 15 and 5 0	Ŭ	10						
Reserversion Addity Multi Addits Addits< Addits< Addits< Addits< <t< td=""><td>PCB congener 118</td><td><0.015 µg/l</td><td>TM197</td><td><0.015</td><td><0.015</td><td><0.015</td><td></td><td></td></t<>	PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
No. No. <td>, , , , , , , , , , , , , , , , , , ,</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	, , , , , , , , , , , , , , , , , , ,							
PER congrent 18 0.015 µ TMM 7 0.415 0.4015 0.015 µ 0.016 µ 0.016 µ Sim of decende ECP DB's 0.015 µ TMM 7 0.4165 0.015 µ 0.016 µ	PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PER congrent 18 0.015 µ TMM 7 0.415 0.4015 0.015 µ 0.016 µ 0.016 µ Sim of decende ECP DB's 0.015 µ TMM 7 0.4165 0.015 µ 0.016 µ								
same of detected ECP PCB's 4.0 Sky M TM49 -4.0 Sky M -4.0 Sky M <t< td=""><td>PCB congener 153</td><td><0.015 µg/l</td><td>TM197</td><td><0.015</td><td><0.015</td><td><0.015</td><td></td><td></td></t<>	PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
same of detected ECP PCB's 4.0 Sky M TM49 -4.0 Sky M -4.0 Sky M <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td> </td><td></td></t<>							 	
constraint<	PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
constraint<								
r r <td>Sum of detected EC7 PCB's</td> <td><0.105 µg/l</td> <td>TM197</td> <td><0.105</td> <td><0.105</td> <td><0.105</td> <td></td> <td></td>	Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105		
r r <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
H 10058 7.24 7.34 7.39 7.39 7.39 7.39 7.30 <th7.30< th=""> 7.30 7.30 <t< td=""><td>Cyanide, Total</td><td><0.05 mg/l</td><td>TM227</td><td></td><td></td><td></td><td></td><td></td></t<></th7.30<>	Cyanide, Total	<0.05 mg/l	TM227					
Induce InformationInterval A 0011p0The set This set A 0011p0The set A							 	
Influention Q01 µp1 TM343 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	рН	<1 pH Units	TM256					
approx -0.01 µg1 TM843 -0.01	Trifficerellin	.0.04 "	Th 10.10					
International Control	i rifiuralin	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
International Control	alpha_HCH	<0.01	TM242	~0.01	~0.01	~0.01	 	
Heigradiur -0.01 µg/l TM43 -0.01		~0.01 µg/l	1101040	NU.U I	NU.U I	NU.U I		
Heigradiur -0.01 µg/l TM43 -0.01	gamma_HCH (Lindane)	<0.01 µg/l	TM3//3	<0.01	<0.01	<0.01		
Addin ADD 1 µg1 TM343 ADD 1	gamma-rior (Lindane)	<0.01 μg/i	110040	-0.01	-0.01	-0.01		
Addin ADD 1 µg1 TM343 ADD 1	Hentachlor	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Letter Letter<	rioptacilier	10.01 µg/i	111010	0.01		-0.01		
Letter Letter<	Aldrin	<0.01 µa/l	TM343	<0.01	<0.01	<0.01		
Level Level <t< td=""><td></td><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>		10						
And Control And Contro And Control	beta-HCH	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
And Control And Contro And Control								
Heptachlor epoxide COL 1 µg1 TM343 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	Isodrin	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Heptachlor epoxide COL 1 µg1 TM343 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01							 	
op-DDE <	delta-HCH	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
op-DDE <								
Image: Constraint of the second sec	Heptachlor epoxide	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Image: Constraint of the second sec								
Image: Chiordane Image: Chiordane<	o,p'-DDE	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Image: Chiordane Image: Chiordane<		.0.04 //	T1040	-0.04	.0.04	-0.04		
Image: Constraint of the state of	Endosulphan I	<0.01 µg/i	TM343	<0.01	<0.01	<0.01		
Image: Constraint of the state of	trans Chlordano	<0.01.ug/	TM3/3	<0.01	<0.01	<0.01		
np-DE 0.001 µg1 TM343 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	uans-oniorudile	~0.01 µg/l	1101040	NU.U I	NU.U I	NU.U I		
np-DE 0.001 µg1 TM343 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01	cis-Chlordane	<0.01.00//	TM3//3	<0.01	<0.01	<0.01		
Lend Lend <th< td=""><td></td><td>\$0.01 µg/l</td><td></td><td>NU.U I</td><td>10.07</td><td>10.01</td><td></td><td></td></th<>		\$0.01 µg/l		NU.U I	10.07	10.01		
Lend Lend <th< td=""><td>p,p'-DDE</td><td><0.01 µa/l</td><td>TM343</td><td><0.01</td><td><0.01</td><td><0.01</td><td></td><td></td></th<>	p,p'-DDE	<0.01 µa/l	TM343	<0.01	<0.01	<0.01		
L L <thl< th=""> L <thl< th=""> <thl< th=""></thl<></thl<></thl<>	1.9							
L L <thl< th=""> L <thl< th=""> <thl< th=""></thl<></thl<></thl<>	Dieldrin	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Image: Constraint of the state of							 	
Image: Constraint of the state of	o,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Image: Construction								
Image: Constraint of the state of	Endrin	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Image: Constraint of the state of							 	
Endosulphan II <0.02 µg/I TM343 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <td>o,p'-DDT</td> <td><0.01 µg/l</td> <td>TM343</td> <td><0.01</td> <td><0.01</td> <td><0.01</td> <td></td> <td></td>	o,p'-DDT	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Endosulphan II <0.02 µg/I TM343 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <0.01 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Image: Section of the sectio	p,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
Image: Section of the sectio							 	
Image: space	Endosulphan II	<0.02 µg/l	TM343	<0.02	<0.02	<0.02		
Image: space		.0.04 "	Th 10.10	.0.04	.0.04	.0.04		
μ k	ו טע- p,p	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
μ k	o n'-Methoxychlor	<0.01	TM242	~0.01	~0.01	~0.01	 	
Endosulphan Sulphate <0.02 μg/l TM343 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02	o,p-wethoxychiol	~0.01 µg/l	1101040	NU.U I	NU.U I	NU.U I		
Endosulphan Sulphate <0.02 μg/l TM343 <0.02 <0.02 <0.02 <0.02 <0.02	n n'-Methoxychlor	<0.01.00//	TM3//3	<0.01	<0.01	<0.01		
	hih monoviouni	\$0.01 µg/l		NU.U I	10.07	10.01		
	Endosulphan Sulphate	<0.02 un/l	TM343	<0.02	<0.02	<0.02	 	
		5.02 pg/1		0.02	0.02	0.02		
5112728 (13/09/2012)	15:12:28 03/09/2020							



	Results Legend		Customer Sample Ref.	BH1	GW01	GW02		
# M aq diss.filt tot.unfilt *	ISO17025 accredited. mcERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report f accreditation status. % recovery of the surrogate standard to check efficiency of the method. The results of individu compounds within samples aren't corrected fo	or the ual	Depth (m) Sample Type Date Sampled Sample Time Date Received	0.00 - 0.00 Ground Water (GW) 25/08/2020 26/08/2020	0.00 - 0.00 Ground Water (GW) 25/08/2020 26/08/2020	0.00 - 0.00 Ground Water (GW) 25/08/2020 26/08/2020		
(F)	recovery Trigger breach confirmed	r the	SDG Ref Lab Sample No.(s)	200826-91 22723066	200826-91 22723048	200826-91 22723058		
1-3 + §@	Sample deviation (see appendix)		AGS Reference					
Compo Permet		COD/Units <0.01 μg/l	Method TM343	<0.01	<0.01	<0.01		
Permet	hrin II	<0.01 µg/l	TM343	<0.01	<0.01	<0.01		
1,3,5-T	richlorobenzene	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Hexach	lorobutadiene	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
1,2,4-T	richlorobenzene	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
1,2,3-T	richlorobenzene	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Dichlor	/0S	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Dichlob	enil	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Mevinp	hos	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Tecnaz	ene	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Hexach	lorobenzene	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Demeto	on-S-methyl	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Phorate)	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Diazino	n	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Triallate)	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Atrazin	9	<0.01 µg/l	TM344	<0.02	0.0233	0.0125		
Simaziı	ne	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Disulfo	on	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Propeta	amphos	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Chlorpy	rriphos-methyl	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Dimeth	oate	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Pirimip	nos-methyl	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Chlorpy	rriphos	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Methyl	Parathion	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Malathi	on	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Fenthic	n	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Fenitro	hion	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Triadim	efon	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Pendim	ethalin	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Parathi	on	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Chlorfe	nvinphos	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
trans-C	hlordane	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
cis-Chl	ordane	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
15.12.2	28 03/09/2020						1	



Results Legend		unterner Comula Dat					
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settied sample. diss.fit: Dissolved / filtered sample. tot.unfit: Total / unfiltered sample. * Subcontracted - refer to subcontractor report !		customer Sample Ref. Depth (m) Sample Type Date Sampled	BH1 0.00 - 0.00 Ground Water (GW) 25/08/2020	GW01 0.00 - 0.00 Ground Water (GW) 25/08/2020	GW02 0.00 - 0.00 Ground Water (GW) 25/08/2020		
accreditation status. ** % recovery of the surrogate standard to check efficiency of the method. The results of individ	lual	Sample Time Date Received	. 26/08/2020	26/08/2020	26/08/2020		
compounds within samples aren't corrected for recovery (F) Trigger breach confirmed 1-9+§@ Sample deviation (see appendix)		SDG Ref Lab Sample No.(s) AGS Reference	200826-91 22723066	200826-91 22723048	200826-91 22723058		
Component Ethion	LOD/Units <0.01 μg/l	Method TM344	<0.02	<0.01	<0.01		
Carbophenothion	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Triazophos	<0.01 µg/l	TM344	<0.02	<0.01	<0.01		
Phosalone	<0.01 µg/l	TM344	<0.04	<0.01	<0.01		
Azinphos methyl	<0.02 µg/l	TM344	<0.12	<0.04	<0.04		
Azinphos ethyl	<0.02 µg/l	TM344	<0.08	<0.02	<0.02		
Etridiazole	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Pentachlorobenzene	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Propachlor	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Quintozene (PCNB)	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Omethoate	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Propazine	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Propyzamide	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Alachlor	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Prometryn	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Telodrin	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Terbutryn	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Chlorothalonil	<0.01 µg/l	TM345	<0.02	<0.02	<0.02		
Etrimphos	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Metazachlor	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Cyanazine	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Trietazine	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Coumaphos	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Phosphamidon I	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Phosphamidon II	<0.01 µg/l	TM345	<0.01	<0.01	<0.01		
Dinitro-o-cresol	<0.1 µg/l	TM411	<0.1	<0.2	0.283		
Clopyralid	<0.04 µg/l	TM411	<0.04	<0.08	<0.04		
МСРА	<0.05 µg/l	TM411	<0.05	<0.1	<0.05		
Месоргор	<0.04 µg/l	TM411	<0.08	<0.08	<0.04		
Dicamba	<0.04 µg/l	TM411	<0.08	<0.08	<0.04		
МСРВ	<0.05 µg/l	TM411	<0.1	<0.1	<0.05		
2,4-DB	<0.1 µg/l	TM411	<0.2	<0.2	<0.1		
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411	<0.05	<0.1	<0.05		
15 10 00 00/00/0000							



	Described around							
# M aq	Results Legend ISO17025 accredited. mCERTS accredited. Aqueous / settled sample.		Customer Sample Ref.	BH1	GW01	GW02		
diss.filt tot.unfilt *	Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report f	for	Depth (m) Sample Type	0.00 - 0.00 Ground Water (GW)	0.00 - 0.00 Ground Water (GW)	0.00 - 0.00 Ground Water (GW)		
	accreditation status. % recovery of the surrogate standard to check	the	Date Sampled Sample Time	25/08/2020	25/08/2020	25/08/2020		
	efficiency of the method. The results of individ compounds within samples aren't corrected fo recovery		Date Received SDG Ref	26/08/2020 200826-91	26/08/2020 200826-91	26/08/2020 200826-91		
(F) 1-3+§@	Trigger breach confirmed Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22723066	22723048	22723058		
Compo		LOD/Units	Method	-0.4	.0.0	.0.4	 	
Dichlorp		<0.1 µg/l	TM411	<0.1	<0.2	<0.1		
Triclopy		<0.05 µg/l		<0.05	<0.1	<0.05		
Fenopro	op (Silvex)	<0.1 µg/l	TM411	<0.1	<0.2	<0.1		
2,4-Dicł	llorophenoxyacetic acid	<0.05 µg/l	TM411	<0.05	<0.1	<0.05		
2,4,5-Tr acid	ichlorophenoxyacetic	<0.05 µg/l	TM411	<0.1	<0.1	<0.1		
Bromox	ynil	<0.04 µg/l	TM411	<0.04	<0.08	<0.04		
Benazo	in	<0.04 µg/l	TM411	<0.08	<0.08	<0.04		
loxynil		<0.05 µg/l	TM411	<0.05	<0.1	<0.05		
Pentach	lorophenol	<0.04 µg/l	TM411	<0.08	<0.08	<0.04		
Fluorox	/руг	<0.1 µg/l	TM411	<0.2	<0.2	<0.1		
	8 03/09/2020				<u> </u>	ļ		

ALS

CERTIFICATE OF ANALYSIS

	000		000000.04	0	4 D-f	0-	hungu I lintania I an dfill	a David Maria ha	
	SDG: Location:		200826-91 Gort Landfill		t Reference: r Number:		lway Historic Landfill 189	s Report Number Superseded Repo	
				0.00					
SVOCI	MS (W) - Aqueous Results Legend		Customer Sample Ref.	BH1	GW01		GW02		
M m	SO17025 accredited. CERTS accredited.			biii	Giller		01102		
diss.filt D	queous / settled sample. issolved / filtered sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00		0.00 - 0.00		
	otal / unfiltered sample. ubcontracted - refer to subcontractor report	for	Sample Type	Ground Water (GW)	Ground Water (GW))	Ground Water (GW)		
	ccreditation status. recovery of the surrogate standard to check	< the	Date Sampled Sample Time	25/08/2020	25/08/2020		25/08/2020		
	fficiency of the method. The results of individ ompounds within samples aren't corrected for		Date Received	26/08/2020 200826-91	26/08/2020 200826-91		26/08/2020 200826-91		
re	ecovery rigger breach confirmed		SDG Ref Lab Sample No.(s)	200826-91	200826-91		200826-91		
1-3 + §@ S	ample deviation (see appendix)		AGS Reference						
Compone 1 2 4-Tricl	ent hlorobenzene (aq)	LOD/Units <1 µg/l	Method TM176	<10	<1		<10		
1,2,4-1110	noroberizerie (aq)	< µg/i	TIWIT70	<10 #		#	-10		
1,2-Dichlo	robenzene (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
1,3-Dichlo	probenzene (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
1,4-Dichlo	orobenzene (aq)	<1 µg/l	TM176	<10	<1		<10		
2.4.5 Triol	hlorophenol (aq)	<1 µg/l	TM176	# <10	<1	#	# <10		
2,4,5-1110	niorophenoi (aq)	<1µg/i	TIVITIO	<10 #		#	<10 #		
2,4,6-Tricl	hlorophenol (aq)	<1 µg/l	TM176	<10	<1		<10		
		10		#		#	#		
2,4-Dichlo	prophenol (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
2,4-Dimet	hylphenol (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
2,4-Dinitro	otoluene (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #		
2.6-Dinitro	otoluene (aq)	<1 µg/l	TM176	# <10	<1	#	# <10		
2,0-Dimit	toldelle (aq)	<1µg/i	TIVIT70	<10 #		#	<10 #		
2-Chloron	aphthalene (aq)	<1 µg/l	TM176	<10	<1		<10		
		10		#		#	#		
2-Chlorop	henol (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
2-Methyln	aphthalene (aq)	<1 µg/l	TM176	<10	<1		<10		
0.14.11.1		.4 //	TN 470	#		#	#		
2-Methylp	henol (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #		
2-Nitroani	line (ag)	<1 µg/l	TM176	<10	<1	#	# <10		
2 milloum		1 µg/1		#		#	#		
2-Nitrophe	enol (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
3-Nitroani	line (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
4-Bromop	henylphenylether (aq)	<1 µg/l	TM176	<10	<1	ш	<10		
4 Chlore (2 methylphonal (ag)	<1	TM176	# <10	<1	#	# <10		
4-Chioro-3	3-methylphenol (aq)	<1 µg/l	1111/0	<10 #	N	#	<10 #		
4-Chloroa	niline (aq)	<1 µg/l	TM176	<10	<1	"	<10		
	- (- 1)	P Sr					-		
4-Chlorop	henylphenylether (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
4-Methylp	henol (aq)	<1 µg/l	TM176	<10	<1		<10		
				#		#	#		
4-Nitroani	line (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #		
4-Nitrophe	enol (ag)	<1 µg/l	TM176	# <10	<1	#	# <10		
	5.10r (uq)	~ i µ9/i	111170	VIV			עור		
Azobenze	ne (aq)	<1 µg/l	TM176	<10	<1	\neg	<10		
				#		#	#		
Acenapht	hylene (aq)	<1 µg/l	TM176	<10	<1		<10		
<u> </u>				#		#	#		
Acenapht	hene (aq)	<1 µg/l	TM176	<10	<1	"	<10		
Anthroas	00 (20)	~1//	TM176	# <10	<1	#	# <10		
Anthracer	ie (ay)	<1 µg/l	0 / 1 / 1	<10 #		#	<10 #		
bis(2-Chlo	proethyl)ether (aq)	<1 µg/l	TM176	<10	<1	<i>π</i> ′	# <10		
		. 49,,		#		#	#		
bis(2-Chlo	proethoxy)methane	<1 µg/l	TM176	<10	<1		<10		
(aq)				#		#	#		
bis(2-Ethy	lhexyl) phthalate (aq)	<2 µg/l	TM176	<20	<2		<20		
D	1 10 7 7 7 5			#		#	#		
Butylbenz	yl phthalate (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #		
Benzo/a)a	anthracene (aq)	<1 µg/l	TM176	# <10	<1	#	# <10		
100120(a)	antinuoono (ay)	~ i µ9/i	111170	<10 #		#	<10 #		
I				#	-		π		

ALS

CERTIFICATE OF ANALYSIS

SDG:		200826-91	Clien	IFICATE O	Ga	way Historic Land		565822	
		Gort Landfill	Orde	r Number:	Z21	89	Superseded Report:	565524	
SVOC MS (W) - Aqueou		ustomer Sample Ref.	BH1	GW01		GW02			
ISO17023 accredited. M mCERTS accredited. Aqueous / settled sample. diss.filt Dissolved filtered sample. totumfit Total unfiltered sample. Subcontracted - refer to subcontractor report accreditation status. % recovery of the surrogate standard to che efficiency of the method. The results of induit compounds within samples aren't corrected	ck the vidual	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref	0.00 - 0.00 Ground Water (GW) 25/08/2020 26/08/2020 200826-91	0.00 - 0.00 Ground Water (GW) 25/08/2020 		0.00 - 0.00 Ground Water (GW) 25/08/2020 26/08/2020 200826-91			
recovery (F) Trigger breach confirmed 1-3ቀ§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22723066	22723048		22723058			
Component Benzo(b)fluoranthene (aq)	LOD/Units <1 µg/l	Method TM176	<10	<1	_	<10			
			#		#	#			
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
Carbazole (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
Chrysene (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
Dibenzofuran (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
Diethyl phthalate (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<10	<1		<10			
Dimethyl phthalate (aq)	<1 µg/l	TM176	/////////////////////////////////////	<1	#	 # <10			
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	# <50	<5	#				
Fluoranthene (aq)	<1 µg/l	TM176	# <10	<1	#	# <10			
Fluorene (aq)	<1 µg/l	TM176	# <10	<1	#	# <10			
Hexachlorobenzene (aq)	<1 µg/l	TM176	# <10	<1	#	# <10			
Hexachlorobutadiene (aq)	<1 µg/l	TM176	# <10	<1	#	# <10			
Pentachlorophenol (aq)	<1 µg/l	TM176	# <10	<1	#	# <10			
Phenol (aq)	<1 µg/l	TM176	<10	<1	_	<10			
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<10	<1	_	<10			
Hexachloroethane (aq)	<1 µg/l	TM176	# <10	<1	#	# <10			
Nitrobenzene (aq)	<1 µg/l	TM176	= = = = = = = = = = = = = = = = = = = =	<1	#	# <10			
Naphthalene (aq)	<1 µg/l	TM176	<10 #		#	<10 #			
Isophorone (aq)		TM176	<10 #		#	<10 #			
	<1 µg/l		#		#	#			
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<10	<1		<10			
Phenanthrene (aq)	<1 µg/l	TM176	<10 #	<1	#	<10			
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<10 #		#	<10 #			
Pyrene (aq)	<1 µg/l	TM176	<10 #	<1	#	<10 #			
					_				
15:12:28 02/00/2020									

	SDG: Location:		00826-91 Gort Landfill			Galv Z21	way Historic Lan 89	dfills	Report Number: Superseded Report:	565822 565524	
				0140	Humberr						
#	Results Legend ISO17025 accredited.	C	ustomer Sample Ref.	BH1	GW01		GW02				
aq diss.filt tot.unfilt *	mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report i	for	Depth (m) Sample Type	0.00 - 0.00 Ground Water (GW)	0.00 - 0.00 Ground Water (GW)		0.00 - 0.00 Ground Water (GW)				
*	accreditation status. % recovery of the surrogate standard to check efficiency of the method. The results of individ compounds within samples aren't corrected for	lual	Date Sampled Sample Time Date Received SDG Ref	25/08/2020 26/08/2020 200826-91	25/08/2020 26/08/2020 200826-91		25/08/2020 26/08/2020 200826-91				
(F)	recovery Trigger breach confirmed Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22723066	22723048		22723058				
Compor	nent	LOD/Units	Method								
	fluoromethane**	%	TM208	117	119		116				
Toluene-		%	TM208	98.2	98.7		98.5				
	fluorobenzene**	%	TM208	97.2	97.1		97				
	difluoromethane	<1 µg/l	TM208	<1 #	<1	#	<1	#			
Chlorom		<1 µg/l	TM208	<1 #	<1	#	<1	#			
Vinyl chl		<1 µg/l	TM208	<1 #		#		#			
Bromom		<1 µg/l	TM208 TM208	<1 # <1	<1 <1	#	<1	#			
Chloroet	nane	<1 µg/l	TM208	<1 # <1	<1	#	<1	#			
	loroethene	<1 µg/l	TM208	<1 # <1	<1	#	<1	#			
,	disulphide	<1 µg/l	TM208	<1 #	<1	#	<1	#			
	methane	<1 µg/l	TM208	<1 #	<3	#	<3	#			
	ertiary butyl ether	<1 µg/l	TM200	<1 <3	<1	#	<1	#			
(MTBE)	2-Dichloroethene	<1 µg/l	TM208	=======================================	<1	#	<1	#			
	loroethane	<1 µg/l	TM208	# <1	<1	#	<1	#			
	Dichloroethene	<1 µg/l	TM208	#	<1	#	<1	#			
2,2-Dich	loropropane	<1 µg/l	TM208	#	<1	#	<1	#			
Bromoch	nloromethane	<1 µg/l	TM208	<1	<1	+	<1	+			
Chlorofo	rm	<1 µg/l	TM208	#	<1	#	<1	#			
1,1,1-Tri	chloroethane	<1 µg/l	TM208	# <1	<1	#	<1	#			
1,1-Dich	loropropene	<1 µg/l	TM208	# <1	<1	#	<1	#			
Carbonte	etrachloride	<1 µg/l	TM208	# <1	<1	#	<1	#			
1,2-Dich	loroethane	<1 µg/l	TM208	# <1	<1	#	<1	#			
Benzene)	<1 µg/l	TM208	# <1	<1	#	<1	#			
Trichloro	pethene	<1 µg/l	TM208	# <1 #	<1	#	<1	#			
1,2-Dich	loropropane	<1 µg/l	TM208	# <1 #	<1	#	<1	#			
Dibromo	omethane	<1 µg/l	TM208	# <1 #	<1	#	<1	#			
Bromodi	chloromethane	<1 µg/l	TM208	* <1 #	<1	#	<1	#			
cis-1,3-D	Dichloropropene	<1 µg/l	TM208	* <1 #	<1	#	<1	#			
Toluene		<1 µg/l	TM208	* <1 #	<1	#	<1	#			
trans-1,3	3-Dichloropropene	<1 µg/l	TM208		<1	#	<1	#			
1,1,2-Tri	chloroethane	<1 µg/l	TM208		<1	#	<1	#			
	loropropane	<1 µg/l	TM208	<1	<1		<1				

CERTIFICATE OF ANALYSIS

Validated

SDG: Location:		200826-91 Gort Landfill			alway Historic Landfills 189	Report Number: Superseded Report:	565822 565524
VOC MS (W)							
Results Legend # ISO17025 accredited.	с	ustomer Sample Ref.	BH1	GW01	GW02		
M mCERTS accredited. aq Aqueous / settled sample. disfit Di Soloved / littered sample. tot.unfit Total / unfiltered sample. * Subcontracted - refer to subcontractor repo accreditation status. * % recovery of the surrogate standard to che efficiency of the method. The results of into.	ack the	Depth (m) Sample Type Date Sampled Sample Time Date Received	0.00 - 0.00 Ground Water (GW) 25/08/2020 - 26/08/2020	0.00 - 0.00 Ground Water (GW) 25/08/2020 26/08/2020	0.00 - 0.00 Ground Water (GW) 25/08/2020 		
compounds within samples aren't corrected recovery		SDG Ref	200826-91 22723066	200826-91 22723048	200826-91 22723058		
(F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22723000	22123040	22123030		
Component Tetrachloroethene	LOD/Units <1 µg/l	Method TM208	<1	<1	<1		
Dibromochloromethane	<1 µg/l	TM208	#	# <1	# <1		
			#	#	#		
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Chlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #		
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1 #	<1 #	<1 #		
Ethylbenzene	<1 µg/l	TM208	<1 #	 <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	<1		
Bromoform	<1 µg/l	TM208	# <1 #	# <1 #	<1		
Isopropylbenzene	<1 µg/l	TM208	# <1 #	# <1 #	<1		
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	# <1 #	# <1 #	<1		
1,2,3-Trichloropropane	<1 µg/l	TM208	# <1	# <1	<1		
Bromobenzene	<1 µg/l	TM208	# <1	# <1	<1		
Propylbenzene	<1 µg/l	TM208	# <1	# <1	<1		
2-Chlorotoluene	<1 µg/l	TM208	# <1	# <1	<1		
1,3,5-Trimethylbenzene	<1 µg/l	TM208	# <1	# <1	<1		
4-Chlorotoluene	<1 µg/l	TM208	# <1	# <1	<1		
tert-Butylbenzene	<1 µg/l	TM208	# <1	# <1	<1		
1,2,4-Trimethylbenzene	<1 µg/l	TM208	# <1	# <1	<1		
sec-Butylbenzene	<1 µg/l	TM208	# <1	# <1	# <1		
4-iso-Propyltoluene	<1 µg/l	TM208	# <1	# <1	# <1		
1,3-Dichlorobenzene	<1 µg/l	TM208	# <1	# <1	# <1		
1,4-Dichlorobenzene	<1 µg/l	TM208	#	# <1	1		
n-Butylbenzene	<1 µg/l	TM208	# <1	<1	1		
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1	1		
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	- # <1	<1	1		
1,2,4-Trichlorobenzene	<1 µg/l	TM200	<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 #	#	#		
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	<1		

15:12:28 03/09/2020



SDG:

Location:

CERTIFICATE OF ANALYSIS
Client Reference: Galway Historic Landfills
Order Number: Z2189

dfills Report Number: Superseded Report: 565822 565524 Validated

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 Client Reference: Galway Historic Landfills Z2189

Report Number: Superseded Report:

Validated

565822 565524

ALS Location		ort Landfill		Client Referenc
(ALS) Location	on: G			Order Number:
			Tes	t Comp
Lab	Sample No(s)	22723066	22723048	22723058
	r Sample Ref.	BH1	GW01	GW02
	AGS Ref.			
	Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
	Туре	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS		03-Sep-2020	03-Sep-2020	03-Sep-2020
Alkalinity as CaCO3		29-Aug-2020	29-Aug-2020	29-Aug-2020
Ammonium Low		03-Sep-2020	03-Sep-2020	03-Sep-2020
Anions by Kone (w)		31-Aug-2020	31-Aug-2020	31-Aug-2020
BOD True Total		01-Sep-2020	01-Sep-2020	01-Sep-2020
COD Unfiltered		28-Aug-2020	28-Aug-2020	30-Aug-2020
Coliforms (W)		02-Sep-2020	02-Sep-2020	02-Sep-2020
Conductivity (at 20 deg.C)		27-Aug-2020	27-Aug-2020	27-Aug-2020
Cyanide Comp/Free/Total/Thiocyanate	e	03-Sep-2020	03-Sep-2020	03-Sep-2020
Dissolved Metals by ICP-MS		02-Sep-2020	02-Sep-2020	02-Sep-2020
Dissolved Oxygen by Probe		28-Aug-2020		
Fluoride		01-Sep-2020	01-Sep-2020	28-Aug-2020
Mercury Dissolved		03-Sep-2020	03-Sep-2020	03-Sep-2020
PCB Congeners - Aqueous (W)		03-Sep-2020	03-Sep-2020	03-Sep-2020
Pesticides (Suite I) by GCMS		01-Sep-2020	01-Sep-2020	01-Sep-2020
Pesticides (Suite II) by GCMS		01-Sep-2020	01-Sep-2020	01-Sep-2020
Pesticides (Suite III) by GCMS		01-Sep-2020	01-Sep-2020	01-Sep-2020
pH Value		27-Aug-2020	27-Aug-2020	27-Aug-2020
SVOC MS (W) - Aqueous		30-Aug-2020	30-Aug-2020	30-Aug-2020
Total Organic and Inorganic Carbon		29-Aug-2020	29-Aug-2020	01-Sep-2020
VOC MS (W)		03-Sep-2020	03-Sep-2020	03-Sep-2020

pletion Dates





Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Customer

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

Certificate Of Analysis

20-82835 Job Number: **Issue Number:** 1 **Report Date:** 1 September 2020

Site: Fehily Timoney ALS GLOBAL PO Number: 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:

Kouise Marrow

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.

Page 1 of 12

Template: 1146 Revision: 018





Report Version: 1

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

Site:	Fehily Timoney		
Sample Description:	GW01 - GORT	Date of Sampling:	26/08/2020
Sample Type:	Ground	Date Sample Received:	27/08/2020
Lab Reference Number	er: 529041		

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	424.5	MPN/100ml	20
D/D3221#	27/08/2020	Faecal Coliforms	2	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

Page 2 of 12





Report Version: 1

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

Site:	Fehily Timoney		
Sample Description:	GW02 - GORT	Date of Sampling:	26/08/2020
Sample Type:	Ground	Date Sample Received:	27/08/2020
Lab Reference Numbe	er: 529042		

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	145.5	MPN/100ml	20
D/D3221#	27/08/2020	Faecal Coliforms	21	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

Page 3 of 12





Report Version: 1

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

Site:	Fehily Timoney		
Sample Description:	BH01 - GORT	Date of Sampling:	26/08/2020
Sample Type:	Ground	Date Sample Received:	27/08/2020
Lab Reference Numbe	er: 529043		

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	344.8	MPN/100ml	2
D/D3221#	27/08/2020	Faecal Coliforms	47	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

Page 4 of 12





Tel: (01) 613 6003 Fax: (01) 613 6008

Report Reference: 20-82835

Report Version: 1

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

Site:	Fehily Timoney		
Sample Description:	GW01 -NEW INN	Date of Sampling:	26/08/2020
Sample Type:	Ground	Date Sample Received:	27/08/2020
Lab Reference Numbe	er: 529044		

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	2.0	MPN/100ml	20
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

Page 5 of 12





Report Version: 1

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

Site:	Fehily Timoney		
Sample Description:	GW02 - NEW INN	Date of Sampling:	26/08/2020
Sample Type:	Ground	Date Sample Received:	27/08/2020
Lab Reference Numbe	er: 529045		

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	488.4	MPN/100ml	20
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. 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

Page 6 of 12





Tel: (01) 613 6003 Fax: (01) 613 6008

Report Reference: 20-82835

Report Version: 1

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

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 Numbe	er: 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	20
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

Page 7 of 12





Tel: (01) 613 6003 Fax: (01) 613 6008

Report Reference: 20-82835

Report Version: 1

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

Site:	Fehily Timoney		
Sample Description:	BH4 -NEW INN	Date of Sampling:	26/08/2020
Sample Type:	Ground	Date Sample Received:	27/08/2020
Lab Reference Numbe	er: 529047		

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	< 1.0	MPN/100ml	20
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

Page 8 of 12





Tel: (01) 613 6003 Fax: (01) 613 6008

Report Reference: 20-82835

Report Version: 1

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer

Customer Services

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

Fehily Timoney Site: RC2 - TUAM Date of Sampling: Sample Description: Sample Type: Ground **Date Sample Received:** Lab Reference Number: 529048

27/08/2020 27/08/2020

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	817.0	MPN/100ml	20
D/D3221#	27/08/2020	Faecal Coliforms	9	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

Page 9 of 12





Tel: (01) 613 6003 Fax: (01) 613 6008

Report Reference: 20-82835

Report Version: 1

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

Fehily Timoney Site: Sample Description: RC3- TUAM Sample Type: Ground Lab Reference Number: 529049

Date of Sampling:	27/08/2020
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	52000.0	MPN/100ml	200
D/D3221#	27/08/2020	Faecal Coliforms	2	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

Page 10 of 12





Tel: (01) 613 6003 Fax: (01) 613 6008

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Report Reference: 20-82835 **Report Version:** 1

UK CH5 3US	-		
Site:	Fehily Timoney		
Sample Description:	3AP-TUAM	Date of Sampling:	27/08/2020
Sample Type:	Ground	Date Sample Received:	27/08/2020

Lab Reference Number: 529050

Customer

Manor Lane

Customer Services

ALS Life Sciences

Hawarden, Deeside

Hawarden Business Park

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	17329.0	MPN/100ml	20
D/D3221#	27/08/2020	Faecal Coliforms	740	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

Page 11 of 12





Report Version: 1

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis

Customer **Customer Services**

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

Site:	Fehily Timoney		
Sample Description:	4AP- TUAM	Date of Sampling:	27/08/2020
Sample Type:	Ground	Date Sample Received:	27/08/2020
Lab Reference Numbe	er: 529051		

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	27/08/2020	Coliforms	15.5	MPN/100ml	200
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

Page 12 of 12

	SDG: Location:	200826-91 Gort Landfill	Client Reference: Order Number:	Galway Historic Landfi Z2189	IIS Report Number: Superseded Report:	565822 565524
ALS						

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).

Asbe stos Type	Common Name
Chrysof le	White Asbestos
Amosite	Brow n Asbestos
Cro d dolite	Blue Asbe stos
Fibrous Act nolite	-
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 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:	
Customer:	
Sample Delivery Group (SDG):	
Your Reference:	
Location:	
Report No:	

26 July 2021 Fehily Timoney 210715-112 P2282 Gort Landfill 607011

This report has been revised and directly supersedes 606861 in its entirety.

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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.8 Version Issued: 26/07/2021

				OF ANALY	SIS		Validated
	SDG: Location:	210715-112 Gort Landfill	Client Reference: Order Number:	P2282 Z2798	Report Number: Superseded Report:	607011 606861	
(ALS)	Location.	Cort Landini	Order Number.	22130		000001	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24638645	BH1		0.00 - 0.00	14/07/2021
24638669	GW01		0.00 - 0.00	14/07/2021

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

Validated

		С	ERT	IFIC	AT	ΕO	F AN	IAL	YS	IS							 	
SDG: Location:	210715-112 Gort Landfill			nt Ref er Nur			P228 Z279							Numb led Re		07011 606861		
Results Legend X Test N No Determination Possible	Lab Sample I	No(s)						24638645	24638669									
	Custome Sample Refer							BH1						GW01				
Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate	AGS Refere	AGS Reference		S Reference														
PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	Depth (m)	0.00 - 0.00															
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Containe	r	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)				
	Sample Ty	ре	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW				
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 2	x						X									
Alkalinity as CaCO3	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								
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: 2 Tests: 0				N						N						
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 2		X						x								
Fluoride	All	NDPs: 0 Tests: 2		X						x								
Mercury Dissolved	All	NDPs: 2 Tests: 0				N						N						
Mercury Unfiltered	All	NDPs: 0 Tests: 2				x						X						
Mineral Oil C10-40 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									
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 2	x						x									
			_												L I			

Validated	

_

CERTIFICATE O	F ANALYSIS
----------------------	------------

			С	ERT	IFIC	:AT	ΕO	FA	NAI	_YS	IS							Validated
	SDG: Location:	210715-112 Gort Landfill			nt Ref er Nui			P22 Z279						port N persed		6070 606)11 861	
	mination	Lab Sample No(s) Customer Sample Reference			24638669 24638645													
Sample Types -	I				GW01													
S - Soil/Solid UNS - Unspecified S GW - Ground Water SW - Surface Water LE - Land Leachate		AGS Refere	nce															
PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage		Depth (m)			0.00 - 0.00										0.00 - 0.00			
RE - Recreational W DW - Drinking Water N	RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas		r	0.5I glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Unfiltered (ALE204)	NaOH (ALE245)	Vial (ALE297)			
		Sample Ty	ре	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW			
pH Value		All	NDPs: 0 Tests: 2		x						x							
SVOC MS (W) - Aqueous		All	NDPs: 0 Tests: 2		x						x							
Total Metals by ICP-MS		All	NDPs: 0 Tests: 2				x						x					
Total Organic and Inorgan	iic Carbon	All	NDPs: 0 Tests: 2			x						x						
VOC MS (W)		All	NDPs: 0 Tests: 2						X						x			

ALS

SDG: Location:		10715-112 Sort Landfill		t Reference: r Number:	P228 Z279	607011 606861
Results Legend # ISO17025 accredited. M mCERTS accredited.	Ci	ustomer Sample Ref.	BH1	GW01		
m mLerks accretiee. aq Aqueous / settict dsample. diss.fit Dissolved / filtered sample. tot.unfit Total / unfiltered sample. * Subcontracted - refer to subcontractor repor accreditation status.	t for	Depth (m) Sample Type Date Sampled	0.00 - 0.00 Ground Water (GW) 14/07/2021	0.00 - 0.00 Ground Water (GV 14/07/2021	M)	
** % recovery of the surrogate standard to cheorem of the method. The results of indiv	ridual	Sample Time Date Received	15/07/2021	15/07/2021		
compounds within samples aren't corrected recovery	for the	SDG Ref	210715-112 24638645	210715-112 24638669		
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24030043	24030003		
Component	LOD/Units	Method	544	100		
Alkalinity, Total as HCO3	<2 mg/l	TM043	511	439		
Oxygen, dissolved	<0.3 mg/l	TM046	10.6	11		
Organic Carbon, Total	<3 mg/l	TM090	<3 ♦ #	<3	♦ #	
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	0.029 #	0.021	#	
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5	#	
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	0.659 #	0.737	#	
Arsenic (tot.unfilt)	<2 µg/l	TM152	6.04 #	<2	#	
Barium (tot.unfilt)	<0.5 µg/l	TM152	30.3	15.6		
Boron (tot.unfilt)	<20 µg/l	TM152	# 76.3	74	#	
Cadmium (tot.unfilt)	<0.5 µg/l	TM152	# <0.5	<0.5	#	
Chromium (tot.unfilt)	<3 µg/l	TM152	4.44	<3	#	
Copper (tot.unfilt)	<1 µg/l	TM152	# 16.7	1.33	#	
Lead (tot.unfilt)	<1 µg/l	TM152	# 16.2	5.83	#	
Manganese (tot.unfilt)	<1 µg/l	TM152	# 263	178	#	
Nickel (tot.unfilt)	<1 µg/l	TM152	#	9.31	#	
Phosphorus (tot.unfilt)	<20 µg/l	TM152	# 567	155	#	
Selenium (tot.unfilt)	<1 µg/l	TM152	# 1.38	1.22	#	
Thallium (tot.unfilt)	<3 µg/l	TM152	# <3	<3	#	
Zinc (tot.unfilt)	<5 µg/l	TM152	# 23.4	10.1	#	
Sodium (Tot. Unfilt.)	<0.047 mg/l	TM152	12.1		#	
		TM152	12.1 #	18.7	#	
Magnesium (Tot. Unfilt.)	<0.05 mg/l		#		#	
Potassium (Tot. Unfilt.)	<0.2 mg/l	TM152	2.31 #	3.81	#	
Calcium (Tot. Unfilt.)	<0.057 mg/l	TM152	326 #		#	
Iron (Tot. Unfilt.)	<0.024 mg/l	TM152	5		#	
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172	<100	<100		
Mercury (tot.unfilt)	<0.02 µg/l	TM183	0.022 #	<0.02	#	
Sulphate	<2 mg/l	TM184	11.8 #	26.8	#	
Chloride	<2 mg/l	TM184	16.6 #	48.5	#	
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	" 1.57 #	2.21	#	
Cyanide, Total	<0.05 mg/l	TM227	<0.05 #	<0.05	#	
рН	<1 pH Units	TM256	7.33	7.45	#	
Trifluralin	<0.01 µg/l	TM343	# <0.01	<0.01	#	
alpha-HCH	<0.01 µg/l	TM343	<0.01	<0.01		

Component

Heptachlor

beta-HCH

Isodrin

delta-HCH

o,p'-DDE

Endosulphan I

trans-Chlordane

cis-Chlordane

o,p'-DDD (TDE)

p,p'-DDD (TDE)

Endosulphan II

o,p'-Methoxychlor

p,p'-Methoxychlor

Permethrin I

Permethrin II

Endosulphan Sulphate

1,3,5-Trichlorobenzene

Hexachlorobutadiene

1,2,4-Trichlorobenzene

1.2.3-Trichlorobenzene

Dichlorvos

Dichlobenil

Mevinphos

Tecnazene

p,p'-DDT

p,p'-DDE

Dieldrin

Endrin

o,p'-DDT

Heptachlor epoxide

Aldrin

gamma-HCH (Lindane)

LOD/Units

<0.01 µg/l

<0.02 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.02 µg/l

<0.01 µg/l

Method

TM343

TM344

TM344

TM344

TM344

TM344

TM344

TM344

TM344

TM344

< 0.01

< 0.02

< 0.01

<0.01

< 0.01

< 0.01

< 0.01

<0.01

<0.01

<0.01

< 0.01

< 0.01

< 0.01

< 0.01

< 0.02

<0.05

< 0.01

<0.02

<0.08

< 0.04

< 0.08

< 0.04

< 0.01

<0.01

<0.01

< 0.01

<0.01

< 0.01

< 0.01

< 0.01

< 0.01

<0.01

<0.01

<0.01

< 0.02

< 0.01

<0.01

<0.01

<0.01

<0.01

<0.01

<0.01

<0.01

<0.01

< 0.01

<0.01

< 0.01

< 0.02

<0.05

<0.01

<0.02

<0.08

< 0.04

<0.08

< 0.04

< 0.01

<0.01

<0.01

<0.01

<0.01

< 0.01

< 0.01

< 0.01

< 0.01

<0.01

<0.01

Hexachlorobenzene



...

CERTIFICATE OF ANALYSIS

SDG: 210715-112 P2282 **Client Reference:** Report Number: 607011 Gort Landfill Z2798 Superseded Report: 606861 S) Location: Order Number: Results Legend ISO17025 accredited. mCERTS accredited. Autoous / settled sample. Dissolved / filtered 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 Trigger breach confirmed Sample deviation (see appendix) Customer Sample Ref BH1 GW01 aq diss.filt tot.unfilt Depth (m) Sample Type Date Sampled Sample Time Date Received 0.00 - 0.00 0.00 - 0.00 Ground Water (GW) 14/07/2021 Ground Water (GW) 14/07/2021

. 15/07/2021

. 15/07/2021

compounds within samples aren't correc recovery		SDG Ref	210715-112	210715-112		
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638645	24638669		
Component	LOD/Units	Method				
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	0.0211		
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		
Chlorpyriphos-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		
Chlorpyriphos	<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		
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		

S)

compounds within samples aren't corrected		Date Received SDG Ref	210715-112	210715-112			
recovery (F) Trigger breach confirmed		Lab Sample No.(s) AGS Reference	24638645	24638669			
1-4+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method					
Propazine	<0.01 µg/		<0.01	<0.01			
Propyzamide	<0.01 µg/	I TM345	<0.01	<0.01			
Alachlor	<0.01 µg/	I TM345	<0.01	<0.01			
Prometryn	<0.01 µg/	I TM345	<0.01	<0.01			
Telodrin	<0.01 µg/	I TM345	<0.01	<0.01	-		
Terbutryn	<0.01 µg/	I TM345	<0.01	<0.01			
Chlorothalonil	<0.01 µg/	I TM345	<0.01	<0.02			
Etrimphos	<0.01 µg/	I TM345	<0.01	<0.01			
Metazachlor	<0.01 µg/	I TM345	<0.01	<0.01			
Cyanazine	<0.01 µg/	I TM345	<0.01	<0.01			
Trietazine	<0.01 µg/	I TM345	<0.01	<0.01			
Coumaphos	<0.01 µg/	I TM345	<0.01	<0.01			
Phosphamidon I	<0.01 µg/	I TM345	<0.01	<0.01			
Phosphamidon II	<0.01 µg/	I TM345	<0.01	<0.01			
Dinitro-o-cresol	<0.1 µg/l	TM411	<0.2	<0.1			
Clopyralid	<0.04 µg/	I TM411	<0.08	<0.04			
MCPA	<0.05 µg/	I TM411	<0.1	<0.05			
Месоргор	<0.04 µg/	I TM411	<0.08	<0.04			
Dicamba	<0.04 µg/	I TM411	<0.08	<0.04			
МСРВ	<0.05 µg/	I TM411	<0.1	<0.05			
2,4-DB	<0.1 µg/l	TM411	<0.2	<0.1			
2,3,6-Trichlorobenzoic acid	<0.05 µg/	I TM411	<0.1	<0.05			
Dichlorprop	<0.1 µg/l	TM411	<0.2	<0.1			
Triclopyr	<0.05 µg/	I TM411	<0.1	<0.05			
Fenoprop (Silvex)	<0.1 µg/l		<0.2	<0.1			
2,4-Dichlorophenoxyacetic acid	<0.05 µg/	I TM411	<0.1	<0.05			
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/		<0.1	<0.05			
Bromoxynil	<0.04 µg/		<0.08	<0.04			
Benazolin	<0.04 µg/		<0.08	<0.04			
loxynil	<0.05 µg/		<0.1	<0.05			
Pentachlorophenol	<0.04 µg/		<0.08	<0.04			
Fluoroxypyr	<0.1 µg/l	TM411	<0.2	<0.1			
				and the second			

ALS

SDG: Location:		210715-112 Gort Landfill		t Reference: r Number:	P228 Z279	Report Number		
Location: SVOC MS (W) - Aqueous			Order	Number.	2213	 ouperseueu re	port. 000001	
Results Legend # ISO17025 accredited. M mCERTS accredited.		Customer Sample Ref.	BH1	GW01				
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report f accreditation status. * % recovery of the surrogate standard to check	the	Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Ground Water (GW) 14/07/2021	0.00 - 0.00 Ground Water (GW 14/07/2021	D			
efficiency of the method. The results of individ compounds within samples aren't corrected fo recovery		Date Received SDG Ref Lab Sample No.(s)	15/07/2021 210715-112 24638645	15/07/2021 210715-112 24638669				
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method	2100010	21000000				
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1	<1	щ.			
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	// #	<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	#			
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	#			

SDG: Location:		210715-112 Gort Landfill		t Reference: r Number:	P228 Z279		607011 606861
SVOC MS (W) - Aqueous						· · ·	
Results Legend # ISO17025 accredited.		ustomer Sample Ref.	BH1	GW01			
M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfit Total / unfiltered sample. Subcontrated - refer to subcontractor report accreditation status. * % recovery of the surrogate standard to chec		Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Ground Water (GW) 14/07/2021	0.00 - 0.00 Ground Water (GV 14/07/2021	W)		
efficiency of the method. The results of indivi compounds within samples aren't corrected i recovery	idual	Date Received SDG Ref	15/07/2021 210715-112	15/07/2021 210715-112			
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638645	24638669			
Component Benzo(b)fluoranthene (aq)	LOD/Units <1 µg/l	Method 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-Dibutyl 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	#		
Pyrene (aq)	<1 µg/l	TM176		<1	#		
11.57.27 26/07/2021						I	ł

			CERTI	FICATE O	F ANALYSI	S			
SDG: Location		210715-112 Gort Landfill		t Reference: r Number:	P2282 Z2798	Report Nun Superseded			
						· · · · · ·			
Results Legend # ISO17025 accredited.	С	Customer Sample Ref.	BH1	GW01					
M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tounfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor re	port for	Depth (m) Sample Type Date Sampled	0.00 - 0.00 Ground Water (GW) 14/07/2021	0.00 - 0.00 Ground Water (GW 14/07/2021)				
** % recovery of the surrogate standard to o efficiency of the method. The results of in	ndividual	Sample Time Date Received	15/07/2021	15/07/2021					
compounds within samples aren't correct recovery (F) Trigger breach confirmed	ted for the	SDG Ref Lab Sample No.(s)	210715-112 24638645	210715-112 24638669					
1-4+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method							
Dibromofluoromethane**	%	TM208	110	113					
Toluene-d8**	%	TM208	101	99.8					
4-Bromofluorobenzene**	%	TM208	100	95.7					
Dichlorodifluoromethane	<1 µg/l	TM208	<1 #	<1	#				
Chloromethane	<1 µg/l	TM208		<1	#				
Vinyl chloride	<1 µg/l	TM208		<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	#				
Dichloromethane	<3 µg/l	TM208		<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					
			#	<u> </u>	#				

			CERT	FICATE O	F ANAI	LYSIS		
SDG: Location:		210715-112 Gort Landfill		t Reference: r Number:	P2282 Z2798		Report Numb Superseded Re	
/OC MS (W)			0100					
Results Legend	С	Customer Sample Ref.	BH1	GW01				
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00				
* Subcontracted - refer to subcontractor repo accreditation status. ** % recovery of the surrogate standard to che	ck the	Sample Type Date Sampled Sample Time	Ground Water (GW) 14/07/2021	Ground Water (GV 14/07/2021	V)			
efficiency of the method. The results of indi compounds within samples aren't corrected recovery		Date Received SDG Ref	15/07/2021 210715-112	15/07/2021 210715-112				
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638645	24638669				
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	#			
lsopropylbenzene	<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				



Report Number: Superseded Report: 607011 606861 SDG: P2282 **Client Reference:** Location: Gort Landfill Order Number: Z2798

Validated

Notification of NDPs (No determination possible)

Date Received : 15/07/2021 12:40:25

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
24638645	BH1	0.00 - 0.00	Mercury Dissolved	Unsuitable for Analysis
24638645	BH1	0.00 - 0.00	Dissolved Metals by ICP-MS	Unsuitable for Analysis
24638669	GW01	0.00 - 0.00	Mercury Dissolved	Unsuitable for Analysis
24638669	GW01	0.00 - 0.00	Dissolved Metals by ICP-MS	Unsuitable for Analysis



SDG:

Location:

Gort Landfill

607011 606861

Report Number: Superseded Report:

Client Reference:

Order Number:

Table of Results - Appendix

P2282

Z2798

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).

P2282

Z2798

Client Reference:

Order Number:

Validated

607011 606861

Test Completion Dates

	04000045	0.4000000
Lab Sample No(s)	24638645	24638669
Customer Sample Ref.	BH1	GW01
-		
AGS Ref.		
Depth	0.00 - 0.00	0.00 - 0.00
Туре	Ground Water	Ground Water
Acid Herbicides by GCMS	22-Jul-2021	22-Jul-2021
Alkalinity as CaCO3	21-Jul-2021	17-Jul-2021
Ammonium Low	20-Jul-2021	20-Jul-2021
Anions by Kone (w)	21-Jul-2021	21-Jul-2021
Conductivity (at 20 deg.C)	21-Jul-2021	20-Jul-2021
Cyanide Comp/Free/Total/Thiocyanate	21-Jul-2021	21-Jul-2021
Dissolved Oxygen by Probe	16-Jul-2021	16-Jul-2021
Fluoride	16-Jul-2021	16-Jul-2021
Mercury Unfiltered	23-Jul-2021	21-Jul-2021
Mineral Oil C10-40 Aqueous (W)	20-Jul-2021	20-Jul-2021
Pesticides (Suite I) by GCMS	20-Jul-2021	20-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
SVOC MS (W) - Aqueous	18-Jul-2021	18-Jul-2021
Total Metals by ICP-MS	23-Jul-2021	23-Jul-2021
Total Organic and Inorganic Carbon	24-Jul-2021	24-Jul-2021
VOC MS (W)	18-Jul-2021	16-Jul-2021

210715-112	Client Reference:	P2282	Report Number:	607011
Gort Landfill	Order Number:	Z2798	Superseded Report:	606861
			Cort Landfill Order Number: 72708	Cort Landfill Order Number: 72708 Superseded Report:



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 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

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
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).

Asbe stos Type	Common Name
Chrysof le	White Asbestos
Amosite	Brow n Asbestos
Cio d dolite	Blue Asbe stos
Fibrous Act nolite	-
Fib io us Anthop hyll ite	-
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 μ m diameter, longer than 5 μ m 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 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:
Customer:
Sample Delivery Group (SDG):
Your Reference:
Location:
Report No:

19 August 2020 Fehily Timoney 200702-50 P2282 Gort Landfill 563812

This report has been revised and directly supersedes 562070 in its entirety.

We received 4 samples on Thursday July 02, 2020 and 4 of these samples were scheduled for analysis which was completed on Wednesday August 19, 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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.4 Version Issued: 19/08/2020

	SDG:
(ALS)	Location

	SDG:	200702-50	Client Reference:	P2282	Report Number: 563812
AIS)	Location:	Gort Landfill	Order Number:	Z2189	Superseded Report: 562070
				· · · · · · · · · · · · · · · · · · ·	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22408528	Holy Well		0.00 - 0.00	01/07/2020
22408517	MH-1		0.00 - 0.00	01/07/2020
22408488	SW1		0.00 - 0.00	01/07/2020
22408504	SW2		0.00 - 0.00	01/07/2020

Maximum Sample/Coolbox Temperature (°C) :

ISO5667-3 Water quality - Sampling - Part3 -

During Transportation samples shall be stored in a cooling device capable of maintaining

15.2 ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of $(5\pm3)^{\circ}C$ for a period of up to 24hrs.

Validated

a temperature of (5±3)°C.

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

CERTIFICATE OF ANALYSIS SDG: 200702-50 **Client Reference:** P2282 Report Number: 563812 Gort Landfill Z2189 Superseded Report: 562070 Location: Order Number: **Results Legend** 22408528 22408517 22408488 Lab Sample No(s) X Test No Determination Possible Customer Holy MH-1 SW1 Sample Reference Well Sample Types -S - Soil/Solid UNS - Unspecified Solid GW - Ground Water **AGS Reference** SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water 0.00 - 0.00 0.00 - 0.00 0.00 - 0.00 SA - Saline Water Depth (m) TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water HNO3 Filtered (ALE204) H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5l glass bottle (ALE227) 250ml BOD (ALE212) 0.5l glass bottle (ALE227) 0.5l glass bottle (ALE227) HNO3 Filtered (ALE204) H2SO4 (ALE244) H2SO4 (ALE244) HNO3 Filtered (ALE204) NaOH (ALE245) NaOH (ALE245) DW - Drinking Water Non-regulatory 500ml Plastic (ALE208) (ALE208) 250ml BOD (ALE212) Vial (ALE297) 500ml Plastic Vial (ALE297) UNL - Unspecified Liquid SL - Sludge Container G - Gas OTH - Other Sample Type GW GW GW GW GW GW GW WS ۸S WS WS ۵Ŵ E Ε Ε F Ε Ε Ε Acid Herbicides by GCMS All NDPs: 0 Tests: 3 х Х Alkalinity as CaCO3 All NDPs: 0 Tests: 1 Х Ammoniacal Nitrogen All NDPs: 0 Tests: 2 Х Ammonium Low All NDPs: 0 Tests: 4 Х Х Х Anions by Kone (w) All NDPs: 0 Tests: 4 Х Х Х BOD True Total All NDPs: 0 Tests: 3 Х Х COD Unfiltered All NDPs: 0 Tests: 3 Х Х All Coliforms (W) NDPs: 0 Tests: 1 Х Conductivity (at 20 deg.C) All NDPs: 0 Tests: 4 Х Х х Cyanide Comp/Free/Total/Thiocyanate All NDPs: 0 Tests: 4 Х Х Dissolved Metals by ICP-MS All NDPs: 0 Tests: 4 Х Х Х Dissolved Oxygen by Probe All NDPs: 0 Tests: 4 Х Х Х Fluoride All NDPs: 0 Tests: 4 Х Х Х All Mercury Dissolved NDPs: 0 Tests: 4 Х Х Х Mineral Oil C10-40 Aqueous (W) All NDPs: 0 Tests: 4 Х Х Х

	22408488							22408504
	SW1							SW2
	0.00 - 0.00							0.00 - 0.00
NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
WS	SW	SW	SW	WS	SW	SW	WS	SW
		X						
		^						
					х			
					Х			
		x						
			x					
			x					
				×				
				X				
x							x	
						х		
				x				
				x				
						X		
				x				

		С	ERT	IFIC	AT	ΕO	F Al	IAL	YS.	IS									Vali	dated	
SDG: Location:	200702-50 Gort Landfill			nt Ref er Nui			P228 Z218							Numb ded Re			5638 562				
Results Legend X Test N No Determination	Lab Sample N	o(s)							22408528							22408517					22408488
Sample Types -	Customer Sample Refere								Holy Well							MH-1	MH-1		SW1		
S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate	AGS Referen	ice																			
PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	Depth (m)								0.00 - 0.00							0.00 - 0.00	0.00 - 0.00			0.00 - 0.00	
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Container		0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5I glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
	Sample Typ	е	GW	GW	GW	GW	GW	GW	GW	Ē	Ē	Ē	Ē	Ē	Ē	Ē	WS	WS	WS	WS	WS
Nitrite by Kone (w)	All	NDPs: 0 Tests: 1																			
Organotins in Aqueous Samples	All	NDPs: 0 Tests: 1										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				
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 4	x							X							х				
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 4	x							x							x				
pH Value	All	NDPs: 0 Tests: 4			x					x									x		
Phosphate by Kone (w)	All	NDPs: 0 Tests: 4	x									x					x				
Silicon Dissolved by ICP-OES	All	NDPs: 0 Tests: 1												x							
Suspended Solids	All	NDPs: 0 Tests: 3										x							x		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 4	x									x					x				
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 2				x							x								
VOC MS (W)	All	NDPs: 0 Tests: 4							x							x					

	22408488							22408504
	SW1							SW2
	0.00 - 0.00							0.00 - 0.00
NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)		HNO3 Filtered (ALE204)	NaOH (ALE245)	
WS	WS	WS	WS	WS	WS	WS	WS	SM
				x				
		Х						
		x						
		Х						
				X				
				^				
		X						
				x				
		X						
	x							x

ALS

SDG:

200702-50

CERTIFICATE OF ANALYSIS

P2282

Report Number:

Client Reference:

Validated

563812

Superseded Report: 562070 Location: Gort Landfill Order Number: Z2189 Customer Sample R SW2 Holy Well MH-1 SW1 Results Legr ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subc accreditation status. aq diss.filt tot.unfilt Depth (m 0.00 - 0.00 0.00 - 0.00 0.00 - 0.00 0.00 - 0.00 Sample Type Ground Water (GW) Land Leachate (LE) Surface Water (SW) Surface Water (SW) Date San 01/07/2020 01/07/2020 01/07/2020 01/07/2020 ditation status. overy of the surrogate standard to check the ency of the method. The results of individual ounds within samples aren't corrected for the Sample Tim 02/07/2020 02/07/2020 02/07/2020 02/07/2020 Date Receive SDG Re 200702-50 200702-50 200702-50 200702-50 22408528 22408517 22408488 22408504 Lab Sample No.(s (F) 1-3**+**§@ Trigger breach confirmed Sample deviation (see appendix) AGS Referenc Component LOD/Units Method >2420 Coliforms, Total* MPN/100ml SUB Coliforms, Faecal* CFU/100ml SUB 10 Suspended solids, Total TM022 7.05 <4 <2 mg/l <9 # # Alkalinity, Total as HCO3 <2 mg/l TM043 405 BOD, unfiltered <1 mg/l TM045 <1 <1 <1 # Oxygen, dissolved <0.3 mg/l TM046 9.28 9.64 9.69 10.4 Organic Carbon, Total <3 mg/l TM090 3.47 5.71 # Ammoniacal Nitrogen as N <0.2 mg/l TM099 0.573 <0.2 TM099 1.06 0.664 0.0296 0.0653 Ammoniacal Nitrogen as N (low <0.01 mg/l # Ħ level) @# Fluoride <0.5 mg/l TM104 <0.5 <0.5 <0.5 <0.5 # COD, unfiltered <7 mg/l TM107 16.8 18.3 23.5 # # # <0.02 TM120 0 692 0.624 0.169 0 167 Conductivity @ 20 deg.C mS/cm # # # # Antimony (diss.filt) <1 µg/l TM152 <1 Arsenic (diss.filt) <0.5 µg/l TM152 2.16 < 0.5 <0.5 <0.5 # ± Ħ Barium (diss.filt) <0.2 µg/l TM152 17.8 36.7 38.3 379 # # # Beryllium (diss.filt) <0.1 µg/l TM152 <0.1 # Boron (diss.filt) <10 µg/l TM152 19.5 44.9 # # TM152 <0.08 <0.08 <0.08 <0.08 Cadmium (diss.filt) <0.08 µg/l # # # # Chromium (diss.filt) <1 µg/l TM152 <1 <1 <1 <1 # # # # TM152 < 0.5 Cobalt (diss.filt) <0.5 µg/l # TM152 Copper (diss.filt) <0.3 µg/l 1.33 1.09 1.11 0.699 # # # # Lead (diss.filt) TM152 <0.2 0.483 0.268 <0.2 µg/l 1.13 # Manganese (diss.filt) <3 µg/l TM152 58 32.7 50.9 38.9 # # # Molybdenum (diss.filt) <3 µg/l TM152 <3 # Nickel (diss.filt) <0.4 µg/l TM152 1.31 1.35 1.24 0.795 # # # # Phosphorus (diss.filt) <10 µg/l TM152 206 67.9 21.3 12.4 # # # # TM152 <1 <1 <1 Selenium (diss.filt) <1 µg/l <1 Ħ Ħ Ħ # TM152 <2 Tellurium (diss.filt) <2 µg/l Thallium (diss.filt) TM152 <2 <2 <2 <2 µg/l <2 # # # # TM152 3.32 Titanium (diss.filt) <1 µg/l # Uranium (diss.filt) <0.5 µg/l TM152 1.05 Vanadium (diss.filt) <1 µg/l TM152 <1 Zinc (diss.filt) TM152 3.85 22.9 6.61 8.97 <1 µg/l

#

#

#

#



	Results Legend 025 accredited. TS accredited.		Customer Sample Ref.	Holy Well	MH-1		SW1	SW2		
aq Aqueou	us / settled sample. ved / filtered sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00		0.00 - 0.00	0.00 - 0.00		
* Subcor	unfiltered sample. ntracted - refer to subcontractor report for	r	Sample Type Date Sampled	Ground Water (GW) 01/07/2020	Land Leachate (LE 01/07/2020)	Surface Water (SW) 01/07/2020	Surface Water (SW) 01/07/2020		
** % reco	litation status. overy of the surrogate standard to check th ncy of the method. The results of individua		Sample Time Date Received	02/07/2020	. 02/07/2020		02/07/2020	02/07/2020		
	ounds within samples aren't corrected for		SDG Ref	200702-50	200702-50		200702-50	200702-50		
	r breach confirmed e deviation (see appendix)		Lab Sample No.(s) AGS Reference	22408528	22408517		22408488	22408504		
Component Tin (Diss.Filt)		LOD/Units <1 µg/l	Method TM152		<1	_				
1111 (19133.1111)		1 µg/i	TWITE			#				
Silver (diss.fil	lt)	<0.5 µg/l	TM152		<0.5	#				
Sodium (Dis.F	Filt)	<0.076 mg/	I TM152	22.6	18.7	#	10.8	10.9		
				#		#	#	#		
Magnesium (I	Dis.Filt)	<0.036 mg/	I TM152	13.3 #	10.9	#	2.81 #	2.83 #		
Potassium (D	Dis.Filt)	<0.2 mg/l	TM152	4.89	7.65		1.27	1.24		
Oslaium (Dis	F:14)	10.0	TM152	#	124	#	# 21.5	# 22.2		
Calcium (Dis.	.= 11()	<0.2 mg/l	1101152	152		#	21.5	22.2		
Iron (Dis.Filt)		<0.019 mg/	I TM152	0.258	0.0943		0.118	0.0749		
Mineral oil >C	C10 C40 (an)	<100 µg/l	TM172	# <100	<100	#	# <100	# <100		
		100 µg/i	111112	- 100	-100		-100	-100		
Mercury (diss	s.filt)	<0.01 µg/l	TM183	<0.01	<0.01	ц	<0.01	<0.01		
Phosphate (C	Ortho as PO4)	<0.05 mg/l	TM184	# 0.368	0.095	#	<0.05	<0.05		
	,			#			#	#		
Sulphate		<2 mg/l	TM184	23.4	22.5		5.2 #	4.4 #		
Chloride		<2 mg/l	TM184	44.1	24.5		21.7	21.8		
				#			#	#		
Nitrite as N		<0.0152 mg/l	TM184		0.0201					
Total Oxidise	d Nitrogen as N	<0.1 mg/l	TM184	1.73	4.37					
Sulphate (sol		<1 mg/l	TM184	7.8	7.5	_	1.73	1.47		
Sulpriate (SUI	luble) as 5	<1 mg/i	1101104	7.0			1.75 #	1.47 #		
PCB congene	er 28	<0.015 µg/	TM197	<0.015	<0.015		<0.015	<0.015		
PCB congene	er 52	<0.015 µg/	TM197	<0.015	<0.015	_	<0.015	<0.015		
PCB congene	er 101	<0.015 µg/	TM197	<0.015	<0.015		<0.015	<0.015		
PCB congene	er 118	<0.015 µg/	TM197	<0.015	<0.015		<0.015	<0.015		
PCB congene	ar 139	<0.015 µg/	TM197	<0.015	<0.015	_	<0.015	<0.015		
FCB congene		<0.015 µg/i	1111197	<0.015	<0.015		<0.015	<0.015		
PCB congene	er 153	<0.015 µg/	TM197	<0.015	<0.015		<0.015	<0.015		
PCB congene	er 180	<0.015 µg/	TM197	<0.015	<0.015	_	<0.015	<0.015		
Sum of detect	ted EC7 PCB's	<0.105 µg/	TM197	<0.105	<0.105		<0.105	<0.105		
Cyanide, Tota	al	<0.05 mg/l	TM227	<0.05	<0.05		<0.05	<0.05		
Quality From		10.05	TM007	♦ #		♦ #	•			
Cyanide, Free	e .	<0.05 mg/l	TM227		<0.05	♦ #				
рН		<1 pH Units	5 TM256	7.28	7.75		7.37	7.54		
Silicon (diss.f	filt)	<0.05 mg/l	TM284	#	3.19	#	#	#		
Dibutyl tin		<5 ng/l	TM328		<5					
Tributyl tin		<1 ng/l	TM328		<1					
		.0 "	THORE		-					
Tetrabutyl tin		<2 ng/l	TM328		<2					
Triphenyl tin		<1 ng/l	TM328		<1					
Surrogate		%	TM328		79.8	_			 	
Gunuyale		/0								
Trifluralin		<0.01 µg/l	TM343	<0.01	<0.01		<0.01	<0.01		
12.41.41 19			1						L	



Results Legend	C	ustomer Sample Ref.	Holy Well	MH-1	SW1	SW2	
ISO17025 accredited. M mCERTS accredited. Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. Subcontracted - refer to subcontractor report accreditation sature. % recovery of the surrogate standard to check efficiency of the method. The results of individence in the surrogate standard to accel	or	Depth (m) Sample Type Date Sampled Sample Time Date Received	0.00 - 0.00 Ground Water (GW) 01/07/2020	0.00 - 0.00 Land Leachate (LE) 01/07/2020 02/07/2020	0.00 - 0.00 Surface Water (SW) 01/07/2020 - 02/07/2020	0.00 - 0.00 Surface Water (SW) 01/07/2020 - 02/07/2020	
compounds within samples aren't corrected for recovery (F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix)	r the	SDG Ref Lab Sample No.(s) AGS Reference	200702-50 22408528	200702-50 22408517	200702-50 22408488	200702-50 22408504	
Component alpha-HCH	LOD/Units <0.01 μg/l	Method 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	<0.02	<0.02	<0.01	<0.02	
o,p'-DDT	<0.01 µg/l	TM343	<0.03	<0.03	<0.01	<0.03	
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	<0.05	<0.05	<0.02	<0.05	
o,p'-Methoxychlor	<0.01 µg/l	TM343	<0.03	<0.03	<0.02	<0.03	
p,p'-Methoxychlor	<0.01 µg/l	TM343	<0.05	<0.05	<0.02	<0.05	
Endosulphan Sulphate	<0.02 µg/l	TM343	<0.02	<0.02	<0.02	<0.02	
Permethrin I	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	
Permethrin II	<0.01 µg/l	TM343	<0.01	<0.01	<0.01	<0.01	
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	
12:41:41 19/08/2020							



Results Legend		Customer Comple Def					r	
# ISO17025 accredited. M mCERTS accredited.		Customer Sample Ref.	Holy Well	MH-1	SW1	SW2		
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00		
* Subcontracted - refer to subcontractor re accreditation status.		Sample Type Date Sampled	Ground Water (GW) 01/07/2020	Land Leachate (LE) 01/07/2020	Surface Water (SW) 01/07/2020	Surface Water (SW) 01/07/2020		
** % recovery of the surrogate standard to c efficiency of the method. The results of in compounds within samples aren't correct	ndividual	Sample Time Date Received	02/07/2020	02/07/2020	02/07/2020	02/07/2020		
recovery (F) Trigger breach confirmed		SDG Ref Lab Sample No.(s)	200702-50 22408528	200702-50 22408517	200702-50 22408488	200702-50 22408504		
1-3+§@ Sample deviation (see appendix) Component	LOD/Units							
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	0.0777	0.0174	<0.01	<0.01		
Simazine	<0.01 µg/l	TM344	0.0312	<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		<0.01	<0.01	<0.01	<0.01		
Chlorpyriphos-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		<0.01	<0.01	<0.01	<0.01		
Chlorpyriphos	<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		<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		<0.01	<0.01	<0.01	<0.01		
Pendimethalin	<0.01 µg/l		<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		<0.01	<0.01	<0.01	<0.01		
cis-Chlordane	<0.01 µg/l		<0.01	<0.01	<0.01	<0.01		
Ethion	<0.01 µg/l		<0.01	<0.01	<0.01	<0.01		
Carbophenothion	<0.01 µg/l		<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	<0.02	<0.02	<0.02	<0.02		
Azinphos methyl	<0.02 µg/l		<0.04	<0.04	<0.04	<0.04		
Azinphos ethyl	<0.02 µg/l		<0.02	<0.02	<0.02	<0.02		
Etridiazole	<0.01 µg/l	TM345	<0.02	<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		
12:41:41 19/08/2020		1						1



Baardaa	-						 ,
Results Legend # ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.	c	Customer Sample Ref. Depth (m)	Holy Well 0.00 - 0.00	MH-1 0.00 - 0.00	SW1 0.00 - 0.00	SW2 0.00 - 0.00	
tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor repor accreditation status. * % recovery of the surrogate standard to che		Sample Type Date Sampled Sample Time	Ground Water (GW) 01/07/2020	Land Leachate (LE) 01/07/2020	Surface Water (SW) 01/07/2020	Surface Water (SW) 01/07/2020	
efficiency of the method. The results of indiv compounds within samples aren't corrected	ridual	Date Received	02/07/2020 200702-50	02/07/2020 200702-50	02/07/2020 200702-50	02/07/2020 200702-50	
recovery (F) Trigger breach confirmed		SDG Ref Lab Sample No.(s)	22408528	22408517	22408488	22408504	
1-3+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method					
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	<0.02	<0.02	<0.02	<0.02	
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	<0.02	<0.02	<0.02	<0.02	
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	<0.2		<0.2	0.114	
Clopyralid	<0.04 µg/l	TM411	<0.08		<0.08	<0.04	
MCPA	<0.05 µg/l	TM411	<0.1		<0.1	<0.05	
Месоргор	<0.04 µg/l	TM411	<0.08		<0.08	<0.04	
Dicamba	<0.04 µg/l	TM411	<0.08		<0.08	<0.04	
MCPB	<0.05 µg/l	TM411	<0.1		<0.1	<0.05	
2,4-DB	<0.1 µg/l	TM411	<0.2		<0.2	<0.1	
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411	<0.1		<0.1	<0.05	
Dichlorprop	<0.1 µg/l	TM411	<0.2		<0.2	<0.1	
Triclopyr	<0.05 µg/l	TM411	<0.75		<0.75	<0.75	
Fenoprop (Silvex)	<0.1 µg/l	TM411	<0.2		<0.2	<0.1	
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411	<0.1		<0.1	<0.05	
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411	<0.1		<0.1	<0.05	
Bromoxynil	<0.04 µg/l	TM411	<0.08		<0.08	<0.08	
Benazolin	<0.04 µg/l	TM411	<0.08		<0.08	<0.08	
loxynil	<0.05 µg/l	TM411	<0.1		<0.1	<0.1	
Pentachlorophenol	<0.04 µg/l	TM411	<0.08		<0.08	<0.08	
Fluoroxypyr	<0.1 µg/l	TM411	<0.2		<0.2	<0.2	
12:41:41 19/08/2020	1	ļ					

						Denast New York	562010
SDG: Location:		200702-50 Gort Landfill			P2282 Z2189	Report Number: Superseded Report:	563812 562070
SVOC MS (W) - Aqueou	s						
Results Legend # ISO17025 accredited. M mCERTS accredited.	с	ustomer Sample Ref.	Holy Well	MH-1	SW1	SW2	
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor repon accreditation status.	t for	Depth (m) Sample Type Date Sampled	0.00 - 0.00 Ground Water (GW) 01/07/2020	0.00 - 0.00 Land Leachate (LE) 01/07/2020	0.00 - 0.00 Surface Water (SW) 01/07/2020	0.00 - 0.00 Surface Water (SW) 01/07/2020	
** % recovery of the surrogate standard to check efficiency of the method. The results of indivi- compounds within samples aren't corrected recovery	idual	Sample Time Date Received SDG Ref	02/07/2020 200702-50	02/07/2020 200702-50	02/07/2020 200702-50	02/07/2020 200702-50 20405504	
(F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22408528	22408517	22408488	22408504	
Component 1,2,4-Trichlorobenzene (aq)	LOD/Units <1 µg/l	Method TM176	<1	<2	<1	<1	
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176		<2	<1	<1	
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	# <1	<2	<1 **	<1 #	
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	#	<2	= #	<1 #	
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	#	<2	= #	<1 #	
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	#	<2	= #	<1 #	
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	#	<2	= #	<1 #	
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	# <1	<2	# <1	# <1	
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	# <1	<2	# <1	# <1	
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	# <1	<2	= #	# <1	
2-Chloronaphthalene (aq)	<1 µg/l	TM176	# <1	<2	<1 #	# <1	
2-Chlorophenol (aq)	<1 µg/l	TM176	# <1	<2	<1	# <1	
2-Methylnaphthalene (aq)	<1 µg/l	TM176	# <1	<2	# 	# <1	
2-Methylphenol (aq)	<1 µg/l	TM176	# <1	<2	<1 "	# <1	
2-Nitroaniline (aq)	<1 µg/l	TM176	# <1	<2	<1 "	======================================	
2-Nitrophenol (aq)	<1 µg/l	TM176	# <1 #	<2	<1 #	# <1 #	
3-Nitroaniline (aq)	<1 µg/l	TM176	" <1 #	<2	<1 #		
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<2	<1	<1	
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<2	<1	<1	
Azobenzene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Acenaphthene (aq)	<1 µg/l	TM176	<1	<2	<1 #	<1 #	
Anthracene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1	<2	<1 #	<1 #	
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<2	<4	<2 #	<2 #	
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	

SDG:	2	200702-50		t Reference:	P2282	Report Number:	563812
ALS Location:		Gort Landfill			Z2189	Superseded Report	
SVOC MS (W) - Aqueou							
Results Legend # ISO17025 accredited. M mCERTS accredited.	с	Customer Sample Ref.	Holy Well	MH-1	SW1	SW2	
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor repoi accreditation status.		Depth (m) Sample Type Date Sampled	0.00 - 0.00 Ground Water (GW) 01/07/2020	0.00 - 0.00 Land Leachate (LE) 01/07/2020	0.00 - 0.00 Surface Water (SW) 01/07/2020	0.00 - 0.00 Surface Water (SW) 01/07/2020	
 % recovery of the surrogate standard to che efficiency of the method. The results of indi- compounds within samples aren't corrected recovery (F) Trigger breach confirmed 	vidual	Sample Time Date Received SDG Ref Lab Sample No.(s)	02/07/2020 200702-50 22408528	02/07/2020 200702-50 22408517	02/07/2020 200702-50 22408488	02/07/2020 200702-50 22408504	
1-3+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method					
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Benzo(a)pyrene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Carbazole (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Chrysene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #	<10	<5 #	<5 #	
Fluoranthene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Fluorene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Pentachlorophenol (aq)	<1 µg/l	TM176	<1	<2	<1	<1	
Phenol (aq)	<1 µg/l	TM176	<1	<2	<1	<1	
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Naphthalene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Isophorone (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1	<2	<1	<1	
Phenanthrene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	
Pyrene (aq)	<1 µg/l	TM176	<1 #	<2	<1 #	<1 #	

SDG: Location:		00702-50 Gort Landfill		t Reference: r Number:	P2282 Z2189		Report Numb Superseded Re	63812 562070
OC MS (W)								
Results Legend # ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample.	Ci	ustomer Sample Ref.	Holy Well	MH-1		SW1	SW2	
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report accreditation status.		Depth (m) Sample Type Date Sampled	0.00 - 0.00 Ground Water (GW) 01/07/2020	0.00 - 0.00 Land Leachate (LE) 01/07/2020		0.00 - 0.00 Surface Water (SW) 01/07/2020	0.00 - 0.00 Surface Water (SW) 01/07/2020	
** % recovery of the surrogate standard to check efficiency of the method. The results of indivi- compounds within samples aren't corrected to corrected to the surrogate standard to the standard to the surrogate standard to the surrogate standard to the surrogate standard to the surrogate standard to the surrow surrow	idual	Sample Time Date Received	02/07/2020	02/07/2020		02/07/2020	02/07/2020	
recovery (F) Trigger breach confirmed		SDG Ref Lab Sample No.(s)	200702-50 22408528	200702-50 22408517		200702-50 22408488	200702-50 22408504	
1-3+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method						
Dibromofluoromethane**	%	TM208	113	114		112	113	
Toluene-d8**	%	TM208	100	99		99	99.3	
4-Bromofluorobenzene**	%	TM208	95.2	94.4		96.6	94.7	
Dichlorodifluoromethane Chloromethane	<1 µg/l	TM208 TM208	<1 #	<1	#	<1	<1 # # <1	
Vinyl chloride	<1 µg/l	TM208	<1 #	<1	#	<1	* * # <1	
Bromomethane	<1 µg/l	TM208	- # <1	<1	#	<1	# #	
Chloroethane	<1 µg/l	TM208	# <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 TM208	<1 # <1	<1	#	<1	<1 # # <1	
2,2-Dichloropropane	<1 µg/l	TM200	<1 *1	<1	#	<1	# #	
Bromochloromethane	<1 µg/l	TM208	<1	<1		<1	<1	
Chloroform	<1 µg/l	TM208	# <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	# ************************************	
1,2-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 TM208	<1 # <1	<1	#	<1	<1 # # <1	
Bromodichloromethane	<1 µg/l	TM208	<1 #	<1	#	<1	# # <1	
cis-1,3-Dichloropropene	<1 µg/l	TM200	<1 #	<1	#	<1	# #	
Toluene	<1 µg/l	TM208		<1	#	<1	# #	
trans-1,3-Dichloropropene	<1 µg/l	TM208	# <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 # #	

12:41:41 19/08/2020

5

CERTIFICATE OF ANALYSIS

Results Legend		Customer Sample Ref.	Holy Well	MH-1	SW1	SW2	1	
# ISO17025 accredited. M mCERTS accredited.			Tioly Weil	Will-1	3111	3112		
aq Aqueous / settled sample.		De la Co						
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	0.00 - 0.00 Ground Water (GW)	0.00 - 0.00 Land Leachate (LE)	0.00 - 0.00 Surface Water (SW)	0.00 - 0.00 Surface Water (SW)		
 Subcontracted - refer to subcontractor report accreditation status. 	rt for	Date Sampled	01/07/2020	01/07/2020	01/07/2020	01/07/2020		
** % recovery of the surrogate standard to che	ck the	Sample Time						
efficiency of the method. The results of indi compounds within samples aren't corrected		Date Received	02/07/2020 200702-50	02/07/2020 200702-50	02/07/2020 200702-50	02/07/2020 200702-50		
recovery (F) Trigger breach confirmed		SDG Ref Lab Sample No.(s)	22408528	22408517	22408488	22408504		
1-3+§@ Sample deviation (see appendix)		AGS Reference						
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		
,,,,	1.5		#	#	#	#		
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
	. 1.2.		#	. #	#	#		
m,p-Xylene	<1 µg/l	TM208	<1	π <1		π <1		
	51 µ9/1	110200	-1 #	~' #	~' #	~1 #		
o Yulono	~1//	TM208	<1 **	<1 **	<1 **	<1 **		
o-Xylene	<1 µg/l	Ι Ινίζυδ						
Churana		T14000	#	#	#	#		
Styrene	<1 µg/l	TM208	<1	<1 "	<1	<1 "		
Decementaria	.4 0	T1 1000	#	#	#	#		
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		
	r 5'		#	#	#	#		
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
	r 5'		#	#	#	#		
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1		
			#	#	#	#		
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1 "	<1 "	<1		
,	· ٣9''		#	#	#	#		
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1 "	<1 "	<1		
	· µ9/	111200						
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1		
1,2,1 1101101000120110	r µg/i	THEOD	#	#	#	#		
Hexachlorobutadiene	<1 µg/l	TM208	<1	π <1	π <1	π <1		
	· µ9/	111200	*	#		*1		
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1 "	<1	<1		
	- ' µy/l	111200	-1 #	~1 #	~' #	~1 #		
Naphthalene	<1 µg/l	TM208	<1	π <1	π <1	π <1		
	· µ9/	111200	*	#		*1		
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	π <1	π <1	π <1		
1,2,0 11101101000112011C	'µy/i	TWIZUU	~ 1 #	<r></r>	<r></r>	<1 #		
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1 #	<1 **	<1 **		
1,0,0 111011010001120110	'µy/i	TWIZOU						
	1				ļ	Į		
12.41.41 19/08/2020								



SDG:

Location:

Gort Landfill

Validated

563812

562070

Client Reference: Order Number:

Report Number: Superseded Report:

Table of Results - Appendix

P2282

Z2189

Method No	Reference	Description
SUB		Subcontracted Test
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
TM284		
TM328		
TM343	EPA 8270D - Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM344	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite II) by GCMS
TM345	EPA 8270D – Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of selected pesticides (Suite III) by GCMS
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).



563812 562070

Report Number: Superseded Report:

SDG: Location:

200702-50 Gort Landfill

Order Number: Z2189 **Test Completion Dates**

	_	100		pictici
Lab Sample No(s)	22408528	22408517	22408488	22408504
Customer Sample Ref.	Holy Well	MH-1	SW1	SW2
•				
AGS Ref.				
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Туре	Ground Water	Land Leachate	Surface Water	Surface Water
Acid Herbicides by GCMS	07-Jul-2020		07-Jul-2020	07-Jul-2020
Alkalinity as CaCO3	07-Jul-2020			
Ammoniacal Nitrogen		06-Jul-2020		06-Aug-2020
Ammonium Low	06-Jul-2020	06-Jul-2020	08-Jul-2020	19-Aug-2020
Anions by Kone (w)	04-Jul-2020	04-Jul-2020	05-Jul-2020	05-Jul-2020
BOD True Total		08-Jul-2020	08-Jul-2020	08-Jul-2020
COD Unfiltered		06-Jul-2020	06-Jul-2020	06-Jul-2020
Coliforms (W)	06-Jul-2020			
Conductivity (at 20 deg.C)	03-Jul-2020	03-Jul-2020	03-Jul-2020	03-Jul-2020
Cyanide Comp/Free/Total/Thiocyanate	07-Jul-2020	07-Jul-2020	07-Jul-2020	07-Jul-2020
Dissolved Metals by ICP-MS	08-Jul-2020	08-Jul-2020	08-Jul-2020	08-Jul-2020
Dissolved Oxygen by Probe	03-Jul-2020	03-Jul-2020	03-Jul-2020	03-Jul-2020
Fluoride	07-Jul-2020	03-Jul-2020	03-Jul-2020	07-Jul-2020
Mercury Dissolved	03-Jul-2020	03-Jul-2020	03-Jul-2020	03-Jul-2020
Mineral Oil C10-40 Aqueous (W)	07-Jul-2020	07-Jul-2020	07-Jul-2020	07-Jul-2020
Nitrite by Kone (w)		03-Jul-2020		
Organotins in Aqueous Samples		06-Jul-2020		
PCB Congeners - Aqueous (W)	09-Jul-2020	08-Jul-2020	08-Jul-2020	09-Jul-2020
Pesticides (Suite I) by GCMS	09-Jul-2020	09-Jul-2020	09-Jul-2020	09-Jul-2020
Pesticides (Suite II) by GCMS	07-Jul-2020	07-Jul-2020	07-Jul-2020	07-Jul-2020
Pesticides (Suite III) by GCMS	09-Jul-2020	09-Jul-2020	09-Jul-2020	09-Jul-2020
pH Value	03-Jul-2020	03-Jul-2020	03-Jul-2020	03-Jul-2020
Phosphate by Kone (w)	03-Jul-2020	03-Jul-2020	03-Jul-2020	03-Jul-2020
Silicon Dissolved by ICP-OES		10-Jul-2020		
Suspended Solids		08-Jul-2020	08-Jul-2020	08-Jul-2020
SVOC MS (W) - Aqueous	05-Jul-2020	05-Jul-2020	05-Jul-2020	08-Jul-2020
Total Organic and Inorganic Carbon	04-Jul-2020	04-Jul-2020		
VOC MS (W)	06-Jul-2020	06-Jul-2020	06-Jul-2020	06-Jul-2020





DETAILED IN SCOPE REG NO. 1387

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email: reports@cityanalysts.ie

www.cityanalysts.ie

Customer

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

Certificate Of Analysis

Job Number:20-79340Issue Number:1Report Date:2 July 2020

Site:Galway Historic LandfillsPO Number:Not SuppliedDate Samples Received:01/07/2020

Please find attached the results for the samples received at our laboratory on 01/07/2020.

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:

, Kelle

Authorised Date: 2 July 2020

Debbie Kelly Laboratory Supervisor

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.

Page 1 of 5

Template: 1146 Revision: 018





Report Version: 1

City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Certificate Of Analysis Report Reference: 20-79340

Customer Customer Services

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

Site:	Galway Historic Landfills		
Sample Description:	5A Tuam	Date of Sampling:	01/07/2020
Sample Type:	Ground	Date Sample Received:	01/07/2020
Lab Reference Numbe	er: 517821		

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	01/07/2020	Coliforms	913.9	MPN/100ml	-
D/D3221#	01/07/2020	Faecal Coliforms	12	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

Page 2 of 5



Customer

Manor Lane

UK **CH5 3US**

Customer Services

ALS Life Sciences

Hawarden, Deeside

Hawarden Business Park



City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Report Reference: 20-79340

Report Version: 1

Site:	Galway Historic Landfills		
Sample Description:	RC2 Tuam	Date of Sampling:	01/07/2020
Sample Type:	Ground	Date Sample Received:	01/07/2020
Lab Reference Number: 517822			

Certificate Of Analysis

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	01/07/2020	Coliforms	> 2419.6	MPN/100ml	-
D/D3221#	01/07/2020	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

Page 3 of 5



Customer

Manor Lane

UK **CH5 3US**

Customer Services

ALS Life Sciences

Hawarden, Deeside

Hawarden Business Park



City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Report Reference: 20-79340

Report Version: 1

Site:	Galway Historic Landfills		
Sample Description:	RC3 Tuam	Date of Sampling:	01/07/2020
Sample Type:	Ground	Date Sample Received:	01/07/2020
Lab Reference Number: 517823			

Certificate Of Analysis

Site / Method Ref.	Analysis Start Date	Parameter	Result	Units	PV Value (Drinking Water Only)
D/D1201#	01/07/2020	Coliforms	> 2419.6	MPN/100ml	-
D/D3221#	01/07/2020	Faecal Coliforms	< 100	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

Page 4 of 5





City Analysts Limited, Pigeon House Road, Ringsend, Dublin 4.

Tel: (01) 613 6003 Fax: (01) 613 6008

Email:

reports@cityanalysts.ie

www.cityanalysts.ie

Report Reference: 20-79340

Report Version: 1

CH5 3US				
Site:	Galway Historic Landfills			
Sample Description:	Holywell Gort	Date of Sampling:	01/07/2020	
Sample Type:	Ground	Date Sample Received:	01/07/2020	
Lab Reference Number: 517824				

Certificate Of Analysis

PV Value Site / Analysis Parameter Result Units (Drinking Start Date Water Only) Method Ref. D/D1201# 01/07/2020 Coliforms > 2419.6 MPN/100ml _ D/D3221# 01/07/2020 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.

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

Page 5 of 5

Customer

Customer Services

ALS Life Sciences Hawarden Business Park Manor Lane Hawarden, Deeside UK

	3812
Location: Gort Landfill Order Number: Z2189 Superseded Report: 56	2070



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 will be 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.

Container with Headspace provided for volatiles analysis
Incorrect container received
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).

Asbe stos Type	Common Name
Chrysof le	White Asbestos
Amosite	Brow n Asbestos
Cro d dolite	Blue Asbe stos
Fibrous Act nolite	-
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

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

CERTIFICATE OF ANALYSIS

Date of report Generation: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 09 August 2020 Fehily Timoney 200731-85 P2282 Gort Landfill 562378

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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.4 Version Issued: 09/08/2020



Report Number:

562378 Superseded Report:

Validated

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22583238	SW1		0.00 - 0.00	30/07/2020
22583260	SW2		0.00 - 0.00	30/07/2020

Maximum Sample/Coolbox Temperature (°C) :

16.2

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of $(5\pm3)^\circ C$ for a period of up to 24hrs.

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

ISO5667-3 Water quality - Sampling - Part3 -

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

562378

Gort Landfill Z2189 Superseded Report: Location: Order Number: **Results Legend** 22583238 22583260 Lab Sample No(s) X Test No Determination Possible Customer SW2 L MS Sample Reference Sample Types -S - Soil/Solid UNS - Unspecified Solid GW - Ground Water **AGS Reference** SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water 0.00 -0.00 - 0.00 SA - Saline Water Depth (m) TE - Trade Effluent - 0.00 TS - Treated Sewage US - Untreated Sewage RE - Recreational Water 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5l glass bottle (ALE227) 250ml BOD (ALE212) 0.5l glass bottle (ALE227) Vial (ALE297) H2SO4 (ALE244) NaOH (ALE245) H2SO4 (ALE244) NaOH (ALE245) DW - Drinking Water Non-regulatory 500ml Plastic (ALE208) ViaI UNL - Unspecified Liquid (ALE297) SL - Sludge Container G - Gas OTH - Other Sample Type WS ۵Ŵ ۸S WS ٨S ٨S WS ۸S ۸S WS WS ٨S Acid Herbicides by GCMS All NDPs: 0 Tests: 2 Х Х Ammonium Low All NDPs: 0 Tests: 2 Х Х Anions by Kone (w) All NDPs: 0 Tests: 2 Х Х BOD True Total All NDPs: 0 Tests: 2 Х Х COD Unfiltered All NDPs: 0 Tests: 2 Х Х Conductivity (at 20 deg.C) All NDPs: 0 Tests: 2 Х Х Cyanide Comp/Free/Total/Thiocyanate All NDPs: 0 Tests: 2 Х Х Dissolved Metals by ICP-MS All NDPs: 0 Tests: 2 Х Х Dissolved Oxygen by Probe All NDPs: 0 Tests: 2 Х Х Fluoride All NDPs: 0 Tests: 2 Х Х Mercury Dissolved All NDPs: 0 Tests: 2 Х Х Mineral Oil C10-40 Aqueous (W) All NDPs: 0 Tests: 2 Х Х PCB Congeners - Aqueous (W) All NDPs: 0 Tests: 2 Х Х Pesticides (Suite I) by GCMS All NDPs: 0 Tests: 2 Х Х Pesticides (Suite II) by GCMS All NDPs: 0 Tests: 2 Х Х

CERTIFICATE OF ANALYSIS

P2282

Report Number:

Client Reference:

SDG:

200731-85

_

			с	ERT	IFIC	CAT	E O	F Al	NAL	_YS	IS							Validat	ed	
	SDG: Location:	200731-85 Gort Landfill			nt Rei er Nu			P228 Z218							lumb led Re	562	2378			
Results Legend X Test N No Deter Possible	mination	Lab Sample No(s)							22583238						22583260					
Sample Types -		Custome Sample Refei	-						SW1						SW2					
S - Soil/Solid	S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate		AGS Reference																	
PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	Depth (m)		0.00 - 0.00					0.00 - 0.00												
RE - Recreational W DW - Drinking Water N	RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas	Containe	r	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)					
		Sample Type			SM	SM	SM	SM	SM	SM	SM	SW	SM	SM	ws					
Pesticides (Suite III) by Go	CMS	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					

SDG:	2	00731-85		t Reference: P2	t Number: 562378
ALS Location	: G	Gort Landfill	Orde	r Number: Z2	eded Report:
Results Legend # ISO17025 accredited.	Cu	ustomer Sample Ref.	SW1	SW2	
M mCERT Sacredited. aq Aqueous / settle dample. diss.filt Dissolved / filtered sample. tot.unfil Total / unfiltered sample. * Subcontracted - refer to subcontractor rep accreditation status. * % recovery of the surrogate standard to ch	eck the	Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Surface Water (SW) 30/07/2020	0.00 - 0.00 Surface Water (SW) 30/07/2020	
efficiency of the method. The results of inc compounds within samples aren't correcte recovery		Date Received SDG Ref	31/07/2020 200731-85	31/07/2020 200731-85	
(F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix) Component	LOD/Units	Lab Sample No.(s) AGS Reference Method	22583238	22583260	
Suspended solids, Total	<2 mg/l	TM022	<2	2.65	
BOD, unfiltered	<1 mg/l	TM045	<1 #		
Oxygen, dissolved	<0.3 mg/l	TM046	9.94	10.3	
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	0.0229	0.0246	
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5	
COD, unfiltered	<7 mg/l	TM107	42.1 #	43.5	
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	0.155 #	0.145 #	
Arsenic (diss.filt)	<0.5 µg/l	TM152	<0.5	<0.5 2 #	
Barium (diss.filt)	<0.2 µg/l	TM152	42.5 2#	42.6	
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08	
Chromium (diss.filt)	<1 µg/l	TM152	<1 2#	<1 2 #	
Copper (diss.filt)	<0.3 µg/l	TM152	0.92	1.14	
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	0.442	
Manganese (diss.filt)	<3 µg/l	TM152	3.81	8.19 2 #	
Nickel (diss.filt)	<0.4 µg/l	TM152	1.09	1.03	
Phosphorus (diss.filt)	<10 µg/l	TM152	<10 2 #	13.4 2 #	
Selenium (diss.filt)	<1 µg/l	TM152	<1 2#	<1 2 #	
Thallium (diss.filt)	<2 µg/l	TM152	<2 2#	<2 2#	
Zinc (diss.filt)	<1 µg/l	TM152	1.7 2#	2.81	
Sodium (Dis.Filt)	<0.076 mg/l	TM152	10 2#	11.1 2 <i>#</i>	
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	2.59 2#	2.67	
Potassium (Dis.Filt)	<0.2 mg/l	TM152	1.03	1.13 2 #	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	20.6 2 #	20.6 2 #	
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.183 2 #	0.187 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	
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	<0.05	<0.05	
Sulphate	<2 mg/l	TM184	<2 #	<2 #	
Chloride	<2 mg/l	TM184	19.6 #	19.1 #	
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	

16:33:27 09/08/2020



Component

PCB congener 118

PCB congener 138

PCB congener 153

PCB congener 180

Cyanide, Total

pН

Trifluralin

alpha-HCH

Heptachlor

beta-HCH

delta-HCH

o,p'-DDE

Endosulphan I

trans-Chlordane

cis-Chlordane

p,p'-DDE

Dieldrin

Endrin

o,p'-DDT

o,p'-DDD (TDE)

p,p'-DDD (TDE)

Endosulphan II

o,p'-Methoxychlor

p,p'-Methoxychlor

Permethrin I

Permethrin II

Endosulphan Sulphate

p,p'-DDT

Heptachlor epoxide

Isodrin

Aldrin

gamma-HCH (Lindane)

Sum of detected EC7 PCB's

LOD/Units

<0.015 µg/l

<0.015 µg/l

<0.015 µg/l

<0.015 µg/l

<0.105 µg/l

<0.05 mg/l

<1 pH Units

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l <0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.02 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.02 µg/l

<0.01 µg/l

<0.01 µg/l

Method

TM197

TM197

TM197

TM197

TM197

TM227

TM256

TM343

<0.015

< 0.015

<0.015

< 0.015

<0.105

< 0.05

7.52

<0.01

<0.01

<0.01

< 0.01

< 0.01

< 0.01

< 0.01

< 0.02

<0.01

< 0.01

<0.01

< 0.01

< 0.01

< 0.01

< 0.01

< 0.01

<0.01

<0.04

< 0.01

< 0.02

< 0.07

< 0.04

<0.07

< 0.04

< 0.01

<0.01

#

<0.015

<0.015

< 0.015

< 0.015

<0.105

<0.05

7.52

<0.01

<0.01

<0.01

<0.01

< 0.01

<0.01

< 0.01

< 0.02

<0.01

<0.01

<0.01

<0.01

< 0.01

< 0.01

< 0.01

<0.01

<0.01

<0.04

<0.01

<0.02

<0.07

< 0.04

< 0.07

< 0.04

<0.01

<0.01

#



Validated

Results Legend	C	Customer Sample Ref.	SW1	SW2		
BO17023 accredited. M mCETT3 accredited. Aqueous / settled sample. diss.filt Dissolved / filtered sample. Subcontractor - refer to subcontractor repor accreditation status. * % recovery of the surrogate standard to chee	ck the	Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Surface Water (SW) 30/07/2020	0.00 - 0.00 Surface Water (SW) 30/07/2020		
efficiency of the method. The results of indiv compounds within samples aren't corrected recovery (F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix)		Date Received SDG Ref Lab Sample No.(s) AGS Reference	31/07/2020 200731-85 22583238	31/07/2020 200731-85 22583260		
1-3+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference 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		
Chlorpyriphos-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		
Chlorpyriphos	<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		
16:22:27 00/08/2020	•					



Validated

initial strain of the	Results Legend		ustomer Sample Def	011/4	0440	 	 ,
bit with any service of any	# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.fit Dissolved / filtered sample. tot.unfit Total / unfiltered sample. * Subcontracted - refer to subcontractor repo		Sample Type	Surface Water (SW)	Surface Water (SW)		
Normal Matrix ComparisonNormal Matrix ProductionNormal Matrix 	** % recovery of the surrogate standard to ch		Sample Time				
Line controlLine control </td <td>compounds within samples aren't corrected recovery</td> <td>d for the</td> <td>SDG Ref</td> <td>200731-85</td> <td>200731-85</td> <td></td> <td></td>	compounds within samples aren't corrected recovery	d for the	SDG Ref	200731-85	200731-85		
Transform401 with401 w	(F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22583238	22583260		
HeadorAdd Add Add Add Add Add Add Add Add Add 	Component Triazonhos		-	<0.01	<0.01		
Arryphamely4.52.pgTM444.4.524.0.124		-0.01 µg/i	The FT	-0.01			
Archive ethyl Archive ethyl TMS4 Archive Archive ethyl TMS4 Archive Archive ethyl Archive	Phosalone	<0.01 µg/l	TM344	<0.01	<0.01		
IndexAdd upNMS6Add2 <th< td=""><td>Azinphos methyl</td><td><0.02 µg/l</td><td>TM344</td><td><0.02</td><td><0.02</td><td></td><td></td></th<>	Azinphos methyl	<0.02 µg/l	TM344	<0.02	<0.02		
IndexAdd upNMS6Add2 <th< td=""><td>Azinnhos ethyl</td><td><0.02 µg/</td><td>TM344</td><td><0.02</td><td><0.02</td><td></td><td></td></th<>	Azinnhos ethyl	<0.02 µg/	TM344	<0.02	<0.02		
Printativotenerane 0.0119 170.45 0.011 0.010 0.010 0.010 0.010 Preachlar 0.01191 10.055 0.010 0.01							
Propertive Control Contro Control Control	Etridiazole	<0.01 µg/l	TM345	<0.02	<0.02		
Andreame PCNS)-0.01 polTMM-0.01-0.	Pentachlorobenzene	<0.01 µg/l	TM345	<0.01	<0.01		
Andreame PCNS)-0.01 polTMM-0.01-0.	Propachlor	<0.01 µg/l	TM345	<0.01	<0.01		
Omitodie Omitodie-0.01plTM36-0.01<	· · · · · · · · · · · · · · · · · · ·						
Propage Control Control <t< td=""><td>Quintozene (PCNB)</td><td><0.01 µg/l</td><td>TM345</td><td><0.01</td><td><0.01</td><td></td><td></td></t<>	Quintozene (PCNB)	<0.01 µg/l	TM345	<0.01	<0.01		
Programids-0.01 µg1TM345-0.01	Omethoate	<0.01 µg/l	TM345	<0.01	<0.01		
Auchor Color Color <t< td=""><td>Propazine</td><td><0.01 µg/l</td><td>TM345</td><td><0.01</td><td><0.01</td><td></td><td></td></t<>	Propazine	<0.01 µg/l	TM345	<0.01	<0.01		
Auchor Color Color <t< td=""><td>Pronuzamida</td><td><0.01 μα//</td><td>TM245</td><td>~0.01</td><td><0.01</td><td> </td><td> </td></t<>	Pronuzamida	<0.01 μα//	TM245	~0.01	<0.01	 	
Prometry 400 µgl TM345 400 1 400 1 1 6 1 6 1 Telodin 400 µgl TM345 400 1 400 1 1 <t< td=""><td>Propyzamide</td><td><0.01 µg/i</td><td>1101345</td><td>SU.UT</td><td><0.01</td><td></td><td></td></t<>	Propyzamide	<0.01 µg/i	1101345	SU.UT	<0.01		
Talodin $-001 \ \mu gl$ TM345 -0.01	Alachlor	<0.01 µg/l	TM345	<0.01	<0.01		
Terbulyn CO TM 45 CO	Prometryn	<0.01 µg/l	TM345	<0.01	<0.01		
Terbulyn CO TM 45 CO	Telodrin	<0.01 µa/l	TM345	<0.01	<0.01		
Chirothaloni Chirothaloni<							
Line Line <thline< th=""> Line Line <thl< td=""><td>lerbutryn</td><td><0.01 µg/l</td><td>IM345</td><td><0.01</td><td><0.01</td><td></td><td></td></thl<></thline<>	lerbutryn	<0.01 µg/l	IM345	<0.01	<0.01		
Metazachlor \sim 0.01 µgl TM345 \sim 0.01 \sim 0.02	Chlorothalonil	<0.01 µg/l	TM345	<0.03	<0.03		
Quanzine Cont	Etrimphos	<0.01 µg/l	TM345	<0.01	<0.01		
Quanzine Cont	Metazachlor	<0.01 µa/l	TM345	<0.01	<0.01		
Tietazine $-0.01 \ \mu pl$ TM345 -0.01 -0.02	Quancias		TM045	-0.04	-0.04		
Coumphos Coll yall TM345 Coll	Cyanazine	<0.01 µg/i	110345	<0.01	<0.01		
Phosphamidon I OOD µg/I TM345 COO2 COO3 COO3 </td <td>Trietazine</td> <td><0.01 µg/l</td> <td>TM345</td> <td><0.01</td> <td><0.01</td> <td></td> <td></td>	Trietazine	<0.01 µg/l	TM345	<0.01	<0.01		
Phosphamidon II <0.01 µg/l TM345 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 </td <td>Coumaphos</td> <td><0.01 µg/l</td> <td>TM345</td> <td><0.01</td> <td><0.01</td> <td></td> <td></td>	Coumaphos	<0.01 µg/l	TM345	<0.01	<0.01		
Phosphamidon II <0.01 µg/l TM345 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 </td <td>Phosphamidon I</td> <td><0.01 µa/l</td> <td>TM345</td> <td><0.02</td> <td><0.02</td> <td></td> <td></td>	Phosphamidon I	<0.01 µa/l	TM345	<0.02	<0.02		
Image Image <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>							
Clock Clock <th< td=""><td>Phosphamidon II</td><td><0.01 µg/l</td><td>TM345</td><td><0.02</td><td><0.02</td><td></td><td></td></th<>	Phosphamidon II	<0.01 µg/l	TM345	<0.02	<0.02		
MCPA <0.05 µg/l TM411 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.04 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05	Dinitro-o-cresol	<0.1 µg/l	TM411	<0.1	<0.1		
Mecoprop < C<	Clopyralid	<0.04 µg/l	TM411	<0.04	<0.04		
Mecoprop < C<	МСРА	<0.05.ug/	TM411	<0.05	<0.05		
Image: Construction							
Image: Mode and MCPB < Image: Mode and Mark </td <td>Месоргор</td> <td><0.04 µg/l</td> <td>TM411</td> <td><0.04</td> <td><0.04</td> <td></td> <td></td>	Месоргор	<0.04 µg/l	TM411	<0.04	<0.04		
A C <thc< th=""> <thc< th=""> <thc< th=""> <thc< th=""></thc<></thc<></thc<></thc<>	Dicamba	<0.04 µg/l	TM411	<0.04	<0.04		
A C <thc< th=""> <thc< th=""> <thc< th=""> <thc< th=""></thc<></thc<></thc<></thc<>	МСРВ	<0.05 µg/l	TM411	<0.05	<0.05		
A C <thc< th=""> <thc< th=""> <thc< th=""> <thc< th=""></thc<></thc<></thc<></thc<>	2.4.DB	<0.1.00//	ТМ/11	<0.1	<0 1		
Dichlorprop <0.1 µg/l TM411 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <0.1 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Triclopyr <0.05 μg/l TM411 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05 <0.05	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 µa/l	TM411	<0.05	<0.05		



SDG:		00731-85		t Reference:	F ANALYS	Report Number:	562378
ALS Location:	0	Sort Landfill		r Number:	Z2189	Superseded Report:	JUZJIU
Results Legend # ISO17025 accredited.	C	ustomer Sample Ref.	SW1	SW2			
M mCERTS accredited. aq Aqueous / settled sample.		Durth (c)					
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	0.00 - 0.00 Surface Water (SW)	0.00 - 0.00 Surface Water (SW)			
* Subcontracted - refer to subcontractor report accreditation status. ** % recovery of the surrogate standard to chec		Date Sampled Sample Time	30/07/2020	30/07/2020			
efficiency of the method. The results of indivi compounds within samples aren't corrected f	idual	Date Received	31/07/2020 200731-85	31/07/2020			
recovery (F) Trigger breach confirmed		SDG Ref Lab Sample No.(s)	200731-85 22583238	200731-85 22583260			
1-3+§@ Sample deviation (see appendix) Component	LOD/Units	Lab Sample No.(s) AGS Reference Method					
Fenoprop (Silvex)	<0.1 µg/l	TM411	<0.1	<0.1			
2,4-Dichlorophenoxyacetic acid	<0.05 µg/l	TM411	<0.05	<0.05	_		
			NU.05	NU.05			
2,4,5-Trichlorophenoxyacetic acid	<0.05 µg/l	TM411	<0.05	<0.05			
Bromoxynil	<0.04 µg/l	TM411	<0.04	<0.04			
Benazolin	<0.04 µg/l	TM411	<0.04	<0.04			
loxynil	<0.05 µg/l	TM411	<0.05	<0.05			
Pentachlorophenol	<0.04 µg/l	TM411	<0.04	<0.04			
Fluoroxypyr	<0.1 µg/l	TM411	<0.1	<0.1	_		
		├			_		
		+					
		+					

SDG:		200731-85		Reference:	P22	
ALS Location:		Sort Landfill		Number:	Z21	•
SVOC MS (W) - Aqueou	s					÷
Results Legend # ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved filtered sample.	c	ustomer Sample Ref. Depth (m)	SW1 0.00 - 0.00	SW2 0.00 - 0.00		
tot.unfilt Total / unfiltered sample. Subcontracted - refer to subcontractor report accreditation status. * % recovery of the surrogate standard to chec		Sample Type Date Sampled Sample Time	Surface Water (SW) 30/07/2020	Surface Water (SW 30/07/2020)	
efficiency of the method. The results of indivi compounds within samples aren't corrected t recovery		Date Received SDG Ref	31/07/2020 200731-85	31/07/2020 200731-85		
(F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22583238	22583260		
Component	LOD/Units <1 µg/l	Method TM176	<8	<10	\rightarrow	
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<8 <8	<10	#	
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176		<10	#	
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	#	<10	#	
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	#	<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 TM176	<8 #	<10	#	
4-Nitrophenol (aq) Azobenzene (aq)	<1 µg/l	TM176	<8 <8	<10	$ \rightarrow$	
Azobenzene (aq)	<1 µg/l	TM176	<8 # _<8	<10	#	
Acenaphthylene (aq)	<1 µg/l	TM176	<8 <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	<1 µg/l	TM176		<10	#	
(aq) bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	# <16	<20	#	
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	#	<10	#	
Benzo(a)anthracene (aq)	<1 µg/l	TM176	#	<10	#	
			#		#	

CERTIFICATE OF ANALYSIS

_

SDG: Location:		200731-85 Gort Landfill		t Reference: r Number:	P2282 Z2189	562378
ALS Location: SVOC MS (W) - Aqueou			Older	Number.	2210	
Results Legend		Customer Sample Ref.	SW1	SW2		
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. totunfilt Total / unfiltered sample.		Depth (m) Sample Type	0.00 - 0.00 Surface Water (SW)	0.00 - 0.00 Surface Water (SW)		
* Subcontracted - refer to subcontractor report accreditation status. ** % recovery of the surrogate standard to chec efficiency of the method. The results of indiv	k the idual	Date Sampled Sample Time Date Received	30/07/2020 31/07/2020	30/07/2020 31/07/2020		
compounds within samples aren't corrected recovery (F) Trigger breach confirmed	or the	SDG Ref Lab Sample No.(s)	200731-85 22583238	200731-85 22583260		
1-3+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference Method				
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176	<8 #	<10	#	
3enzo(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-Dibutyl 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	#	

SDG:		00731-85		FICATE OI	P22	
ALS Location:		Sort Landfill		r Number:	P22 Z21	
VOC MS (W) Results Legend		ustomer Sample Ref.	014/4	CMO	_	· · · · · · · · · · · · · · · · · · ·
ISO/17023 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total unfiltered sample. Subcontracted - refer to subcontractor report accreditation satus.	for	Depth (m) Sample Type Date Sampled	SW1 0.00 - 0.00 Surface Water (SW) 30/07/2020	SW2 0.00 - 0.00 Surface Water (SW) 30/07/2020	1	
** % recovery of the surrogate standard to check efficiency of the method. The results of individ compounds within samples aren't corrected for	lual	Sample Time Date Received SDG Ref	31/07/2020 200731-85	31/07/2020 200731-85		
recovery (F) Trigger breach confirmed 1-3+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	22583238	22583260		
Component Dibromofluoromethane**	LOD/Units %	Method TM208	107	105		
Toluene-d8**	%	TM208	96.8	97.4		
4-Bromofluorobenzene**	%	TM208	100	101		
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	#	

16:33:27 09/08/2020

ALS

CERTIFICATE OF ANALYSIS

Validated

SDG: Location:		200731-85 Gort Landfill		t Reference: r Number:	P228 Z218	
VOC MS (W)						
Results Legend # ISO17025 accredited. M mCERTS accredited.	С	Customer Sample Ref.	SW1	SW2		
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report f	or	Depth (m) Sample Type	0.00 - 0.00 Surface Water (SW)	0.00 - 0.00 Surface Water (SW	/)	
accreditation status. ** % recovery of the surrogate standard to check efficiency of the method. The results of individ	ual	Date Sampled Sample Time Date Received	30/07/2020 31/07/2020	30/07/2020 31/07/2020		
compounds within samples aren't corrected fo recovery (F) Trigger breach confirmed	r the	SDG Ref Lab Sample No.(s)	200731-85 22583238	200731-85 22583260		
1-3+§@ Sample deviation (see appendix) Component	LOD/Units	AGS Reference 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	#	
lsopropylbenzene	<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	"	



SDG:

Location:

200731-85 Gort Landfill Client Reference: P2282 Order Number: Z2189 562378

Validated

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).

Validated

Client Reference: P2282 Order Number: Z2189

Test Completio	n Dates
-----------------------	---------

Customer Sample Ref. SW1 SW2 AGS Ref. Depth 0.00 - 0.00 0.00 - 0.00 Kads Ref. Depth 0.00 - 0.00 0.00 - 0.00 Kads Ref. Acid Herbicides by GCMS 07-Aug-2020 07-Aug-202 Ammonium Low 06-Aug-2020 06-Aug-2020 Anions by Kone (w) 06-Aug-2020 05-Aug-202 BOD True Total 06-Aug-2020 05-Aug-202 COD Unfiltered 01-Aug-202 01-Aug-202 Conductivity (at 20 deg.C) 05-Aug-202 05-Aug-202	ater 20
Depth 0.00 - 0.00 0.00 - 0.00 Type Surface Water Surface Water Surface Water Acid Herbicides by GCMS 07-Aug-2020 07-Aug-20 07-Aug-202 Ammonium Low 06-Aug-2020 06-Aug-202 06-Aug-202 Anions by Kone (w) 03-Aug-202 03-Aug-202 03-Aug-202 BOD True Total 06-Aug-202 05-Aug-202 05-Aug-202 COD Unfiltered 01-Aug-202 01-Aug-202 01-Aug-202	ater 20
Yurface Water Surface	ater 20
Acid Herbicides by GCMS 07-Aug-2020 07-Aug-202 Ammonium Low 06-Aug-2020 06-Aug-202 Anions by Kone (w) 03-Aug-2020 03-Aug-202 BOD True Total 06-Aug-2020 05-Aug-202 COD Unfiltered 01-Aug-2020 01-Aug-202	20
Ammonium Low 06-Aug-202 06-Aug-20 Anions by Kone (w) 03-Aug-202 03-Aug-202 BOD True Total 06-Aug-202 05-Aug-202 COD Unfiltered 01-Aug-202 01-Aug-202	
Anions by Kone (w) 03-Aug-2020 03-Aug-2020 BOD True Total 06-Aug-2020 05-Aug-2020 COD Unfiltered 01-Aug-2020 01-Aug-2020	
BOD True Total 06-Aug-2020 05-Aug-20 COD Unfiltered 01-Aug-2020 01-Aug-2020 01-Aug-2020	20
COD Unfiltered 01-Aug-2020 01-Aug-20	20
	20
Conductivity (at 20 deg.C) 05-Aug-2020 05-Aug-2020	20
	20
Cyanide Comp/Free/Total/Thiocyanate 07-Aug-2020 07-Aug-2020	20
Dissolved Metals by ICP-MS 07-Aug-2020 07-Aug-2020	20
Dissolved Oxygen by Probe 02-Aug-2020 02-Aug-2020	20
Fluoride 04-Aug-2020 04-Aug-20	20
Mercury Dissolved 05-Aug-2020 05-Aug-202	20
Mineral Oil C10-40 Aqueous (W) 07-Aug-2020 07-Aug-20.	20
PCB Congeners - Aqueous (W) 07-Aug-2020 07-Aug-20.	20
Pesticides (Suite I) by GCMS 06-Aug-2020 06-Aug-20.	20
Pesticides (Suite II) by GCMS 07-Aug-2020 07-Aug-2020	20
Pesticides (Suite III) by GCMS 05-Aug-2020 05-Aug-20.	20
pH Value 04-Aug-2020 03-Aug-20.	20
Phosphate by Kone (w) 04-Aug-2020 04-Aug-2020	20
Suspended Solids 05-Aug-2020 05-Aug-202	20
SVOC MS (W) - Aqueous 09-Aug-2020 09-Aug-2020	
VOC MS (W) 05-Aug-2020 05-Aug-2020	20

	SDG:	200731-85	Client Reference:	P2282	Report Number:	562378
	Location:	Gort Landfill	Order Number:	Z2189	Superseded Report:	
ALS)					

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 will be 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.

Container with Headspace provided for volatiles analysis
Incorrect container received
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).

Asbe stos Type	Common Name
Chrysof le	White Asbestos
Amosite	Brow n Asbestos
Cro d dolite	Blue Asbe stos
Fibrous Act nolite	-
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.



Manor Road (off Manor Lane) Hawarden Deeside CH5 3US Tel: (01244) 528700 Fax: (01244) 528701 email: hawardencustomerservices@alsglobal.com Website: www.alsenvironmental.co.uk

Unit 7-8 Hawarden Business Park

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: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: 26 July 2021 Fehily Timoney 210715-109 P2282 Gort Landfill 607015

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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 2.8 Version Issued: 26/07/2021

				F ANALYS	SIS		Validated
AIS	SDG: Location:	210715-109 Gort Landfill	Client Reference: Order Number:	P2282 Z2798	Report Number: Superseded Report:	607015	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24638414	SW1		0.00 - 0.00	14/07/2021
24638463	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 210715-109 SDG: Client Reference: P2282 Report Number:

607015

ALS SDG: Location:				Order Number: Z2798					Report Number: Superseded Report:							
Results Legend									Ņ	.						Ņ
X Test	Lab Sample I	No(s)	140 0 JO 0 + 1 1						24638414	4638414						24638463
Possible Sample Types -	Customer Sample Reference AGS Reference Depth (m)								SW1							SW2
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				0.00 - 0.00												
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Containe	0.5I glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	
	Sample Ty	ре	WS	WS	WS	WS	WS	SW	SM	SM	SW	SW	WS	SM	WS	WS
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 2	x							x						
Alkalinity as CaCO3	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						
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 2	x							X						
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 2	x							X						

			С	ERT	IFIC	САТ	ΕO	FA	NAL	YS	IS						
ALS	SDG: Location:	210715-109 Gort Landfill				feren mber:		P22 Z279							Numb ded Re		
Results Legend X Test No Determination		Lab Sample No(s)								24638414							24638463
Possible	9	Custome Sample Refe								SW1							SW2
Sample Types - S - Soil/Solid JNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate		AGS Refere	ence														
PL - Prepared Leac PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewag US - Untreated Sew	je	Depth (n	n)							0.00 - 0.00							0.00 - 0.00
RE - Recreational V DW - Drinking Water I UNL - Unspecified L SL - Sludge G - Gas OTH - Other	Vater Non-regulatory	Containe	ər	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
		Sample Ty	/pe	WS	SM	WS	WS	WS	SM	SM	WS	WS	WS	WS	WS	SM	WS
Pesticides (Suite III) by G	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	5	All	NDPs: 0 Tests: 2			X							X				
Total Organic and Inorga	nic Carbon	All	NDPs: 0 Tests: 2				Х							Х			
VOC MS (W)		All	NDPs: 0 Tests: 2							X							X

ALS

CERTIFICATE OF ANALYSIS

SDG: Location:		10715-109 Sort Landfill		t Reference: ^r Number:	P2282 Z2798	Report Number: 607015 Superseded Report:
Results Legend # ISOT025 accredited. aq Aqueous I settled sample. diss.fit Dissolved / filtered sample. diss.fit Tolsolved / filtered sample. tot.unfilt Tolal / unfiltered sample. science / filtered sample. succontracted - refer to subcontractor rep: accreditation status. ** recovery of the surogate standard to ch efficiency of the method. The results of ind compounds within samples aren't correcter recovery [F) Trigger breach confirmed 1445@ Sample deviation (see appendix)	ort for eck the ividual d for the	ustomer Sample Ref. Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	SW1 0.00 - 0.00 Surface Water (SW) 14/07/2021 15/07/2021 210715-109 24638414	SW2 0.00 - 0.00 Surface Water (SW) 14/07/2021 15/07/2021 210715-109 24638463)	
Component Suspended solids, Total	LOD/Units <2 mg/l	Method TM022	<2	<2	-	
Alkalinity, Total as HCO3	<2 mg/l	TM043	#	85.4	#	
BOD, unfiltered	<1 mg/l	TM045	<1	<1		
Oxygen, dissolved	<0.3 mg/l	TM046	3 # 10.2	12.2	#	
Organic Carbon, Total	<3 mg/l	TM090	9.64	9.78		
Ammoniacal Nitrogen as N (low	<0.01 mg/l	TM099	• # 0.023	0.036	◆# #	
level) Fluoride	<0.5 mg/l	TM104	# <0.5	<0.5	#	
COD, unfiltered	<7 mg/l	TM107	28.8	31.2	#	
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	0.166 #	0.162	#	
Arsenic (diss.filt)	<0.5 µg/l	TM152	~0.5 #	<0.5	#	
Barium (diss.filt)	<0.2 µg/l	TM152	37.5 #	36.5	#	
Boron (diss.filt)	<10 µg/l	TM152		<10	#	
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	18.9 #	12.7	#	
Lead (diss.filt)	<0.2 µg/l	TM152	0.891 #	0.251	#	
Manganese (diss.filt)	<3 µg/l	TM152	27.9 #	26.9	#	
Nickel (diss.filt)	<0.4 µg/l	TM152	0.709 #	0.801	#	
Phosphorus (diss.filt)	<10 µg/l	TM152	<10 #	11.2	#	
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	21.4 #	41.5	#	
Sodium (Dis.Filt)	<0.076 mg/l	TM152	8.04 #	7.91	#	
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	2.67 #	2.65	#	
Potassium (Dis.Filt)	<0.2 mg/l	TM152	1.17 #	1.09	#	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	23.7 #	23.9	#	
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.144 #	0.139	#	
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	<2 #	<2	#	
Chloride	<2 mg/l	TM184	13.6 #	13.4	#	
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.126 #	0.126	#	
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05		

Validated **CERTIFICATE OF ANALYSIS** SDG: 210715-109 **Client Reference:** P2282 Report Number: 607015 Location: Gort Landfill Z2798 Superseded Report: Order Number: Results Legend 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 Customer Sample Re SW1 SW2 aq diss.filt tot.unfilt Depth (m 0.00 - 0.00 0.00 - 0.00 Surface Water (SW) 14/07/2021 Surface Water (SW) 14/07/2021 Sample Type Date Sample Sample Tim ... 15/07/2021 15/07/2021 Date Receive 210715-109 24638414 SDG Re 210715-109 recovery Trigger breach confirmed Sample deviation (see appendix) 24638463 Lab Sample No.(s AGS Reference 4+§@ Component LOD/Units Method 7.85 TM256 7.99 pН <1 pH Units # # Trifluralin <0.01 µg/l TM343 < 0.01 < 0.01

<0.01

<0.01

< 0.02

<0.01

<0.01

<0.01

<0.01

<0.01

< 0.01

< 0.01

<0.01

< 0.01

< 0.01

<0.01

<0.01

<0.02

<0.05

< 0.01

< 0.02

<0.08

< 0.04

<0.08

Endosulphan Sulphate	<0.02 µg/l	TM343	<0.04	<0.04
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

TM344

TM344

TM343

< 0.01

< 0.01

< 0.02

< 0.01

< 0.01

<0.01

< 0.01

<0.01

< 0.01

< 0.01

< 0.01

< 0.01

< 0.01

<0.01

< 0.01

<0.02

< 0.05

< 0.01

< 0.02

< 0.08

< 0.04

<0.08

<0.01

<0.01

<0.01 µg/l

<0.02 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

<0.01 µg/l

alpha-HCH

Heptachlor

beta-HCH

delta-HCH

o,p'-DDE

Endosulphan I trans-Chlordane

cis-Chlordane

o,p'-DDD (TDE)

p,p'-DDE

Dieldrin

Endrin

o,p'-DDT

p,p'-DDD (TDE)

Endosulphan II

o,p'-Methoxychlor

p,p'-Methoxychlor

Dichlorvos

Dichlobenil

p,p'-DDT

Heptachlor epoxide

Isodrin

Aldrin

gamma-HCH (Lindane)

<0.01

<0.01

Validated **CERTIFICATE OF ANALYSIS** SDG: 210715-109 **Client Reference:** P2282 Report Number: 607015 Location: Gort Landfill Z2798 Superseded Report: Order Number: Results Legend ISO17025 accredited. mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report for accreditation status. F, recovery of the surgate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery Customer Sample Re SW1 SW2 aq diss.filt tot.unfilt Depth (m 0.00 - 0.00 0.00 - 0.00 Surface Water (SW) 14/07/2021 Surface Water (SW) 14/07/2021 Sample Type Date Sample Sample Tim 15/07/2021 15/07/2021 Date Receive SDG Re 210715-109 210715-109 recovery Trigger breach confirmed Sample deviation (see appendix) 24638414 24638463 Lab Sample No.(s AGS Reference 4+§@ Component LOD/Units Method Mevinphos TM344 < 0.01 <0.01 <0.01 µg/l Tecnazene <0.01 µg/l TM344 <0.01 <0.01 <0.01 TM344 Hexachlorobenzene <0.01 µg/l < 0.01 <0.01 Demeton-S-methyl <0.01 µg/l TM344 <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

<0.01

<0.01

<0.07

<0.01

< 0.01

<0.01

< 0.01

< 0.01

<0.01

<0.01

<0.02

<0.01

< 0.01

<0.01

< 0.01

< 0.01

<0.01

<0.01

<0.01

<0.01

<0.01

< 0.01

< 0.02

< 0.02

<0.01

<0.01

Pentachlorobenzene

Atrazine

Simazine

Disulfoton

Propetamphos

Dimethoate

Pirimiphos-methyl

Chlorpyriphos

Malathion

Fenthion

Fenitrothion

Triadimefon

Pendimethalin

Chlorfenvinphos

trans-Chlordane

cis-Chlordane

Carbophenothion

Triazophos

Phosalone

Azinphos methyl

Azinphos ethyl

Etridiazole

Ethion

Parathion

Methyl Parathion

Chlorpyriphos-methyl

<0.01 µg/l

<0.02 µg/l

<0.02 µg/l

<0.01 µg/l

<0.01 µg/l

TM344

TM345

TM345

<0.01

< 0.01

<0.07

< 0.01

< 0.01

< 0.01

< 0.01

< 0.01

<0.01

< 0.01

<0.02

< 0.01

< 0.01

< 0.01

< 0.01

< 0.01

<0.01

<0.01

< 0.01

< 0.01

< 0.01

< 0.01

<0.02

< 0.02

<0.01

< 0.01



SDG:

	Results Legend		Customer Sample Ref.	SW1	SW2	İ I		
# M	ISO17025 accredited. mCERTS accredited. Aqueous / settled sample.							
aq diss.filt tot.unfilt	Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample.		Depth (m) Semple Ture	0.00 - 0.00	0.00 - 0.00 Surface Water (SW)			
*	Subcontracted - refer to subcontractor report f accreditation status.	or	Sample Type Date Sampled	Surface Water (SW) 14/07/2021	14/07/2021			
	% recovery of the surrogate standard to check efficiency of the method. The results of individ	ual	Sample Time Date Received	15/07/2021	15/07/2021			
	compounds within samples aren't corrected fo recovery	r the	SDG Ref Lab Sample No.(s)	210715-109 24638414	210715-109 24638463			
(F) 1-4+§@	Trigger breach confirmed Sample deviation (see appendix)		AGS Reference					
Compo Propact		LOD/Units <0.01 µg/		<0.01	<0.01			
		µ-9						
Quintoz	ene (PCNB)	<0.01 µg/	I TM345	<0.01	<0.01			
Ometho	ate	<0.01 µg/	I TM345	<0.01	<0.01			
omouno		-0.01 µg/i		-0.01	-0.01			
Propazi	ne	<0.01 µg/	I TM345	<0.01	<0.01			
Propyza	mide	<0.01 µg/	I TM345	<0.01	<0.01			
1100920		-0.01 µg/i		-0.01	-0.01			
Alachlor		<0.01 µg/	I TM345	<0.01	<0.01			
Prometr	vn	<0.01 µg/	I TM345	<0.01	<0.01			
TTOMEU	y i i	<0.01 μg/i	1 110-5	\$0.01	\$0.01			
Telodrin		<0.01 µg/	I TM345	<0.01	<0.01			
Terbutry	(n	<0.01 µg/	I TM345	<0.01	<0.01			
reibuli	11	<0.01 μg/i	1 110040	~0.01	\$0.01			
Chloroth	nalonil	<0.01 µg/	I TM345	<0.01	<0.01			
Etrinoph		<0.01~//	I TM345	<0.01	<0.01			
Etrimph	US	<0.01 µg/	1 11/1345	<0.01	<0.01			
Metazad	chlor	<0.01 µg/	I TM345	<0.01	<0.01			
0		10.01	TMD45	-0.04	-0.04			
Cyanazi	ne	<0.01 µg/	I TM345	<0.01	<0.01			
Trietazir	ne	<0.01 µg/	I TM345	<0.01	<0.01			
0		10.01	TMD45	-0.04	-0.04			
Coumar	onos	<0.01 µg/	I TM345	<0.01	<0.01			
Phosph	amidon I	<0.01 µg/	I TM345	<0.01	<0.01			
Phosph	amidon II	<0.01 µg/l	I TM345	<0.01	<0.01			
Dinitro-o	o-cresol	<0.1 µg/l	TM411	0.155	<0.2			
0					0.00			
Clopyra	lid	<0.04 µg/	I TM411	<0.04	<0.08			
MCPA		<0.05 µg/	I TM411	<0.05	<0.1			
					0.00			
Mecopro	qc	<0.04 µg/	I TM411	<0.04	<0.08			
Dicamb	а	<0.04 µg/	I TM411	<0.04	<0.08			
MCPB		<0.05 µg/	I TM411	<0.05	<0.1			
2,4-DB		<0.1 µg/l	TM411	<0.1	<0.2			
2,3,6-Tr	ichlorobenzoic acid	<0.05 µg/	I TM411	<0.05	<0.1			
Dichlorp	rop	<0.1 µg/l	TM411	<0.1	<0.2			
Triclopy	r	<0.05 µg/	I TM411	<0.05	<0.1			
Fenopro	p (Silvex)	<0.1 µg/l	TM411	<0.1	<0.2			
2,4-Dich	lorophenoxyacetic acid	<0.05 µg/	I TM411	<0.05	<0.1			
2,4.5-Tr	ichlorophenoxyacetic	<0.05 µg/	I TM411	<0.05	<0.1			
acid								
Bromox	ynil	<0.04 µg/	I TM411	<0.04	<0.08			
Benazo	in	<0.04 µg/	I TM411	<0.04	<0.08			
loxynil		<0.05 µg/	I TM411	<0.05	<0.1			7
					1			



Validated

Control Cart and Description Sequence legat Image: Control Image: Contro Image: Contro Image		SDG: Locatio	on:	210715-109 Gort Landfill		t Reference: r Number:	P2282 Z2798	2	Report Numb Superseded Re	er: 607015 port:	
# ISO17023 accredited. M mCRTS accredited. aq Aqueous / settide sample. - Depth (m) 0.00 - 0.00 0.00 - 0.00 tot.unfitt Total / unfittered sample. - - Sample Type Surface Water (SW) Surface Water (SW) succeditation status. Sample Type Sample Type Surface Water (SW) Surface Water (SW) 14/07/2021 14/07/2021 14/07/2021 * * racevery of the surcequite standard to check the efficiency of the entholicator report for surcequite standard to check the sample No.(6) Date Sample Type Surface Water (SW) 14/07/2021 15/07/2021 15/07/2021 (F) Trigger breach confirmed - - Sample Received 15/07/2021 15/07/2021 (F) Trigger breach confirmed - - Sample Received 24638414 24638463 1445@ Sample Apple. - - - - - - Pentachlorophenol Conty up /I TM 411 <0.04 <0.08 Pentachlorophenol TM 411 <0.04 <0.08 <										·	
Component LOD/Units Method	M aq diss.filt tot.unfilt * *	ISOT7025 accredited. mCRRTS accredited. Acqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontract accreditation satus. % recovery of the surrogate standard efficiency of the method. The results compounds within samples aren't o recovery Trigger breach confirmed	or report for I to check the of individual	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref	0.00 - 0.00 Surface Water (SW) 14/07/2021 15/07/2021 2107/15-109	0.00 - 0.00 Surface Water (SW) 14/07/2021 - 15/07/2021 210715-109)				
	Compo	nent	LOD/Units	Method	0.04	0.00					
Pacetopy 9.1 µpl 70.1 4.2 Image Simple	Pentach	lorophenol			<0.04						
Image: sector of the sector	Fluorox	ypyr	<0.1 µg/l	TM411	<0.1	<0.2					
Image: sector of the sector											
Image: sector of the sector											
Image: bis stateImage: bis stat											
Image: series of the series											
Image: sector of the sector											
Image: sector	 										
Image: set of the											
Image: state of the state of											
Index <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>											
Image: series of the series											
Image: series of the series											
Image: sector of the sector											
Image: series of the series											
Image: set of the											
Image: set of the											
Image: set of the											
Image: series of the series											
Image: selection of the											
Image: state in the state in											
Image: series of the series											
Image: series of the series											
Image: series of the series											
Image: series of the series											
Image: state s											
Image: state of the state of											
Image: state of the state of											
Image: constraint of the second sec											
Image: state of the state of											
Image: Constraint of the second sec											
Image: Sector of the sector	<u> </u>										
Image: Constraint of the second se	<u> </u>										

A	SDG: LS Location:		10715-109 Sort Landfill		t Reference: r Number:	P2282 Z2798	Report Number Superseded Repo	
	MS (W) - Aqueous						 	
	Results Legend ISO17025 accredited. mCERTS accredited.	C	ustomer Sample Ref.	SW1	SW2			
aq diss.filt tot.unfilt *	Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted - refer to subcontractor report f accreditation status.	or	Depth (m) Sample Type Date Sampled	0.00 - 0.00 Surface Water (SW) 14/07/2021	0.00 - 0.00 Surface Water (SW 14/07/2021)		
**	% recovery of the surrogate standard to check efficiency of the method. The results of individ compounds within samples aren't corrected fo recovery	ual	Sample Time Date Received SDG Ref	15/07/2021 210715-109	15/07/2021 210715-109			
(F)	Trigger breach confirmed Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638414	24638463			
Compo		LOD/Units	Method			_	 	
	ichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1	#	 	
	lorobenzene (aq)	<1 µg/l	TM176 TM176	<1 # <1	<1	#	 	
	lorobenzene (aq)	<1 µg/l	TM176	<1 *1	<1	#	 	
	ichlorophenol (aq)	<1 µg/l	TM176	<1 *1	<1	#	 	
	ichlorophenol (aq)	<1 µg/l	TM176	<1 *1	<1	#	 	
	lorophenol (aq)	<1 µg/l	TM176	<1 *1	<1	#	 	
	ethylphenol (aq)	<1 µg/l	TM176	<1 *1	<1	#	 	
	rotoluene (aq)	<1 µg/l	TM176	<1 *1	<1	#	 	
	rotoluene (aq)	<1 µg/l	TM176	<1 #	<1	#	 	
	onaphthalene (aq)	<1 µg/l	TM176	<1 #	<1	#	 	
	pphenol (aq)	<1 µg/l	TM176	<1 *1	<1	#	 	
	Inaphthalene (aq)	<1 µg/l	TM176	<1 *1	<1	#	 	
	Iphenol (aq)	<1 µg/l	TM176	# <1	<1	#	 	
	niline (aq)	<1 µg/l	TM176	#	<1	#		
	henol (aq)	<1 µg/l	TM176	#	<1	#		
3-Nitroa	niline (aq)	<1 µg/l	TM176	# <1	<1	#	 	
4-Bromc	phenylphenylether (aq)	<1 µg/l	TM176	# <1	<1	#		
4-Chlorc	o-3-methylphenol (aq)	<1 µg/l	TM176	# <1	<1	#		
4-Chlorc	paniline (aq)	<1 µg/l	TM176	# <1	<1	#		
4-Chlorc	ophenylphenylether (aq)	<1 µg/l	TM176	<1	<1		 	
4-Methy	lphenol (aq)	<1 µg/l	TM176	# <1 #	<1	#		
4-Nitroa	niline (aq)	<1 µg/l	TM176	# <1 #	<1	#		
4-Nitrop	henol (aq)	<1 µg/l	TM176	<1	<1	π'		
Azobenz	zene (aq)	<1 µg/l	TM176	<1 #	<1	#		
Acenaph	nthylene (aq)	<1 µg/l	TM176		<1	#		
Acenaph	nthene (aq)	<1 µg/l	TM176	 <1 #	<1	#		
Anthrace	ene (aq)	<1 µg/l	TM176	<1 #	<1	#		
bis(2-Ch	loroethyl)ether (aq)	<1 µg/l	TM176	<1 #	<1	#		
bis(2-Ch (aq)	loroethoxy)methane	<1 µg/l	TM176	<1 #	<1	#		
	nylhexyl) phthalate (aq)	<2 µg/l	TM176	<2 #	<2	#		
Butylben	nzyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1	#		
Benzo(a)anthracene (aq)	<1 µg/l	TM176	<1 #	<1	#		

CERTIFICATE OF ANALYSIS

			CERTI	FICATE C)F A		
SDG: Location:	2	10715-109 Sort Landfill		t Reference: r Number:	P22 Z279		
SVOC MS (W) - Aqueou							
Results Legend # ISO17025 accredited.		ustomer Sample Ref.	SW1	SW2			
M mCERTS accredited. aq Aqueous / settled sample. diss.fit Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor repor accreditation status. * % recovery of the surrogate standard to che efficiency of the method. The results of Indiv compounds within samples are? corrected	ck the ridual	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref	0.00 - 0.00 Surface Water (SW) 14/07/2021 15/07/2021 210715-109	0.00 - 0.00 Surface Water (SV 14/07/2021 15/07/2021 210715-109	N)		
recovery (F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638414	24638463			
Component	LOD/Units	Method					
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	#		
Chrysene (aq)	<1 µg/l	TM176	<1 #	<1	#		
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #	<1	#		
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<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	#		
					\neg		
12.02.23 26/07/2021						I	I

CERTIFICATE OF ANALYSIS

_

			CERT	IFICATE OF		
SDG: Location		210715-109 Gort Landfill			P228 Z279	
			0100			
Results Legend # ISO17025 accredited.	C	Customer Sample Ref.	SW1	SW2		
M mCERTS accredited. aq Aqueous / settled sample. diss.fit Dissolved / filtered sample. tot.unfit Total / unfiltered sample. * Subcontracted - refer to subcontractor reactifation status.	eport for	Depth (m) Sample Type Date Sampled	0.00 - 0.00 Surface Water (SW) 14/07/2021	0.00 - 0.00 Surface Water (SW) 14/07/2021		
** % recovery of the surrogate standard to efficiency of the method. The results of i compounds within samples aren't correc recovery	individual	Sample Time Date Received SDG Ref	15/07/2021 210715-109	15/07/2021 210715-109		
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	24638414	24638463		
Component Dibromofluoromethane**	LOD/Units	Method TM208	112	109	+	
	0/	TM000			+	
Toluene-d8**	%	TM208	101	101		
4-Bromofluorobenzene**	%	TM208	100	99		
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	#	
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	<1	#	
			#		#	

SDG:	2	10715-109	Clien	t Reference:	P2282	Report Number:	607015
ALS Location:		Sort Landfill		r Number:	Z2798	Superseded Report:	
OC MS (W)							
Results Legend # ISO17025 accredited.	Ci	ustomer Sample Ref.	SW1	SW2			
M mCERTS accredited. aq Aqueous / settled sample.							
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	0.00 - 0.00 Surface Water (SW)	0.00 - 0.00 Surface Water (SW	h		
* Subcontracted - refer to subcontractor repo accreditation status.		Date Sampled	14/07/2021	14/07/2021	,		
** % recovery of the surrogate standard to che efficiency of the method. The results of indi	vidual	Sample Time Date Received	15/07/2021	15/07/2021			
compounds within samples aren't corrected recovery (F) Trigger breach confirmed	1 for the	SDG Ref Lab Sample No.(s)	210715-109 24638414	210715-109 24638463			
1-4+§@ Sample deviation (see appendix)		AGS Reference					
Component Tetrachloroethene	LOD/Units <1 µg/l	Method TM208	<1	<1			
			. #	·	#		
Dibromochloromethane	<1 µg/l	TM208	<1	<1			
1,2-Dibromoethane	<1 µg/l	TM208	<1 #	<1	#		
r,2-Dibiomoethane	<1µg/i	TIVIZUO	<ı #		#		
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	#		
	~ i µy/i	T WIZ UU	<1 #		#		
Styrene	<1 µg/l	TM208	<1	<1			
		T 1 (000	#		#		
Bromoform	<1 µg/l	TM208	<1 #	<1	#		
lsopropylbenzene	<1 µg/l	TM208	<1	<1	π		
			#		#		
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	ш		
1,2,3-Trichloropropane	<1 µg/l	TM208	<1 #	<1	#		
1,2,0 ⁻ menioropropane	<1 µg/i	TWZOO	<br #		#		
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	ш		
4-Chlorotoluene	<1 µg/l	TM208	<1 #	<1	#		
	si µg/i	TWZOO	#	.,	#		
tert-Butylbenzene	<1 µg/l	TM208	<1	<1			
	14	TM000	#	-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	#		
	. 480		*1		#		
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1			
a Putulhan-cas		TMOOD	<1 #		#		
n-Butylbenzene	<1 µg/l	TM208	<1 #	<1	#		
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1			
			#		#		
I,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1			
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1			
, ,	. 49,1		#		#		
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1			
	.4 11	THOOD	#		#		
ert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 #	<1	#		
Naphthalene	<1 µg/l	TM208	<1 *	<1	π		
	· ٣٥′'		#		#		
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1			
1.3.5-Trichlorobenzene	<1 µg/l	TM208	#	<u>م</u> ر.	#		
		I IVIZUŐ	<1	<1	- I		



607015



SDG:

Location:

Client Reference: P2282 Order Number: Z2798 Report Number: 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
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).

P2282

Z2798

Client Reference:

Order Number:

607015

Test Completion Dates

Lab Sample No(s)	24638414	24638463
	SW1	24030403 SW2
Customer Sample Ref.	SWI	5W2
AGS Ref.		
Depth	0.00 - 0.00	0.00 - 0.00
Туре	Surface Water	Surface Water
Acid Herbicides by GCMS	22-Jul-2021	22-Jul-2021
Alkalinity as CaCO3	21-Jul-2021	17-Jul-2021
Ammonium Low	20-Jul-2021	20-Jul-2021
Anions by Kone (w)	21-Jul-2021	21-Jul-2021
BOD True Total	20-Jul-2021	21-Jul-2021
COD Unfiltered	17-Jul-2021	17-Jul-2021
Conductivity (at 20 deg.C)	21-Jul-2021	20-Jul-2021
Cyanide Comp/Free/Total/Thiocyanate	21-Jul-2021	21-Jul-2021
Dissolved Metals by ICP-MS	20-Jul-2021	21-Jul-2021
Dissolved Oxygen by Probe	16-Jul-2021	16-Jul-2021
Fluoride	16-Jul-2021	16-Jul-2021
Mercury Dissolved	19-Jul-2021	20-Jul-2021
Mineral Oil C10-40 Aqueous (W)	20-Jul-2021	21-Jul-2021
Pesticides (Suite I) by GCMS	20-Jul-2021	20-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	22-Jul-2021	22-Jul-2021
VOC MS (W)	18-Jul-2021	18-Jul-2021

SDG:	210715-109	Client Reference:	P2282	Report Number:	607015
Location:	Gort Landfill	Order Number:	Z2798	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 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

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
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).

Asbe stos Type	Common Name
Chrysof le	White Asbestos
Amosite	Brow n Asbestos
Cio d dolite	Blue Asbe stos
Fibrous Act nolite	-
Fib io us Anthop hyll ite	-
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 μ m diameter, longer than 5 μ m 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 Deeside CH5 3US Tel: (01244) 528777 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: Customer: Sample Delivery Group (SDG): Your Reference: Location: Report No: Order Number: 17 June 2022 Fehily Timoney 220606-23 Galway Historic Landfills P22-040 Gort Landfill 651052 Z3385

We received 5 samples on Monday June 06, 2022 and 5 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



ALS Life Sciences Limited. Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No. 4057291. Version: 3.3 Version Issued: 17/06/2022



Client Ref.: Galway Historic Landfills P22-040

Validated

Report Number: 651052 Location: Gort Landfill Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
26388718	GW01		0.00 - 0.00	01/06/2022
26388732	GW02		0.00 - 0.00	01/06/2022
26388696	LH01		0.00 - 0.00	01/06/2022
26388746	SW1		0.00 - 0.00	01/06/2022
26388760	SW2		0.00 - 0.00	01/06/2022

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

	Report Number: 651052 Superseded Report: :: Galway Historic Landfills P22-040 Location: Gort Landfill																				
Results Legend															26388696						
X Test	Lab Sample No(s)		26388718					26388732						027402							
Possible	Custome Sample Refer	G Q Q Q						GW02						GW02							
Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate	AGS Refere	nce																			
PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	Depth (m)	0.00 - 0.00								0.00 - 0.00										
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Containe	r	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	HNUS-Filtered (ALE204) H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5 [glass bottle (ALE227) Vial (ALE297)				HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	
	Sample Ty	ре	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	Ē	Ē	Ē	٣	Ē	Ē	Ē
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 5	x						X						х						
Alkalinity as CaCO3	All	NDPs: 0 Tests: 5		X						x					X						
Ammonium Low	All	NDPs: 0 Tests: 5			X						x							X			
Anions by Kone (w)	All	NDPs: 0 Tests: 5	X						X								X				
BOD True Total	All	NDPs: 0 Tests: 5		X						X						X					
COD Unfiltered	All	NDPs: 0 Tests: 5	x						X							X					
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 5					x						X							x	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5				x						X							X		
Dissolved Oxygen by Probe	All	NDPs: 0 Tests: 5		x						x							x				
Fluoride	All	NDPs: 0 Tests: 5		x						x							x				
Mercury Dissolved	All	NDPs: 0 Tests: 5				x						x							x		
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 5		x						x							x				
Pesticides (Suite I) by GCMS	All	NDPs: 0 Tests: 5	x						x						x						
Pesticides (Suite II) by GCMS	All	NDPs: 0 Tests: 5	x						X						X						
Pesticides (Suite III) by GCMS	All	NDPs: 0 Tests: 5	x						X						х						

						26388746							26388760
						SW1							SW2
						0.00 - 0.00							0.00 - 0.00
0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
SM	SM	SM	SM	WS	SM	SW	SM	SM	SM	SM	WS	SW	SM
	X	× ×	× ×	×	×		× ×	X	× ×	× ×	<		
X		X					X		X				
x x							x x						

			С	ERT	IFIC	AT	E OI	F AI	NAL	YS	IS									Valio	dated	
ALS		220606-23 Galway Historic Landfill				ort N	umber	: 65	1052					Supe	rsedeo	l Repo	ort:					
Results Legend X Test N No Determin	ation	Lab Sample N	lo(s)						26388718						26388732							26388696
Possible Sample Types -		Custome Sample Refer							GW01						GW02							LH01
S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate		AGS Refere	nce																			
PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage		Depth (m)						0.00 - 0.00						0.00 - 0.00							0.00 - 0.00
RE - Recreational Water DW - Drinking Water Non-re UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other		Containe	r	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)
		Sample Ty	be	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	Ē	Ē	Ē	Ē	Ē	Ē	Ē
pH Value		All	NDPs: 0 Tests: 5	x						x								x				
SVOC MS (W) - Aqueous		All	NDPs: 0 Tests: 5	x						x						x						
Total Organic and Inorganic Car	rbon	All	NDPs: 0 Tests: 5			x						x							x			
VOC MS (W)		All	NDPs: 0 Tests: 5						x						x							x

	WS	0.5l glass bottle (ALE227)			
	WS	250ml BOD (ALE212)			
X	WS	500ml Plastic (ALE208)			
	SM	H2SO4 (ALE244)			
	SM	HNO3 Filtered (ALE204)			
	SM	NaOH (ALE245)			
	WS	Vial (ALE297)	0.00 - 0.00	SW1	26388746
	WS	0.5l glass bottle (ALE227)			
	WS	250ml BOD (ALE212)			
	SM	500ml Plastic (ALE208)			
	SM	H2SO4 (ALE244)			
	SM	HNO3 Filtered (ALE204)			
	SM	NaOH (ALE245)			
	SM	Vial (ALE297)	0.00 - 0.00	SW2	26388760

ALS

SDG: 220606-23

Client Ref.: Galway Historic Landfills P22-040

CERTIFICATE OF ANALYSIS

Validated

Report Number:651052Location:Gort Landfill

Superseded Report:

	I.: Galway	HISTORIC LARUE	1115 F 22-040	Location.		ont Lanuilli			
Results Legend		Customer Sample Ref.	01/0/	011/00	_	1104	2004	2112	
# ISO17025 accredited.		Justomer Sample Ref.	GW01	GW02		LH01	SW1	SW2	
M mCERTS accredited. aq Aqueous / settled sample.									
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00		0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
* Subcontracted - refer to subcontractor report for		Sample Type	Ground Water (GW)	Ground Water (GW)		Land Leachate (LE)	Surface Water (SW)	Surface Water (SW)	
accreditation status. ** % recovery of the surrogate standard to check the		Date Sampled Sample Time	01/06/2022	01/06/2022		01/06/2022	01/06/2022	01/06/2022	
efficiency of the method. The results of individual		Date Received	06/06/2022	06/06/2022		. 06/06/2022	06/06/2022	06/06/2022	
compounds within samples aren't corrected for the		SDG Ref	220606-23	220606-23		220606-23	220606-23	220606-23	
recovery (F) Trigger breach confirmed		Lab Sample No.(s)	26388718	26388732		26388696	26388746	26388760	
1-4+§@ Sample deviation (see appendix)		AGS Reference							
Component	LOD/Units	Method							
Alkalinity, Total as HCO3	<2 mg/l	TM043	427	479		2300	75.3	76.4	
BOD, unfiltered	<1 mg/l	TM045	<1	<1		8.79	<1	<1	
,-	- Ting/i	1110-10			۰ <i>#</i>				
			@#		D#	@#	@#	@#	
Oxygen, dissolved	<0.3 mg/l	TM046	6.02	5.77		4.96	6.47	6.1	
Organic Carbon, Total	<3 mg/l	TM090	<3	<3		31	8.46	10.1	
-	- Jr		#	-	#		#	#	
Ammeniaeel Nitrogen ee N (levulevel)	10.01	TM000		0.0140	-	400			
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	0.0222	0.0148		122	0.0314	0.0347	
			#		#		#	#	
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5		<0.5	<0.5	<0.5	
	-		#		#				
COD, unfiltered	<7 ma/	TM107		73.2		684	17.8	16	
COD, unintered	<7 mg/l			13.2					
			#		#	#	#	#	
Arsenic (diss.filt)	<0.5 µg/l	TM152	0.563	<0.5		19.5	<0.5	<0.5	
			#		#	#	#	#	
Barium (diss.filt)	<0.2 µg/l	TM152	11.5	14.6		194	37.6	38	
Bundin (dise.int)	<0.2 μg/i	1101102		14.0	#				
			#		#	#	#	#	
Boron (diss.filt)	<10 µg/l	TM152	13.6	14.9		542	<10	<10	
			#		#	#	#	#	
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.08		<0.08	<0.08	<0.08	
	10.00 µg/i	111102	#	-0.00	#	#	#	#	
					#				
Chromium (diss.filt)	<1 µg/l	TM152	<1	<1		1.7	<1	<1	
			#		#	#	#	#	
Copper (diss.filt)	<0.3 µg/l	TM152	0.79	0.551		0.584	0.531	0.418	
			#		#	#	#	#	
		714450			#				
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	<0.2		0.413	<0.2	<0.2	
			#		#	#	#	#	
Manganese (diss.filt)	<3 µg/l	TM152	<3	<3		1030	4	8.58	
			#		#	#	#	#	
Nickel (diss.filt)	<0.4 µg/l	TM152	2.41	0.962	-	3.64	0.581	0.538	
	<υ. 4 μg/i	1101102		0.302	ш.				
			#		#	#	#	#	
Phosphorus (diss.filt)	<10 µg/l	TM152	29.1	12.6		337	<10	<10	
			#		#	#	#	#	
Selenium (diss.filt)	<1 µg/l	TM152	<1	<1		<1	<1	<1	
			. #		#	. #	. #	. #	
71 III (II (III)	0 "	714450		-	-				
Thallium (diss.filt)	<2 µg/l	TM152	<2	<2		<2	<2	<2	
			#		#	#	#	#	
Zinc (diss.filt)	<1 µg/l	TM152	3.51	1.04		3.43	4.56	2.03	
			#		#	#	#	#	
Sodium (Dis.Filt)	<0.076 mg/l	TM152	22.1	10.2	-	85.8	10.5	10.5	I
		1101102	#	10.2	#	65.6 #		10.5	
					#		#		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	14.8	8.74		52.1	2.97	2.94	
			#		#	#	#	#	
Potassium (Dis.Filt)	<0.2 mg/l	TM152	4.3	2.02		85.7	1.1	1.06	
			#	-	#	#	#	#	
Calcium (Dis.Filt)	<0.2 m="	TM152	133	148	π	234	24.8	24.3	
	<0.2 mg/l	1101152		140					
			#		#	#	#	#	
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.019	<0.019		27.8	0.0769	0.0797	
			#		#	#	#	#	
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01	<0.01		<0.01	<0.01	<0.01	
- 7 1 7	·•.• µy/I	111100	<0.01 #	-0.01	#	<0.01 #	-0.01	-0.01	
Quila hada	. .				#			-	
Sulphate	<2 mg/l	TM184	23.2	13		<2	<2	<2	
			#		#		#	#	
Chloride	<2 mg/l	TM184	40.4	19.3		104	22	21.4	
	.9		#		#		#		
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	4.16	<0.1	π	<0.1	0.171	0.155	
TOTAL ONUISED MILLOYELL AS IN	∿u. i mg/l	1111104		SU.1		SU. I			
			#		#		#	#	
PCB congener 28	<0.015 µg/l	TM197	<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	
··· •• · · · -	·•.• 10 µy/1	1101-01	-0.010	-0.010		-0.010	-0.010	-0.010	
200 (2)				A 4 ***	-				
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015		<0.015	<0.015	<0.015	
		1		1					(

<0.015 µg/l

TM197

<0.015

PCB congener 118

<0.015

<0.015

<0.015

<0.015



Client Ref.: Galway Historic Landfills P22-040

CERTIFICATE OF ANALYSIS

Validated

Report Number: 651052 Location: Gort Landfill Superseded Report:

Results Legend # IS017025 accredited.		Customer Sample Ref.	GW01	GW02	LH01	SW1	SW2	
M mCERTS accredited. aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
* Subcontracted - refer to subcontractor report for accreditation status.		Date Sampled	Ground Water (GW) 01/06/2022	Ground Water (GW) 01/06/2022	Land Leachate (LE) 01/06/2022	Surface Water (SW) 01/06/2022	Surface Water (SW) 01/06/2022	
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual		Sample Time Date Received	06/06/2022	06/06/2022	06/06/2022	06/06/2022	06/06/2022	
compounds within samples aren't corrected for the recovery		SDG Ref	220606-23	220606-23	220606-23	220606-23	220606-23	
(F) Trigger breach confirmed 1-4+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	26388718	26388732	26388696	26388746	26388760	
Component	LOD/Units							
PCB congener 138	<0.015 µg/l		<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	
PCB congener 180	<0.015 µg/l	TM197	<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	
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	
эH	<1 pH Units	5 TM256	7.5	7.21 #	7.01 #	8.06	8.17 #	
Conductivity @ 20 deg.C	<0.02 mS/cm	TM256	0.715 #	0.702 #	2.38 #	0.188	0.187 #	
Trifluralin	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
alpha-HCH	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
gamma-HCH (Lindane)	<0.01 µg/l	TM343	<0.03	<0.14	<0.1	<0.03	<0.01	
Heptachlor	<0.01 µg/l	TM343	<0.01	<0.01	<0.2	<0.01	<0.01	
Ndrin	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
eta-HCH sodrin	<0.01 µg/l <0.01 µg/l	TM343 TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
lelta-HCH	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
Heptachlor epoxide	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
p,p'-DDE	<0.01 µg/l	TM343	<0.02	<0.02	<0.1	<0.02	<0.02	
Endosulphan I	<0.01 µg/l	TM343	<0.02	<0.02	<0.1	<0.02	<0.02	
rans-Chlordane	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
is-Chlordane	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
p,p'-DDE	<0.01 µg/l	TM343	<0.02	<0.02	<0.1	<0.02	<0.02	
Dieldrin	<0.01 µg/l	TM343	0.0317	<0.01	<0.1	<0.01	<0.01	
p,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	
Endrin	<0.01 µg/l	TM343	<0.02	<0.02	<0.5	<0.02	<0.02	
p,p'-DDT	<0.01 µg/l	TM343	<0.02	<0.02	<0.4	<0.02	<0.02	
p,p'-DDD (TDE)	<0.01 µg/l	TM343	<0.02	<0.02	<0.2	<0.02	<0.02	
Endosulphan II	<0.02 µg/l	TM343	<0.02	<0.02	<0.2	<0.02	<0.02	
₽,p'-DDT	<0.01 µg/l	TM343	<0.02	<0.02	<0.6	<0.02	<0.02	
p,p'-Methoxychlor	<0.01 µg/l		<0.02	<0.02	<0.5	<0.02	<0.02	
p,p'-Methoxychlor	<0.01 µg/l		<0.02	<0.02	<0.8	<0.02	<0.02	
Endosulphan Sulphate	<0.02 µg/l		<0.02	<0.02	<0.8	<0.02	<0.02	
Permethrin I	<0.01 µg/l		<0.01	<0.01	<0.1	<0.01	<0.01	
Permethrin II	<0.01 µg/l	TM343	<0.01	<0.01	<0.1	<0.01	<0.01	



Client Ref.: Galway Historic Landfills P22-040

CERTIFICATE OF ANALYSIS

Validated

Report Number:651052Location:Gort Landfill

Superseded Report:

Results Legend # ISO17025 accredited. M mCERTS accredited.	Cu	istomer Sample Ref.	GW01	GW02	LH01	SW1	SW2	
M mCERTS accredited. aq Aqueous settled sample. diss.fit Dissolved / filtered sample. * Subcontracted - refer to subcontractor report for accreditation status. * % recovery of the surroate standard to check the		Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Ground Water (GW) 01/06/2022	0.00 - 0.00 Ground Water (GW) 01/06/2022	0.00 - 0.00 Land Leachate (LE) 01/06/2022	0.00 - 0.00 Surface Water (SW) 01/06/2022	0.00 - 0.00 Surface Water (SW) 01/06/2022	
efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-44§@ Sample deviation (see appendix)		Date Received SDG Ref Lab Sample No.(s) AGS Reference	06/06/2022 220606-23 26388718	06/06/2022 220606-23 26388732	06/06/2022 220606-23 26388696	06/06/2022 220606-23 26388746	06/06/2022 220606-23 26388760	
Component 3,5-Trichlorobenzene	LOD/Units <0.01 μg/l	Method TM344	<0.02	<0.02	<0.2	<0.02	<0.02	
lexachlorobutadiene	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
2,4-Trichlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
2,3-Trichlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
ichlorvos	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
ichlobenil	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
evinphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
ecnazene	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
exachlorobenzene	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
emeton-S-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
horate	<0.01 µg/l	TM344	<0.02	<0.02	<0.2	<0.02	<0.02	
azinon	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
iallate	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
trazine	<0.01 µg/l	TM344	0.0653	<0.01	<0.1	<0.01	<0.01	
mazine	<0.01 µg/l	TM344	<0.03	<0.01	0.51	<0.01	<0.01	
isulfoton	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
ropetamphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
hlorpyriphos-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
imethoate	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
irimiphos-methyl	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
hlorpyriphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
ethyl Parathion	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
alathion	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
enthion	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
enitrothion	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
iadimefon	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
endimethalin	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
arathion	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
hlorfenvinphos	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
ans-Chlordane	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
s-Chlordane	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
thion	<0.01 µg/l	TM344	<0.01	<0.01	<0.1	<0.01	<0.01	
Corbon bonothion	<0.01.00/	TM244	<0.00	<0.02	<0.0	<0.02	<0.02	

<0.01 µg/l

TM344

<0.02

Carbophenothion

<0.2

< 0.02

< 0.02

<0.02



Client Ref.: Galway Historic Landfills P22-040

CERTIFICATE OF ANALYSIS

Validated

Report Number: 651052 Location: Gort Landfill Superseded Report:

Results Legend	0	ustomer Sample Ref.	GW01	GW02	LH01	SW1	SW2	
IS017025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.mrllit Total / unfiltered sample. * Subcontracted - refer to subcontractor report for		Depth (m) Sample Type	0.00 - 0.00 Ground Water (GW)	0.00 - 0.00 Ground Water (GW)	0.00 - 0.00 Land Leachate (LE)	0.00 - 0.00 Surface Water (SW)	0.00 - 0.00 Surface Water (SW)	
accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual		Date Sampled Sample Time Date Received	01/06/2022 06/06/2022	01/06/2022 06/06/2022	01/06/2022 06/06/2022	01/06/2022 06/06/2022	01/06/2022 06/06/2022	
compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-44§@ Sample deviation (see appendix)		SDG Ref Lab Sample No.(s) AGS Reference	220606-23 26388718	220606-23 26388732	220606-23 26388696	220606-23 26388746	220606-23 26388760	
Component	LOD/Units	Method						
Triazophos	<0.01 µg/l	TM344	<0.02	<0.02	<0.2	<0.02	<0.02	
Phosalone	<0.01 µg/l	TM344	<0.02	<0.02	<0.2	<0.02	<0.02	
Azinphos methyl	<0.02 µg/l	TM344	<0.02	<0.02	<0.2	<0.02	<0.02	
Azinphos ethyl	<0.02 µg/l	TM344	<0.02	<0.02	<0.2	<0.02	<0.02	
Etridiazole	<0.01 µg/l	TM345	<0.02	<0.02	<0.2	<0.02	<0.02	
Pentachlorobenzene	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Propachlor	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Quintozene (PCNB)	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Omethoate	<0.01 µg/l	TM345	<0.02	<0.02	<0.2	<0.02	<0.02	
Propazine	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Propyzamide	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Alachlor	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Prometryn	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Telodrin	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Terbutryn	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Chlorothalonil	<0.01 µg/l	TM345	<0.01	<0.01	<0.2	<0.01	<0.02	
Etrimphos	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Metazachlor	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Cyanazine	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Trietazine	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Coumaphos	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Phosphamidon I	<0.01 µg/l	TM345	<0.02	<0.02	<0.2	<0.02	<0.02	
Phosphamidon II	<0.01 µg/l	TM345	<0.01	<0.01	<0.1	<0.01	<0.01	
Dinitro-o-cresol	<0.1 µg/l	TM411	<0.1	<0.1	<10	<0.2	<0.1	
Clopyralid	<0.04 µg/l	TM411	<0.04	<0.04	<4	<0.08	<0.04	
МСРА	<0.05 µg/l	TM411	<0.05	<0.05	<5	<0.1	<0.05	
Месоргор	<0.04 µg/l	TM411	<0.04	<0.04	<4	<0.08	<0.04	
Dicamba	<0.04 µg/l	TM411	<0.04	<0.04	<4	<0.08	<0.04	
МСРВ	<0.05 µg/l	TM411	<0.05	<0.05	<5	<0.1	<0.05	
2,4-DB	<0.1 µg/l	TM411	<0.1	<0.1	<10	<0.2	<0.1	
2,3,6-Trichlorobenzoic acid	<0.05 µg/l	TM411	<0.05	<0.05	<5	<0.1	<0.05	
Dichlorprop	<0.1 µg/l	TM411	<0.1	<0.1	<10	<0.2	<0.1	
Triclopyr	<0.05 µg/l	TM411	<0.05	<0.05	<5	<0.1	<0.05	



Client Ref.: Galway Historic Landfills P22-040

CERTIFICATE OF ANALYSIS

Validated

Report Number: 651052 Location: Gort Landfill Superseded Report:

Results Legend # ISO17025 accredited.		Cus	tomer Sample Ref.	GW01	GW02	LH01	SW1	SW2	
M mCERTS accredited.									
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
tot.unfilt Total / unfiltered sample.			Sample Type	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Surface Water (SW)	Surface Water (SW)	
* Subcontracted - refer to subcontractor report for			Date Sampled	01/06/2022	01/06/2022	01/06/2022	01/06/2022	01/06/2022	
accreditation status. ** % recovery of the surrogate standard to check the			Sample Time						
efficiency of the method. The results of individual			Date Received	06/06/2022	06/06/2022	06/06/2022	06/06/2022	06/06/2022	
compounds within samples aren't corrected for the recovery	•		SDG Ref	220606-23	220606-23	220606-23	220606-23	220606-23	
(F) Trigger breach confirmed		L	ab Sample No.(s)	26388718	26388732	26388696	26388746	26388760	
1-4+§@ Sample deviation (see appendix)			AGS Reference						
Component	LOD/U	nits	Method						
Fenoprop (Silvex)	<0.1		TM411	<0.1	<0.1	<10	<0.2	<0.1	
	~0.14	μy/i	1 1014 1 1	-0.1	NO.1	10	~0.2	50.1	
2,4-Dichlorophenoxyacetic acid	<0.05	µg/l	TM411	<0.05	<0.05	<5	<0.1	<0.05	
2,4,5-Trichlorophenoxyacetic acid	<0.05	µg/l	TM411	<0.05	<0.05	<5	<0.1	<0.05	
Bromoxynil	<0.04	µg/l	TM411	<0.04	<0.04	<4	<0.08	<0.04	
Benazolin	<0.04	µg/l	TM411	<0.04	<0.04	<4	<0.08	<0.04	
loxynil	<0.05	µg/l	TM411	<0.05	<0.05	<5	<0.1	<0.05	
Pentachlorophenol	<0.04	µg/l	TM411	<0.04	<0.04	<4	<0.08	<0.04	
Fluoroxypyr	<0.1	µg/l	TM411	<0.1	<0.1	<10	<0.2	<0.1	
		\neg							
		\neg							
		\neg							
		\neg							
		\neg							
		-+							
		-							

CERTIFICATE OF ANALYSIS Report Number: 651052

Superseded Report:

Validated

Client Ref.: Galway Historic Landfills P22-040

	G: 220606-	23 Historic Landfi	ille P22-040	Report Number: 6 Location: 0		Superseded	Report:	
	-		113122-040	Location.				
SVOC MS (W) - Aqueous Results Legend # IS017025 accredited.	Ci	ustomer Sample Ref.	GW01	GW02	LH01	SW1	SW2	
M mCERTS accredited. aq Aqueous (settide sample. diss.filt Dissolved / filtered sample. totumfil total / unfiltered sample. Subcontracted -refer to subcontractor report for accreditation status. "% recovery of the surrogate standard to check the		Depth (m) Sample Type Date Sampled Sample Time	0.00 - 0.00 Ground Water (GW) 01/06/2022	0.00 - 0.00 Ground Water (GW) 01/06/2022	0.00 - 0.00 Land Leachate (LE) 01/06/2022	0.00 - 0.00 Surface Water (SW) 01/06/2022	0.00 - 0.00 Surface Water (SW) 01/06/2022	
efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 14+§@ Sample deviation (see appendix) Component	LOD/Units	Date Received SDG Ref Lab Sample No.(s) AGS Reference Method	06/06/2022 220606-23 26388718	06/06/2022 220606-23 26388732	06/06/2022 220606-23 26388696	06/06/2022 220606-23 26388746	06/06/2022 220606-23 26388760	
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	 <1 #	<1 ====================================	<10			
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<10			
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<10			
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176			<10			
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	" <1 #	<1 #	
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 #	<1	<10	<1 #	<1 #	
2-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
3-Nitroaniline (aq)	<1 µg/l	TM176	<1	<1	<10	<1	<1	
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #	<1	<10	<1 #	<1 #	
4-Chloroaniline (aq)	<1 µg/l	TM176	<1	<1	<10	<1	<1	
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #	24.8 #	<10	<1 #	<1 #	
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #	<1	<10	<1 #	<1 #	
4-Nitrophenol (aq)	<1 µg/l	TM176	<1	<1	<10	<1	<1	
Azobenzene (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	
Acenaphthylene (aq)	<1 µg/l	TM176	<1 #	<1 #	<10	<1 #	<1 #	

Acenaphthene (aq)

Anthracene (aq)

bis(2-Chloroethyl)ether (aq)

bis(2-Chloroethoxy)methane (aq)

bis(2-Ethylhexyl) phthalate (aq)

Butylbenzyl phthalate (aq)

Benzo(a)anthracene (aq)

<1 µg/l

<1 µg/l

<1 µg/l

<1 µg/l

<2 µg/l

<1 µg/l

<1 µg/l

TM176

TM176

TM176

TM176

TM176

TM176

TM176

#

#

#

#

#

#

#

<10

<10

<10

<10

<20

<10

<10

<1

<1

<1

<1

<2

<1

<1

#

#

#

#

#

#

#

<1

<1

<1

<1

<2

<1

<1

#

#

#

#

#

#

#

<1

<1

<1

<1

<2

<1

<1

#

#

#

#

#

#

#

<1

<1

<1

<1

<2

<1

<1

CERTIFICATE OF ANALYSIS

Validated

Client Ref.: Galway Historic Landfills P22-040

Report Number: 651052 Location: Gort Landfill Superseded Report:

SVOC MS (W) - Aqueous

SDG: 220606-23

SVOC MS (W) - Aqueous								
Results Leggond ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.fit: DisoNed / fittered sample. tot.unfit: Total / unfittered 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 14-5§© Sample deviation (see appendix)		Customer Sample Rei 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) 01/06/2022 06/06/2022 220606-23 26388718	GW02 0.00 - 0.00 Ground Water (GW) 01/06/2022 	LH01 0.00 - 0.00 Land Leachate (LE) 01/06/2022 	SW1 0.00 - 0.00 Surface Water (SW) 01/06/2022 06/06/2022 220606-23 26388746	SW2 0.00 - 0.00 Surface Water (SW) 01/06/2022 06/06/2022 220606-23 26388760	
Component	LOD/U							
Benzo(b)fluoranthene (aq)	<1 µ		<1 #	<1 #	<10	<1 #	<1 #	
Benzo(k)fluoranthene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Benzo(a)pyrene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Benzo(g,h,i)perylene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Carbazole (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Chrysene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Dibenzofuran (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
n-Dibutyl phthalate (aq)	<1 µ	g/I TM176	<1 #	<1 #	<10	<1 #	<1 #	
Diethyl phthalate (aq)	<1 µ	g/I TM176	<1 #	<1 #	<10	<1 #	<1 #	
Dibenzo(a,h)anthracene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Dimethyl phthalate (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
n-Dioctyl phthalate (aq)	<5 µ	g/l TM176	<5 #	<5 #	<50	<5 #	<5 #	
Fluoranthene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Fluorene (aq)	<1 µ	g/I TM176	<1 #	<1 #	<10	<1 #	<1 #	
Hexachlorobenzene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Hexachlorobutadiene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Pentachlorophenol (aq)	<1 µ	g/l TM176	<1	<1	<10	<1	<1	
Phenol (aq)	<1 µ	g/l TM176	<1	1.9	<10	<1	<1	
n-Nitroso-n-dipropylamine (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Hexachloroethane (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Nitrobenzene (aq)	<1 µ	g/l TM176	<1 #	<1	<10	<1 #	<1 #	
Naphthalene (aq)	<1 µ	g/l TM176	<1 #	<1	<10	<1 #	<1 #	
Isophorone (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Hexachlorocyclopentadiene (aq)	<1 µ	g/I TM176	<1	<1	<10	<1	<1	
Phenanthrene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Indeno(1,2,3-cd)pyrene (aq)	<1 µ	g/l TM176	<1 #	<1 #	<10	<1 #	<1 #	
Pyrene (aq)	<1 µ	g/l TM176	<1 #	<1	<10	<1 #	<1 #	

CERTIFICATE OF ANALYSIS

Validated

/OC	MS	(W)

Report Number: 651052 Client Ref.: Galway Historic Landfills P22-040 Location: Gort Landfill Superseded Report:

Results Legend		Customer Sample Ref.	2011/21	011/00		011/1	014/9	
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample.		ustomer Sample Ref.	GW01	GW02	LH01	SW1	SW2	
diss.filt Dissolved / filtered sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for		Sample Type	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Surface Water (SW)	Surface Water (SW)	
accreditation status.		Date Sampled Sample Time	01/06/2022	01/06/2022	01/06/2022	01/06/2022	01/06/2022	
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual		Date Received	06/06/2022	06/06/2022	06/06/2022	06/06/2022	06/06/2022	
compounds within samples aren't corrected for the		SDG Ref	220606-23	220606-23	220606-23	220606-23	220606-23	
recovery (F) Trigger breach confirmed		Lab Sample No.(s)	26388718	26388732	26388696	26388746	26388760	
1-4+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM208	102	97.5	111	96.2	98	
Toluene-d8**	%	TM208	101	102	101	101	102	
	70	111/200	101	102	101	101	102	
4-Bromofluorobenzene**	%	TM208	103	101	101	103	104	
	70	1101200	105	101	101	100	104	
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
	1 µg/1	THILEGO	#	#	#	#	#	
Description of the second seco		T 1 (000						
Bromomethane	<1 µg/l	TM208	<1	<1	<1 "	<1	<1	
			#	#	#	#	#	
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1	-		#	#	#	#	#	
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1 "	<1 "	<1 "	<1	
	• µ9/i	110200	~1 #	~ 1 #	~1 #	~1 #	×1 #	
1.1 Diablaseaths	.4 0	T1 (000						
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Dichloromethane	<3 µg/l	TM208	<4	<4	<5	<4	<4	
			#	#	- #	#	#	
Methyl tertiary butyl ether (MTBE)	<1.00/	TM208	<1	<1	 ۲	<1	<1	
	<1 µg/l	T IVIZUO						
			#	#	#	#	#	
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
2,2-Dichloropropane	<1	TM209	<1	" <1	π <1	۳ <1	π <1	
2,2-Didiloi opiopane	<1 µg/l	TM208		~1	~1	~1	N 1	
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
.,,,,	1 µg/1	THILDO	#	#	#	#	#	
4.4 Dishlamana	.A. 11	Th (000						
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
L			#	#	#	#	#	
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1			#	#	- #	. #	#	
Benzene	<1 µg/l	TM208	<1	" <1	π <1	π <1	π <1	
	~ i µy/i	110200						
Trickless all and		71.0000	#	#	#	#	#	
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1			#	#	#	#	#	
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1			#	#	#	#	#	
Bromodichloromethane	z4	TM208	<1 **	<1 **		<1 **	* <1	
Bromouldilloi offici la le	<1 µg/l	i ivi∠∪o						
			#	#	#	#	#	
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
· · · · · · · · · · · · · · · · · · ·	· µ9/i	110200	~1 #	~ 1 #	~1 #	~ 1 #	~1 #	
1,1,2-Trichloroethane	×4 ···-//	TMOOD						
	<1 µg/l	TM208	<1	<1	<1 "	<1	<1 "	
			#	#	#	#	#	
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1			#	#	#	#	#	

SDG: 220606-23

CERTIFICATE OF ANALYSIS Report Number: 651052

Validated

Superseded Report:

	ef.: Galway H		ills P22-040	Location:		Superseded	Report:	
	en. Oalway I			Location.				
VOC MS (W) Results Legend	0	ustomer Sample Ref.	01/04	014/00	1104	014/4	014/0	
# ISO17025 accredited. M mCERTS accredited.		ustomer Sample Ref.	GW01	GW02	LH01	SW1	SW2	
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	
tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for		Sample Type	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Surface Water (SW)	Surface Water (SW)	
accreditation status. ** % recovery of the surrogate standard to check the		Date Sampled Sample Time	01/06/2022	01/06/2022	01/06/2022	01/06/2022	01/06/2022	
efficiency of the method. The results of individual compounds within samples aren't corrected for the		Date Received	06/06/2022	06/06/2022	06/06/2022	06/06/2022	06/06/2022	
recovery (F) Trigger breach confirmed	•	SDG Ref Lab Sample No.(s)	220606-23 26388718	220606-23 26388732	220606-23 26388696	220606-23 26388746	220606-23 26388760	
1-4+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units	Method						
Tetrachloroethene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	
Dibromochloromethane	<1 µg/l	TM208		π <1	" <1	π	π <1	
	1 49/1	111200	#	#	#	#	#	
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1 "	<1	
Ethylbenzene	4	TM000	#	#	#	#	#	
Euryibenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	
m,p-Xylene	<1 µg/l	TM208	<1	<1 #	" <1	* <1	* <1	
	1 49/1	111200	#	#	#	#	#	
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	
la serve di serve a		T 1 1000	#	#	#	#	#	
Isopropylbenzene	<1 µg/l	TM208	<1	<1 "	<1	<1 "	<1	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	# <1	# <1	# <1	# <1	# <1	
	<1 µg/i	110200	*	~' #	#	* ' #	*	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1 "		
	10		#	#	#	#	#	
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
2-Chlorotoluene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	# <1	# <1	<1 **	# <1	
	<1 µ9/1	110200	*	#	#		*1	
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
	10		#	#	#	#	#	
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dutathannana		T 1 1000	#	#	#	#	#	
sec-Butylbenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1 #	* <1	<1 *	* <1	
	<1 µg/i	110200	*	~' #	#		*	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichlorobenzene	4	TM000	#	#	#	# <1	#	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<r #</r 	<1 #	
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		π <1	" <1	π <1	π <1	
·)	1 49/1	111200						
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
			#	#	#	#	#	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1 "	<1 "	<1	<1 "	<1	
Naphthalene	<1 µg/l	TM208	# <1	# <1	# <1	# <1	# <1	
raphillalono	<rµg i<="" td=""><td>i IVI∠U0</td><td><1 #</td><td><1 #</td><td><1 #</td><td><1 #</td><td><1 #</td><td></td></rµg>	i IVI∠U0	<1 #	<1 #	<1 #	<1 #	<1 #	
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 **	<1 **	* <1	* <1	* <1	
	1.9.		. #	. #	. #	. #	. #	
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
								1

13:05:37 17/06/2022



CERTIFICATE OF ANALYSIS Report Number: 651052

Superseded Report:

Validated

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.



CERTIFICATE OF ANALYSIS

Report Number: 651052 Location: Gort Landfill Superseded Report:

Validated

		Tes	st Com	pletion	n Date
Lab Sample No(s)	26388718	26388732	26388696	26388746	26388760
Customer Sample Ref.		GW02	LH01	SW1	SW2
AGS Ref.					
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Туре	Ground Water	Ground Water	Land Leachate	Surface Water	Surface Water
Acid Herbicides by GCMS	13-Jun-2022	13-Jun-2022	15-Jun-2022	17-Jun-2022	13-Jun-2022
Alkalinity as CaCO3	09-Jun-2022	09-Jun-2022	13-Jun-2022	09-Jun-2022	09-Jun-2022
Ammonium Low	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022
Anions by Kone (w)	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022	09-Jun-2022
BOD True Total	12-Jun-2022	13-Jun-2022	13-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
Cyanide Comp/Free/Total/Thiocyanate	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
Dissolved Oxygen by Probe	07-Jun-2022	07-Jun-2022	07-Jun-2022	07-Jun-2022	07-Jun-2022
Fluoride	10-Jun-2022	10-Jun-2022	10-Jun-2022	09-Jun-2022	10-Jun-2022
Mercury Dissolved	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
Pesticides (Suite I) by GCMS	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
Pesticides (Suite III) by GCMS	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
SVOC MS (W) - Aqueous	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	08-Jun-2022	07-Jun-2022	07-Jun-2022
VOC MS (W)	14-Jun-2022	14-Jun-2022	10-Jun-2022	14-Jun-2022	14-Jun-2022

CERTIFICATE OF ANALYSIS



220606-23 Galway Historic Landfills P22-(Report Number: 651052 Location: Gort Landfill Superseded Report:

Appendix

SDG:

Client Ref:

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. 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.

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.</p>

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 andd 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.

Asbe stos Type	Common Name
Chrysofile	WhiteAsbestos
Amosite	Brow n Asbestos
Cio d dolite	Blue Asbe stos
Fibrous Act nolite	-
Fibious 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 $<3 \ \mu m$ 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.



CONSULTANTS IN ENGINEERING, ENVIRONMENTAL SCIENCE & PLANNING

www.fehilytimoney.ie

Ork Office

Core House Pouladuff Road, Cork, T12 D773, Ireland +353 21 496 4133 **Oublin Office**

J5 Plaza, North Park Business Park, North Road, Dublin 11, D11 PXTO, Ireland +353 1 658 3500 **O** Carlow Office

Unit 6, Bagenalstown Industrial Park, Royal Oak Road, Muine Bheag, Co. Carlow, R21 XW81, Ireland +353 59 972 3800





