

Technical Note

DATE:	09 March 2023	CONFIDENTIALITY:	Public
SUBJECT:	Nantycaws Landfill – Factual Report of Hazardous List 1 Substance suite for January 2023		
PROJECT:	Nantycaws Landfill Site	AUTHOR:	Zachary Krips
CHECKED:	Melanie Cross	APPROVED:	Katie Gamlin

INTRODUCTION

This report is an addendum to the Annual Factual Report¹ submitted to NRW (Natural Resource Wales) in January 2023. The Hazardous List 1 Substances suite was incomplete in October 2022 as specified in the Annual Factual Report¹. To resolve the situation, it was agreed with the Client (CWM Environmental Ltd) that a full Hazardous List 1 Substances suite would be undertaken on samples collected 10 January 2023 at Nantycaws Landfill. This report provides a factual summary of the results of those analyses received by WSP on 20 February 2023 (Appendix A) and should be read in conjunction with the Annual Factual Report¹. The suite for the Hazardous List 1 Substances was agreed with NRW and is summarised in Appendix B.

For the sake of brevity and to aid comparison with the chemistry of other waters (leachates, surface water and groundwater) the results of analyses are discussed in general terms by compound type, with only specific mention of individual concentrations of determinands that are considered significant. This approach mimics the method of the Annual Factual Report¹ submitted to NRW in January 2023.

LEACHATE CHEMISTRY – EXTENDED ‘ANNUAL’ SUITE OF ANALYSIS

The general chemistry of the leachates, in terms of transition metals and hazardous substances, is summarised below.

HAZARDOUS LIST 1 SUBSTANCES SUMMARY

The following provides a summary of the ‘Hazardous List 1’ Substances results:

- BTEX (ethylbenzene, xylene and toluene) were recorded at all leachate monitoring locations. Concentrations ranged from a minimum concentration of 5.0 µg/l (Cell 1/2 Sump and Cell 5 Sump) and a maximum concentration of 15.90 µg/l (Leachate Holding Lagoon). The average concentration for all monitoring locations is 8.21 µg/l.
- VOCs (volatile organic compounds) were detected at all leachate locations, specifically:
 - 4-bromofluorobenzene recorded a minimum concentration of 95.6 µg/l (Cell 5 Sump) and a maximum concentration of 98.4 µg/l (Cell 1/2 Sump). The average concentration for all leachate monitoring locations is 97.28 µg/l.
 - dibromofluoromethane recorded a minimum concentration of 104.0 µg/l (Cell 3/4 Sump) and a maximum concentration of 108.0 µg/l (Cell 5 Sump). The average concentration for all leachate monitoring locations is 105.8 µg/l.
 - toluene-d8 recorded a minimum concentration of 97.3 µg/l (Cell 5 Sump) and a maximum concentration of 99.5 µg/l (Cell 1/2 Sump). The average concentration for all leachate monitoring locations is 98.4 µg/l.
- Of the phenols, 4-methylphenol was detected at Cell 5 Sump (6.4 µg/l). All other results for phenols were recorded below the laboratory LOD (limit of detection) at any location.
- Pesticides, cyanide and SVOCs (semi-volatile organic compounds) were not detected above the laboratory LOD at any location.

¹ Nantycaws 2022 Factual Annual Report (WSP, 2023) issued electronically to NRW 1 February 2023

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- Detections of total aliphatic and aromatic hydrocarbons (>C5-C35) were recorded at all leachate monitoring locations. Concentrations ranged from a minimum concentration of 82 µg/l (Cell 1/2 Sump) to a maximum concentration of 359 µg/l (Leachate Holding Lagoon). The average concentration for all leachate monitoring locations is 201.75 µg/l.
- Transition metals (dissolved) detected at the leachate monitoring sites are summarised below. Concentrations were typically between one and two orders of magnitude greater than in the other waters (surface water and groundwater) sampled:
 - Cadmium was detected at all leachate monitoring locations with a minimum concentration of 0.1 µg/l for Cell 1/2 Sump and maximum concentration of 0.8 µg/l for the Leachate Holding Lagoon. The average concentration for all monitoring locations is 0.3 µg/l.
 - Calcium was detected at all leachate monitoring locations with a minimum concentration of 54.4 mg/l for Cell 3/4 Sump and maximum concentration of 79.1 mg/l for Cell 5 Sump. The average concentration for all monitoring locations is 67.1 mg/l.
 - Chromium was detected at all leachate monitoring locations with a minimum concentration of 54.8 µg/l for Cell 5 Sump and maximum concentration of 77.9 µg/l for Leachate Holding Lagoon. The average concentration for all monitoring locations is 63.8 µg/l.
 - Copper was detected at all leachate monitoring locations with a minimum concentration of 9.8 µg/l for Cell 5 Sump and maximum concentration of 13.0 µg/l for Cell 3/4 Sump. The average concentration for all monitoring locations is 11.2 µg/l.
 - Iron was detected at all leachate monitoring locations with a minimum concentration of 2.2 mg/l for Leachate Holding Lagoon and maximum concentration of 4.6 mg/l for Cell 1/2 Sump. The average concentration for all monitoring locations is 3.2 mg/l.
 - Lead was detected at all leachate monitoring locations with a minimum concentration of 1.0 µg/l for Cell 3/4 Sump and maximum concentration of 2.3 µg/l for Leachate Holding Lagoon. The average concentration for all monitoring locations is 1.7 µg/l.
 - Magnesium was detected at all leachate monitoring locations with a minimum concentration of 25.7 µg/l for Cell 1/2 Sump and maximum concentration of 92.2 µg/l for Cell 5 Sump. The average concentration for all monitoring locations is 52.5 µg/l.
 - Manganese was detected at all leachate monitoring locations with a minimum concentration of 345.0 µg/l for Cell 1/2 Sump and maximum concentration of 581.0 µg/l for Leachate Holding Lagoon. The average concentration for all monitoring locations is 478.5 µg/l.
 - Nickel was detected at all leachate monitoring locations with a minimum concentration of 98.6 µg/l for Cell 5 Sump and maximum concentration of 136.0 µg/l for Cell 3/4 Sump. The average concentration for all monitoring locations is 110.4 µg/l.
 - Potassium was detected at all leachate monitoring locations with a minimum concentration of 347.0 mg/l for Cell 1/2 Sump and maximum concentration of 1690.0 mg/l for Cell 5 Sump. The average concentration for all monitoring locations is 856.0 mg/l.
 - Sodium was detected at all leachate monitoring locations with a minimum concentration of 720.0 mg/l for Cell 1/2 Sump and maximum concentration of 2550.0 mg/l for Cell 5 Sump. The average concentration for all monitoring locations is 1448.3 mg/l.
 - Zinc was detected at all leachate monitoring locations with a minimum concentration of 30.3 µg/l for Cell 1/2 Sump and maximum concentration of 76.9 µg/l for Cell 5 Sump. The average concentration for all monitoring locations is 51.2 µg/l.
- Mecoprop (MCP) was detected at all leachate monitoring locations analysed for the January 2023 Hazardous List 1 Substances suite. A minimum concentration of 4.4 µg/l at Cell 1/2 Sump and a maximum concentration of 28.3 µg/l at the Leachate Holding Lagoon was recorded. The average concentration of MCP for all monitoring locations is 12.4 µg/l. The concentrations do not exceed the compliance limits (71 µg/l for Cell 1/2 and Cell 3/4 Sumps and 140 µg/l for Cell 5 Sump) for the site permit and on this basis, no Schedule 6 Notice has been issued.

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SURFACE WATER CHEMISTRY – EXTENDED ‘ANNUAL’ SUITE OF ANALYSIS

The general chemistry of the surface waters in terms of transition metals and hazardous substances is summarised below.

HAZARDOUS LIST 1 SUBSTANCES SUMMARY

The following provides a summary of the ‘Hazardous List 1’ Substances results:

- Polyaromatic hydrocarbons (PAHs) are detected at most surface water locations (SW201, SW202, SW204, and SW205).
- Phenols (including 4-methylphenol) and BTEX (benzene, ethylbenzene, toluene, and xylenes) were not detected above the laboratory LOD at any surface water location.
- Cadmium and Chromium (transition metals dissolved) was not detected above the laboratory LOD at any surface water location.
- Transition metals (dissolved), excluding cadmium and chromium (discussed above), detected at surface water locations are summarised below:
 - Calcium was detected at all surface water monitoring locations with a minimum concentration of 29.2 mg/l for SW205 and maximum concentration 102.0 mg/l for SW201. The average concentration for all monitoring locations is 70.7 mg/l.
 - Copper: was detected at all surface water monitoring locations with a minimum concentration of 0.7 µg/l for SW202 and 7.7 µg/l for SW203. The average concentration for all monitoring locations is 4.5 µg/l.
 - Iron was detected at SW201 and SW203 to SW206 respectively. A minimum concentration of 0.08 mg/l for SW206 and a maximum concentration of 0.2 mg/l for SW201 are recorded. The average concentration for surface water monitoring locations where iron was detected is 0.2 mg/l.
 - Lead was detected at SW201 and SW203 to SW206 respectively. A minimum concentration of 0.3 µg/l for SW206 and maximum concentration of 3.6 µg/l for SW204 are recorded. The average concentration for surface water monitoring locations where lead was detected is 1.5 µg/l.
 - Magnesium was detected at all surface water monitoring locations with a minimum concentration of 1.7 mg/l for SW206 and maximum concentration of 9.39 mg/l for SW201. The average concentration for all monitoring locations is 6.1 mg/l.
 - Manganese was detected at all surface water monitoring locations with a minimum concentration of 6.2 µg/l for SW206 and maximum concentration of 321.0 µg/l for SW203. The average concentration for all monitoring locations is 105.8 µg/l.
 - Nickel: was detected at all surface water monitoring locations with a minimum concentration of 0.5 µg/l for SW202 and maximum concentration of 4.29 µg/l for SW203. The average concentration for all monitoring locations is 2.6 µg/l.
 - Potassium was detected at all surface water monitoring locations with a minimum concentration of 1.8 mg/l for SW206 and maximum concentration of 83.2 mg/l for SW203. The average concentration for all monitoring locations is 39.2 mg/l.
 - Sodium was detected at all surface water monitoring locations with a minimum concentration of 6.0 mg/l for SW206 and maximum concentration of 30.7 mg/l for SW203. The average concentration for all monitoring locations is 17.1 mg/l.

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- Zinc was detected at all surface water monitoring locations with a minimum concentration of 3.3 µg/l for SW202 and maximum concentration of 14.4 µg/l for both SW201 and SW203). The average concentration for all monitoring locations is 10.3 µg/l.
- MCPPP was detected above the laboratory LOD at surface water monitoring locations SW201 (0.2 µg/l) and SW203 to SW205 (0.2 µg/l) respectively. The concentrations do not exceed the compliance limits (0.055 µg/l) for the site permit and on this basis, no Schedule 6 Notice has been issued.

GROUNDWATER CHEMISTRY – EXTENDED ‘ANNUAL’ SUITE OF ANALYSIS

The general chemistry of the surface waters in terms of transition metals and hazardous substances is summarised below. At the time of sampling (January 2023) groundwater monitoring locations NACW227 and UD2 were dry. These locations were dry for a majority of the 2022 monitoring programme including October 2022 when the initial Hazardous List 1 Substances suite was undertaken.

UNDER-DRAINAGE HAZARDOUS LIST 1 SUBSTANCES SUMMARY

The following provides a summary of the ‘Hazardous List 1 Substances’ results:

- Polyaromatic Hydrocarbons (PAHs) were detected at UD4 and UD5, specifically:
 - Acenaphthene (aq) 0.031 µg/l and 0.023 µg/l respectively.
 - Fluorene (aq) 0.015 µg/l respectively.
 - Naphthalene (aq) 0.013 µg/l respectively.
- Aliphatics, aromatics, SVOCs, PCBs (polychlorinated biphenyls), phenols (including 4-methylphenol) and VOCs (including BTEX) were not detected above the laboratory LOD at any under-drainage location;
- Transition metals (dissolved) detected at under-drainage locations are summarised below:
 - Cadmium (LOD 0.08 µg/l), chromium (LOD 1.0 µg/l) and lead (LOD 0.2 µg/l) was not detected above the laboratory LOD at all under-drainage locations.
 - Calcium was detected at all under-drainage locations with a minimum concentration of 87.9 mg/l for UD3 and maximum concentration of 106.0 mg/l for UD1. The average concentration for all monitoring locations is 98.7 mg/l.
 - Copper was detected at all under-drainage locations with a minimum concentration 0.57 µg/l for UD1 and maximum concentration of 2.12 µg/l for UD4. The average concentration for all monitoring locations is 1.4 µg/l.
 - Iron was detected at under-drainage locations UD4 and UD5 at concentrations of 0.8 mg/l respectively. UD1 and UD3 was not detected above the laboratory LOD (0.02 mg/l).
 - Magnesium was detected at all under-drainage locations with a minimum concentration of 5.53 mg/l for UD4 and maximum concentration of 9.1 mg/l for UD1. The average concentration for all monitoring locations is 7.0 mg/l.
 - Manganese was detected at under-drainage locations UD1 (23.4 µg/l), UD4 (150.0 µg/l) and UD5 (151.0 µg/l). UD3 was not detected above the laboratory LOD (<3.0 µg/l). The average concentration for under-drainage locations detecting manganese is 108.1 µg/l.
 - Nickel was detected at under-drainage locations UD4 (0.7 µg/l) and UD5 (0.9 µg/l). The average concentration is 0.8 µg/l. UD1 and UD2 recorded concentrations below the laboratory LOD (<0.40 µg/l).

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- Potassium was detected at all under-drainage locations with a minimum concentration of 1.2 mg/l for UD1 and maximum concentration of 8.1 mg/l for UD4. The average concentration for all monitoring locations is 4.7 mg/l.
- Sodium was detected at all under-drainage locations with a minimum concentration of 11.4 mg/l for UD3 and maximum concentration of 13.7 mg/l for UD4. The average concentration for all monitoring locations is 12.8 mg/l.
- Zinc was detected at all under-drainage locations with a minimum concentration 4.95 µg/l for UD4 and maximum concentration 7.71 µg/l for UD5. The average concentration for all monitoring locations is 6.8 µg/l.
- MCPP was detected at under-drainage locations UD1 and UD4 at 0.07 µg/l respectively. The compliance limit for MCPP is 0.055 µg/l for these locations. A Schedule 6 Notice was submitted to NRW on 14 February 2023 and recommendations to complete a trend analysis of MCPP concentrations at the site (Nantycaws Landfill) are made in the 2022 Factual Report¹ and following a CAR Notice from NRW on 8 February 2023.

PERIMETER GROUNDWATERS HAZARDOUS LIST 1 SUBSTANCES SUMMARY

The following provides a summary of the ‘Hazardous List 1’ Substances results:

- Aliphatic and aromatic hydrocarbons were only detected at NACW203, where the total aliphatic and aromatic (>C5-C35) hydrocarbons concentration was 37 µg/l;
- PAHs were detected at perimeter groundwater locations BH208, BH5/02 and NACW229 specifically:
 - Phenanthrene 0.01 µg/l (BH208), 0.05 µg/l (BH5/02) and 0.01 µg/l (NACW229)
 - Pyrene 0.10 µg/l (BH5/02)
 - Anthracene 0.01 µg/l (BH5/02)
 - Benzo(a)anthracene 0.07 µg/l (BH5/02)
 - Benzo(a)pyrene 0.07 µg/l (BH5/02)
 - Benzo(b)fluoranthene 0.13 µg/l (BH5/02)
 - Benzo(g,h,i)perylene 0.05 µg/l (BH5/02)
 - Benzo(k)fluoranthene 0.04 µg/l (BH5/02)
 - Chrysene 0.09 µg/l (BH5/02)
- Phenols (including 4-methylphenol), and VOCs (including BTEX) were not detected above the laboratory LOD at any perimeter groundwater monitoring location; and,
- Transition metals (dissolved) detected at perimeter groundwater locations are summarised below:
 - Cadmium and chromium were not detected above the laboratory LOD (0.08 µg/l and 1.0 µg/l respectively) for all monitoring locations.
 - Calcium was detected at all monitoring locations with a minimum concentration of 6.3 mg/l for BH3/9 and maximum concentration of 302.0 mg/l for BH3/6. The average concentration for all monitoring locations is 85.2 mg/l.
 - Copper was detected at all monitoring locations with a minimum concentration of 0.43 µg/l for NACW205 and maximum concentration of 7.24 µg/l for NACW212. The average concentration for all monitoring locations is 2.5 µg/l
 - Iron was detected at BH3/2, BH3/5, BH3/6, BH3/9, BH5/02 and NACW212. A minimum concentration of 0.03 mg/l for BH3/6 and BH3/9, and a maximum concentration of 0.09 mg/l for BH3/2. The average concentration for monitoring locations where iron was detected is 0.3 mg/l.
 - Lead was detected at BH5/02 at a concentration of 0.51 µg/l. All other perimeter groundwater locations recorded concentrations below the laboratory LOD (0.2 µg/l).

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- Magnesium was detected at all monitoring locations with a minimum concentration of 0.52 mg/l for BH3/9 and maximum concentration of 17.9 mg/l for BH3/6. The average concentration for all monitoring locations is 6.1 mg/l.
- Manganese was detected at BH3/6 (127.0 µg/l), BH5/02 (38.5 µg/l) and NACW219 (111.0 µg/l) with all other locations recording concentrations below the laboratory LOD (3.0 µg/l). The average concentration for monitoring locations where manganese was detected is 276.5 µg/l.
- Nickel was detected below the laboratory LOD (0.4 µg/l) at BH208, BH3/3, NACW203, NACW205 and NACW228. All other locations detected nickel with a minimum concentration of 0.45 µg/l for BH3/9 and maximum concentration of 4.82 µg/l for BH3/4. The average concentration for monitoring locations where nickel was detected is 1.8 µg/l.
- Potassium was detected at all monitoring locations, but BH3/9 where detection was below the laboratory LOD 0.2 mg/l, with a minimum concentration of 0.38 mg/l for NACW228 and maximum concentrations of 45.1 mg/l for BH3/4. The average concentration for monitoring locations where potassium was detected is 7.8 mg/l.
- Sodium was detected at all monitoring locations with a minimum concentration of 4.2 mg/l for BH3/9 and maximum concentration of 68.0 mg/l for BH3/8. The average concentration for all monitoring locations is 14.6 mg/l.
- Zinc was detected at all monitoring locations with a minimum concentration of 1.48 µg/l for BH3/3 and maximum concentration of 116.0 µg/l for NACW212. The average concentration for all monitoring locations is 11.7 µg/l.
- MCPP was detected at groundwater monitoring locations BH3/5 (0.06 µg/l) and NACW203 (0.11 µg/l). The compliance limit for MCPP is 0.055 µg/l for these locations. A Schedule 6 Notice was submitted to NRW on 14 February 2023 and recommendations to complete a trend analysis of MCPP concentrations at the site (Nantycaws Landfill) are made in the 2022 Factual Report¹ and following a CAR Notice from NRW on 8 February 2023.

Recommendations for Annual List 1 Sampling 2023

The requirements for the parameters to be tested in the Hazardous List 1 Substances suite during 2022 and 2023 should be reviewed in context of a review of the Hydrogeological Risk Assessment (HRA) for the site. WSP recommend that the HRA¹ is updated with a view of submitting an Environmental Permit Variation. This is currently with the client (CWM Environmental Ltd) for consideration for the 2023 monitoring programme.



APPENDIX A – CERTIFICATE OF ANALYSIS



CWM Environmental Ltd
Nantyclaws Landfill Site
Llanddarg Road
Carmarthen
Carmarthenshire
SA32 8BG

Attention: Darren Sanders

Units 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

CERTIFICATE OF ANALYSIS

Date of report Generation:	21 February 2023
Customer:	CWM Environmental Ltd
Sample Delivery Group (SDG):	230112-55
Your Reference:	
Location:	Nantyclaws Landfill
Report No:	679393
Order Number:	POR010722

We received 42 samples on Thursday January 12, 2023 and 42 of these samples were scheduled for analysis which was completed on Monday February 20, 2023. 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 Laboratories (UK) Limited 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



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CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
27395999	BH 208			
27396005	BH 312			
27396006	BH 313			
27396007	BH 314			
27395987	BH 315			11/01/2023
27395988	BH 316			11/01/2023
27395989	BH 318			11/01/2023
27395991	BH 319			11/01/2023
27396000	BH 5102			
27467947	CELL 5			26/01/2023
27467948	CELL 6			26/01/2023
27467951	CELL 7			26/01/2023
27467945	CELL 1-2			26/01/2023
27467946	CELL 3-4			26/01/2023
27421238	CELL 5 SUMP			16/01/2023
27402602	CELL 5 SUMP			12/01/2023
27402604	CELL 6 SUMP			12/01/2023
27421239	CELL 6 SUMP			16/01/2023
27421240	CELL 7 SUMP			16/01/2023
27402605	CELL 7 SUMP			12/01/2023
27402600	CELL 1-2 SUMP			12/01/2023
27421237	CELL 1-2 SUMP			16/01/2023
27402601	CELL 3-4 SUMP			12/01/2023
27402606	LEACHATE HOLDING LAGOON			12/01/2023
27467952	LEACHATE HOLDING LAGOON			26/01/2023
27395997	NACW 203			
27395998	NACW 205			
27396001	NACW 212			
27396002	NACW 219			
27396003	NACW 228			
27396004	NACW 229			
27396008	SW 201			11/01/2023
27396009	SW 202			11/01/2023
27396010	SW 203			11/01/2023
27396011	SW 204			11/01/2023
27396012	SW 205			11/01/2023
27396013	SW 206			11/01/2023
27396014	SW 207			11/01/2023
27395992	UD1			11/01/2023
27395993	UD3			11/01/2023
27395995	UD4			11/01/2023
27395996	UD5			11/01/2023

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



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SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container		Sample Type	
	27395999		BH 208						H2SO4 (ALE244)		GW	
									330ml plastic bottle (ALE503)		GW	
									0.5l glass bottle (ALE227)		GW	
									Vial (ALE297)		GW	
									NaOH (ALE245)		GW	
									HNO3 Filtered (ALE204)		GW	
TPH CWG (W)	All		NDPs: 0 Tests: 25									
VOC MS (W)	All		NDPs: 0 Tests: 32									

27395989	BH 318			HNO3 Filtered (ALE204)	GW				
				H2SO4 (ALE244)	GW				
				330ml plastic bottle (ALE503)	GW	X			
				0.5l glass bottle (ALE227)	GW				
				Vial (ALE297)	GW			X	
27395988	BH 316			NaOH (ALE245)	GW				
				HNO3 Filtered (ALE204)	GW				
				H2SO4 (ALE244)	GW				
				500ml Plastic (ALE208)	GW				
				0.5l glass bottle (ALE227)	GW	X			
27395987	BH 315			Vial (ALE297)	GW			X	
				NaOH (ALE245)	GW				
				HNO3 Filtered (ALE204)	GW				
				H2SO4 (ALE244)	GW				
				330ml plastic bottle (ALE503)	GW	X			
27396007	BH 314			0.5l glass bottle (ALE227)	GW				
				Vial (ALE297)	GW				
				NaOH (ALE245)	GW			X	
				HNO3 Filtered (ALE204)	GW				
				H2SO4 (ALE244)	GW				



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Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type										
	27395989	BH 318			NaOH (ALE245)	GW										
	27395991	BH 319			NaOH (ALE245)	GW										
	27396000	BH 5102			NaOH (ALE245)	GW										
	27467947	CELL 5			250ml Amber GL PTFE/PE bottle (ALE227)	LE										
	27467948	CELL 6			0.5l glass bottle (ALE227)	LE										
	27467951	CELL 7			0.5l glass bottle (ALE227)	LE										
Acid Herbicides by GCMS Alkalinity as CaCO ₃ Ammoniacal Nitrogen Anions by ion Chromatography Anions by Kone (w) BOD True Total COD Unfiltered Cyanide Comp/Free/Total/Thiocyanate Dissolved Metals by ICP-MS EPH CWG (Aliphatic) Aqueous GC (W) EPH CWG (Aromatic) Aqueous GC (W) GRO by GC-FID (W) Nitrite by Kone (w) PAH Spec MS - Aqueous (W) PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 32														
	All	NDPs: 0 Tests: 32														
	All	NDPs: 0 Tests: 32														
	All	NDPs: 0 Tests: 1														
	All	NDPs: 1 Tests: 32														
	All	NDPs: 0 Tests: 6														
	All	NDPs: 0 Tests: 6														
	All	NDPs: 0 Tests: 35														
	All	NDPs: 0 Tests: 25														
	All	NDPs: 0 Tests: 25														
	All	NDPs: 0 Tests: 25														
	All	NDPs: 0 Tests: 26														
	All	NDPs: 0 Tests: 26														
	All	NDPs: 0 Tests: 32														



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Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type												
	27395989	BH 318			NaOH (ALE245)	GW												
	27395991	BH 319			NaOH (ALE245)	GW												
	27396000	BH 5102			NaOH (ALE245)	GW												
	27467947	CELL 5			250ml Amber GL, PTFE/PE bottle (ALE227)	LE												
	27467948	CELL 6			0.5l glass bottle (ALE227)	LE												
	27467951	CELL 7			0.5l glass bottle (ALE227)	LE												
Pesticides (Suite I) by GCMS	All	NDPs: 2 Tests: 6																
pH Value	All	NDPs: 0 Tests: 32																
Phenols by HPLC (W)	All	NDPs: 0 Tests: 26																
Phenols by ms (w)	All	NDPs: 0 Tests: 32																
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 32																
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 13																
TPH CWG (W)	All	NDPs: 0 Tests: 25																
Urea Herbicides (Suite 1)*	All	NDPs: 6 Tests: 6																
VOC MS (W)	All	NDPs: 0 Tests: 32																



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type										
	27395997	NACW 203			H2SO4 (ALE244)	GW										
	27467952	LEACHATE HOLDING LAGOON			330ml plastic bottle (ALE503)	GW										
	27402606	LEACHATE HOLDING LAGOON			0.5l glass bottle (ALE227)	LE										
					Vial (ALE297)	LE										
					NaOH (ALE245)	LE										
	27402601	CELL 3-4 SUMP			H2SO4 (ALE244)	LE										
					330ml plastic bottle (ALE503)	LE										
					0.5l glass bottle (ALE227)	LE										
					Vial (ALE297)	LE										
					NaOH (ALE245)	LE										
					HNO3 Filtered (ALE204)	LE										
					H2SO4 (ALE244)	LE										
					500ml Plastic (ALE208)	LE										
					0.5l glass bottle (ALE227)	LE										
					HNO3 Filtered (ALE204) with Vial (ALE297)	LE										
	27421237	CELL 1-2 SUMP			NaOH (ALE245)	LE										
	27402600	CELL 1-2 SUMP			H2SO4 (ALE244)	LE										
					330ml plastic bottle (ALE503)	LE										
					0.5l glass bottle (ALE227)	LE										
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 32														
Alkalinity as CaCO3	All	NDPs: 0 Tests: 32														
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 32														
Anions by Kone (w)	All	NDPs: 1 Tests: 32														
BOD True Total	All	NDPs: 0 Tests: 6														
COD Unfiltered	All	NDPs: 0 Tests: 6														
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 6														
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 35														
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 25														
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 25														
GRO by GC-FID (W)	All	NDPs: 0 Tests: 25														
Nitrite by Kone (w)	All	NDPs: 0 Tests: 26														
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 26														
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 32														
Pesticides (Suite I) by GCMS	All	NDPs: 2 Tests: 6														

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
	27395997	NACW 203			H2SO4 (ALE244) 330ml plastic bottle (ALE503) 0.5l glass bottle (ALE227)	GW
	27467952	LEACHATE HOLDING LAGOON			0.5l glass bottle (ALE227) Vial (ALE297)	LE
	27402606	LEACHATE HOLDING LAGOON			NaOH (ALE245)	LE
	27402601	CELL 3-4 SUMP			H2SO4 (ALE244) 330ml plastic bottle (ALE503) 0.5l glass bottle (ALE227) Vial (ALE297)	LE
	27421237	CELL 1-2 SUMP			NaOH (ALE245) HNO3 Filtered (ALE204) H2SO4 (ALE244) 500ml Plastic (ALE208) 0.5l glass bottle (ALE227)	LE
	27402600	CELL 1-2 SUMP			HNO3 Filtered (ALE204) with Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 330ml plastic bottle (ALE503) 0.5l glass bottle (ALE227)	LE
pH Value	All	NDPs: 0 Tests: 32				
Phenols by HPLC (W)	All	NDPs: 0 Tests: 26				
Phenols by ms (w)	All	NDPs: 0 Tests: 32				
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 32				
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 13				
TPH CWG (W)	All	NDPs: 0 Tests: 25				
Urea Herbicides (Suite 1)*	All	NDPs: 6 Tests: 6				
VOC MS (W)	All	NDPs: 0 Tests: 32				



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type	27396002	27396003	27396004	27396008	27396009
		NACW 219			NaOH (ALE245)	GW					
					Vial (ALE297)	GW					
					0.5l glass bottle (ALE227)	GW					
					500ml Plastic (ALE208)	GW					
					H2SO4 (ALE244)	GW					
					HNO3 Filtered (ALE204)	GW					
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 32			NaOH (ALE245)	GW					
Alkalinity as CaCO3	All	NDPs: 0 Tests: 32			Vial (ALE297)	GW					
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7			0.5l glass bottle (ALE227)	GW					
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 32			500ml Plastic (ALE208)	GW					
Anions by Kone (w)	All	NDPs: 1 Tests: 32			H2SO4 (ALE244)	GW					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 35			HNO3 Filtered (ALE204)	GW					
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 25			NaOH (ALE245)	GW					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 25			Vial (ALE297)	GW					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 25			0.5l glass bottle (ALE227)	GW					
Ionic Balance	All	NDPs: 0 Tests: 7			500ml Plastic (ALE208)	GW					
Nitrite by Kone (w)	All	NDPs: 0 Tests: 26			H2SO4 (ALE244)	GW					
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 26			HNO3 Filtered (ALE204)	GW					
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 32			NaOH (ALE245)	GW					
Pesticides (Suite I) by GCMS	All	NDPs: 2 Tests: 6			Vial (ALE297)	GW					
pH Value	All	NDPs: 0 Tests: 32			0.5l glass bottle (ALE227)	GW					



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type	27396002	27396003	27396004	27396008	27396009
		NACW 219			NaOH (ALE245)	GW					
					Vial (ALE297)	GW					
					0.5l glass bottle (ALE227)	GW					
					500ml Plastic (ALE208)	GW					
					H2SO4 (ALE244)	GW					
					HNO3 Filtered (ALE204)	GW					
Phenols by HPLC (W)	All	NDPs: 0 Tests: 26									
Phenols by ms (w)	All	NDPs: 0 Tests: 32									
Suspended Solids	All	NDPs: 0 Tests: 7									
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 32									
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 13									
TPH CWG (W)	All	NDPs: 0 Tests: 25									
VOC MS (W)	All	NDPs: 0 Tests: 32									



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type	27395992	27396012	27396013	27396014	27396015
					NaOH (ALE245)	GW					
					HNO3 Filtered (ALE204)	GW					
					H2SO4 (ALE244)	GW					
					500ml Plastic (ALE208)	GW					
					0.5l glass bottle (ALE227)	GW					
					Vial (ALE297)	SW					
Acid Herbicides by GCMS	All	NDPs: 0 Tests: 32									
Alkalinity as CaCO3	All	NDPs: 0 Tests: 32									
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 7									
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 32									
Anions by Kone (w)	All	NDPs: 1 Tests: 32									
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 35									
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 25									
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 25									
GRO by GC-FID (W)	All	NDPs: 0 Tests: 25									
Ionic Balance	All	NDPs: 0 Tests: 7									
Nitrite by Kone (w)	All	NDPs: 0 Tests: 26									
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 26									
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 32									
pH Value	All	NDPs: 0 Tests: 32									
Phenols by HPLC (W)	All	NDPs: 0 Tests: 26									

27395996	UD5			Vial (ALE297)	GW												X
				NaOH (ALE245)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW												
				500ml Plastic (ALE208)	GW	X											
				0.5l glass bottle (ALE227)	GW			X								X	
27395995	UD4			Vial (ALE297)	GW												X
				NaOH (ALE245)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW												
				500ml Plastic (ALE208)	GW	X											
				0.5l glass bottle (ALE227)	GW			X								X	
27395993	UD3			Vial (ALE297)	GW												X
				NaOH (ALE245)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW												
				500ml Plastic (ALE208)	GW			X									
				0.5l glass bottle (ALE227)	GW					X							
27395992	UD1			Vial (ALE297)	GW												X
				NaOH (ALE245)	GW												
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW												
				500ml Plastic (ALE208)	GW			X									
				0.5l glass bottle (ALE227)	GW					X							



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref. Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	BH 208	BH 312	BH 313	BH 314	BH 315	BH 316	
#	ISO17025 accredited.			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.									
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-4-5-6	Sample deviation (see appendix)									
Component		LOD/Units	Method							
Alkalinity, Total as CaCO3		<2 mg/l	TM043	28	24.5	140	235	80	160	
				\$ #	\$ #	\$ #	\$ #	#	#	
Ammoniacal Nitrogen as N		<0.2 mg/l	TM099	<0.2	<0.2	<0.2	<0.2	<0.2	0.367	
				\$ #	\$ #	\$ #	\$ #	#	#	
Cadmium (diss.filt)		<0.08 µg/l	TM152	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	
				\$ #	\$ #	\$ #	\$ #	#	#	
Chromium (diss.filt)		<1 µg/l	TM152	<1	<1	<1	<1	<1	<1	
				\$ #	\$ #	\$ #	\$ #	#	#	
Copper (diss.filt)		<0.3 µg/l	TM152	1.03	2.65	0.682	7.08	3.87	4.04	
				\$ #	\$ #	\$ #	\$ #	#	#	
Lead (diss.filt)		<0.2 µg/l	TM152	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
				\$ #	\$ #	\$ #	\$ #	#	#	
Manganese (diss.filt)		<3 µg/l	TM152	<3	<3	<3	<3	<3	127	
				\$ #	\$ #	\$ #	\$ #	#	#	
Nickel (diss.filt)		<0.4 µg/l	TM152	<0.4	0.786	<0.4	4.82	1.02	2.54	
				\$ #	\$ #	\$ #	\$ #	#	#	
Zinc (diss.filt)		<1 µg/l	TM152	5.24	2.01	1.48	1.79	2.44	9.57	
				\$ #	\$ #	\$ #	\$ #	#	#	
Sodium (Dis.Filt)		<0.076 mg/l	TM152	6.03	11.8	6.72	24.1	5.18	22.3	
				\$ #	\$ #	\$ #	\$ #	#	#	
Magnesium (Dis.Filt)		<0.036 mg/l	TM152	1.48	2.92	4.31	11.2	0.987	17.9	
				\$ #	\$ #	\$ #	\$ #	#	#	
Potassium (Dis.Filt)		<0.2 mg/l	TM152	2.79	0.701	0.985	45.1	3.34	13.4	
				\$ #	\$ #	\$ #	\$ #	#	#	
Calcium (Dis.Filt)		<0.2 mg/l	TM152	10.8	27.7	50	99.1	37.8	302	
				\$ #	\$ #	\$ #	\$ #	#	#	
Iron (Dis.Filt)		<0.019 mg/l	TM152	<0.019	0.0847	<0.019	<0.019	0.0427	0.0309	
				\$ #	\$ #	\$ #	\$ #	#	#	
Nitrite as NO2		<0.05 mg/l	TM184	<0.05	<0.05	0.104	<0.05	0.157	0.394	
				\$ #	\$ #	\$ #	\$ #	#	#	
Sulphate		<2 mg/l	TM184	<2	57.5	7.8	78.3	9.9	623	
				\$ #	\$ #	\$ #	\$ #	#	#	
Chloride		<2 mg/l	TM184	15.8	19.6	12.1	63.3	13.2	32.2	
				\$ #	\$ #	\$ #	\$ #	#	#	
Nitrate as NO3		<0.3 mg/l	TM184	2.79	0.314	10.6	2.73	7.51	13.6	
				\$ #	\$ #	\$ #	\$ #	#	#	
Total Oxidised Nitrogen as N		<0.1 mg/l	TM184	0.63	<0.1	2.43	0.617	1.74	3.19	
				\$ #	\$ #	\$ #	\$ #	#	#	
PCB congener 28		<0.015 µg/l	TM197	<0.03	<0.03	<0.075	<0.075	<0.075	<0.015	
				\$	\$	\$	\$			
PCB congener 52		<0.015 µg/l	TM197	<0.03	<0.03	<0.075	<0.075	<0.075	<0.015	
				\$	\$	\$	\$			
PCB congener 101		<0.015 µg/l	TM197	<0.03	<0.03	<0.075	<0.075	<0.075	<0.015	
				\$	\$	\$	\$			
PCB congener 118		<0.015 µg/l	TM197	<0.03	<0.03	<0.075	<0.075	<0.075	<0.015	
				\$	\$	\$	\$			
PCB congener 138		<0.015 µg/l	TM197	<0.03	<0.03	<0.075	<0.075	<0.075	<0.015	
				\$	\$	\$	\$			
PCB congener 153		<0.015 µg/l	TM197	<0.03	<0.03	<0.075	<0.075	<0.075	<0.015	
				\$	\$	\$	\$			
PCB congener 180		<0.015 µg/l	TM197	<0.03	<0.03	<0.075	<0.075	<0.075	<0.015	
				\$	\$	\$	\$			
Sum of detected EC7 PCB's		<0.105 µg/l	TM197	<0.21	<0.21	<0.525	<0.525	<0.525	<0.105	
				\$	\$	\$	\$			
Phenol		<0.5 µg/l	TM205	<2	<2.5	<2	<2	<2	<2	
				\$	\$	\$	\$			
2-methylphenol		<0.5 µg/l	TM205	<0.5	<1	<0.5	<0.5	<0.5	<1	
				\$	\$	\$	\$			
3-methylphenol		<0.5 µg/l	TM205	<0.5	<1	<0.5	<0.5	<0.5	<0.5	
				\$	\$	\$	\$			
4-methylphenol		<0.5 µg/l	TM205	<0.5	<1	<0.5	<0.5	<0.5	<0.5	
				\$	\$	\$	\$			
2-chlorophenol		<0.5 µg/l	TM205	<0.5	<1	<0.5	<0.5	<0.5	<0.5	
				\$	\$	\$	\$			

CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.		BH 318	BH 319	BH 5102	CELL 5	CELL 6	CELL 7
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				11/01/2023	11/01/2023		26/01/2023	26/01/2023	26/01/2023
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.				12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
tot.unfilt	Total / unfiltered sample.				230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
*	Subcontracted - refer to subcontractor report for accreditation status.				27395989	27395991	27396000	27467947	27467948	27467951
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-4456	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Chloroxuron*	µg/l	SUB						<0.5	<0.5	<0.5
Chlortoluron*	µg/l	SUB						<0.5	<0.5	<0.5
Diflufenzuron*	µg/l	SUB						<0.5	<0.5	<0.5
Dimefuron*	µg/l	SUB						<0.5	<0.5	<0.5
Diuron*	µg/l	SUB						<0.5	<0.5	<0.5
Isoproturon*	µg/l	SUB						<0.5	<0.5	<0.5
Linuron*	µg/l	SUB						<0.5	<0.5	<0.5
Methabenzthiauron*	µg/l	SUB						<0.5	<0.5	<0.5
Metoxuron*	µg/l	SUB						<0.5	<0.5	<0.5
Monolinuron*	µg/l	SUB						<0.5	<0.5	<0.5
Monuron*	µg/l	SUB						<0.5	<0.5	<0.5
Pencycuron*	µg/l	SUB						<0.5	<0.5	<0.5
Alkalinity, Total as CaCO3	<2 mg/l	TM043			125	15.5	210			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099			<0.2	0.353	0.594			
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.08	<0.08	0.165		
Chromium (diss.filt)	<1 µg/l	TM152			<1	<1	<1	54.8		
Copper (diss.filt)	<0.3 µg/l	TM152			3.52	0.524	1.96	9.81		
Lead (diss.filt)	<0.2 µg/l	TM152			<0.2	<0.2	0.512	1.98		
Manganese (diss.filt)	<3 µg/l	TM152			<3	<3	38.5	440		
Nickel (diss.filt)	<0.4 µg/l	TM152			3.04	0.445	0.956	98.6		
Zinc (diss.filt)	<1 µg/l	TM152			1.53	1.87	7.08	76.9		
Sodium (Dis.Filt)	<0.076 mg/l	TM152			68	4.19	13.6	2550		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			11.1	0.523	6.29	92.2		
Potassium (Dis.Filt)	<0.2 mg/l	TM152			20	<0.2	12.4	1690		
Calcium (Dis.Filt)	<0.2 mg/l	TM152			217	6.31	76.1	79.1		
Iron (Dis.Filt)	<0.019 mg/l	TM152			<0.019	0.0296	0.0415	2.6		
Nitrite as NO2	<0.05 mg/l	TM184			<0.05	<0.05	0.055			
Sulphate	<2 mg/l	TM184			444	<2	17.2			
Chloride	<2 mg/l	TM184			117	10.2	22.8			
Nitrate as NO3	<0.3 mg/l	TM184			12.3	1.07	9.02			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184			2.79	0.241	2.05			
PCB congener 28	<0.015 µg/l	TM197			<0.075	<0.03	<0.015			



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.	BH 318	BH 319	BH 5102	CELL 5	CELL 6	CELL 7
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Ground Water (GW) 11/01/2023	Ground Water (GW) 11/01/2023	Ground Water (GW) -	Land Leachate (LE) 26/01/2023	Land Leachate (LE) 26/01/2023	Land Leachate (LE) 26/01/2023
M	mCERTS accredited.								
aq	Aqueous / filtered sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
+	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			12/01/2023 230112-55 27395989	12/01/2023 230112-55 27395991	12/01/2023 230112-55 27396000	12/01/2023 230112-55 27467947	12/01/2023 230112-55 27467948	12/01/2023 230112-55 27467951
(F)	Trigger breach confirmed								
1-4466@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
PCB congener 52	<0.015 µg/l	TM197		<0.075	<0.03	<0.015 \$			
PCB congener 101	<0.015 µg/l	TM197		<0.075	<0.03	<0.015 \$			
PCB congener 118	<0.015 µg/l	TM197		<0.075	<0.03	<0.015 \$			
PCB congener 138	<0.015 µg/l	TM197		<0.075	<0.03	<0.015 \$			
PCB congener 153	<0.015 µg/l	TM197		<0.075	<0.03	<0.015 \$			
PCB congener 180	<0.015 µg/l	TM197		<0.075	<0.03	<0.015 \$			
Sum of detected EC7 PCB's	<0.105 µg/l	TM197		<0.525	<0.21	<0.105 \$			
Phenol	<0.5 µg/l	TM205		<2	<2	<2 \$			
2-methylphenol	<0.5 µg/l	TM205		<1	<1	<0.5 \$			
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5	<0.5 \$			
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<1	<0.5 \$			
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<1	<0.5 \$			
2,4-dinitrophenol	<2.5 µg/l	TM205		<2.5	<2.5	<2.5 \$			
DNOC	<3 µg/l	TM205		<3	<3	<3 \$			
Pentachlorophenol	<2 µg/l	TM205		<2	<2	<2 \$			
Dinoseb	<4 µg/l	TM205		<4	<4	<4 \$			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM256		1.2 #	0.0675 #	0.453 \$ #			
Phenol	<0.002 mg/l	TM259		<0.002 #	<0.002 #	<0.002 \$ #			
Cresols	<0.006 mg/l	TM259		<0.006 #	<0.006 #	<0.006 \$ #			
Xylenols	<0.008 mg/l	TM259		<0.008 #	<0.008 #	<0.008 \$ #			
Phenols, Total Detected monohydric	<0.016 mg/l	TM259		<0.016 #	<0.016 #	<0.016 \$ #			

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

Results Legend			Customer Sample Ref.	BH 318	BH 319	BH 5102	CELL 5	CELL 6	CELL 7
#	ISO17025 accredited.	Customer Sample Ref. Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference							
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-4	Sample deviation (see appendix)								
5									
6									
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10									
11									
12									
13									
14									
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16									
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CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.		CELL 1-2	CELL 3-4	CELL 5 SUMP	CELL 5 SUMP	CELL 6 SUMP	CELL 6 SUMP
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				26/01/2023	26/01/2023	16/01/2023	12/01/2023	12/01/2023	16/01/2023
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
(F)	Trigger breach confirmed				230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
1-4-5@	Sample deviation (see appendix)				27467945	27467946	27421238	27402602	27402604	27421239
Component	LOD/Units	Method								
Chloroxuron*	µg/l	SUB	<0.5	<0.5						
Chlortoluron*	µg/l	SUB	<0.5	<0.5						
Diflufenzuron*	µg/l	SUB	<0.5	<0.5						
Dimefuron*	µg/l	SUB	<0.5	<0.5						
Diuron*	µg/l	SUB	<0.5	<0.5						
Isoproturon*	µg/l	SUB	<0.5	<0.5						
Linuron*	µg/l	SUB	<0.5	<0.5						
Methabenzthiazuron*	µg/l	SUB	<0.5	<0.5						
Metoxuron*	µg/l	SUB	<0.5	<0.5						
Monolinuron*	µg/l	SUB	<0.5	<0.5						
Monuron*	µg/l	SUB	<0.5	<0.5						
Pencycuron*	µg/l	SUB	<0.5	<0.5						
Alkalinity, Total as CaCO3	<2 mg/l	TM043					3330	#	2980	#
BOD, unfiltered	<1 mg/l	TM045					37.8	#	90.8	#
Organic Carbon, Total	<3 mg/l	TM090					348			192
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099					716			342
COD, unfiltered	<7 mg/l	TM107					1160	#	837	#
Cadmium (diss.filt)	<0.08 µg/l	TM152	0.0968	2 #						<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152	57	2 #						45.3 #
Copper (diss.filt)	<0.3 µg/l	TM152	10.5	2 #						1.42 #
Lead (diss.filt)	<0.2 µg/l	TM152	1.39	2 #						0.675 #
Manganese (diss.filt)	<3 µg/l	TM152	345	2 #						639 #
Nickel (diss.filt)	<0.4 µg/l	TM152	102	2 #						39.8 #
Zinc (diss.filt)	<1 µg/l	TM152	30.3	2 #						15.6 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152	720	2 #						398 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	25.7	2 #						16.9 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152	347	2 #						190 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152	58.4	2 #						62.8 #
Iron (Dis.Filt)	<0.019 mg/l	TM152	4.57	2 #						1.27 #
Sulphate	<2 mg/l	TM184					<2		100	
Chloride	<2 mg/l	TM184					5490		727	
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184					2.13		<0.1	



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.	CELL 1-2	CELL 3-4	CELL 5 SUMP	CELL 5 SUMP	CELL 6 SUMP	CELL 6 SUMP
#	ISO17025 accredited.	mCERTS accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Land Leachate (LE) 26/01/2023	Land Leachate (LE) 26/01/2023	Land Leachate (LE) 16/01/2023	Land Leachate (LE) 12/01/2023	Land Leachate (LE) 12/01/2023	Land Leachate (LE) 16/01/2023
M	Aqueous / settled sample.								
aq	Dissolved / filtered sample.								
dis.filt	Total / unfiltered sample.								
tot.unfilt	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			12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
**	Trigger breach confirmed			230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
(F)	Sample deviation (see appendix)			27467945	27467946	27421238	27402602	27402604	27421239
1-4#5@									
Component	LOD/Units	Method							
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	
PCB congener 118	<0.015 µg/l	TM197					<0.015	<0.015	
PCB congener 138	<0.015 µg/l	TM197					<0.015	<0.015	
PCB congener 153	<0.015 µg/l	TM197					<0.015	<0.015	
PCB congener 180	<0.015 µg/l	TM197					<0.015	<0.015	
Sum of detected EC7 PCB's	<0.105 µg/l	TM197					<0.105	<0.105	
Phenol	<0.5 µg/l	TM205					<2.5	<3.5	
2-methylphenol	<0.5 µg/l	TM205					<4	<2	
3-methylphenol	<0.5 µg/l	TM205					<1	<1	
4-methylphenol	<0.5 µg/l	TM205					6.4	<1	
2-chlorophenol	<0.5 µg/l	TM205					<1	<1	
2,4-dimethylphenol	<0.5 µg/l	TM205					<1	<1	
4-chloro-3-methylphenol	<0.5 µg/l	TM205					<1	<1	
2,6-dichlorophenol	<0.5 µg/l	TM205					<1	<1	
4-Chlorophenol	<0.5 µg/l	TM205					<1	<1	
2,4-dichlorophenol	<0.5 µg/l	TM205					<1	<1	
2-nitrophenol	<0.5 µg/l	TM205					<1	<1	
2,4,6-trichlorophenol	<0.5 µg/l	TM205					<1	<1	
2,4,5-trichlorophenol	<0.5 µg/l	TM205					<1	<1	
4-nitrophenol	<0.5 µg/l	TM205					<1	<1	
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205					<1	<1	
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205					<1	<1	
2,4-dinitrophenol	<2.5 µg/l	TM205					<5	<5	
DNOC	<3 µg/l	TM205					<6	<6	
Pentachlorophenol	<2 µg/l	TM205					<4	<4	
Dinoseb	<4 µg/l	TM205					<8	<8	
Chloride	<0.08 mg/l	TM226					4960 #		
Sulphate	<0.1 mg/l	TM226					47.5 #		
Total Oxidised Nitrogen as N	<0.02 mg/l	TM226					24.9		
Cyanide, Total	<0.05 mg/l	TM227					<0.05 @ #	<0.05 2 #	



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.	CELL 1-2	CELL 3-4	CELL 5 SUMP	CELL 5 SUMP	CELL 6 SUMP	CELL 6 SUMP
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Land Leachate (LE) 26/01/2023	Land Leachate (LE) 26/01/2023	Land Leachate (LE) 16/01/2023	Land Leachate (LE) 12/01/2023	Land Leachate (LE) 12/01/2023	Land Leachate (LE) 16/01/2023
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
+	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			12/01/2023 230112-55 27467945	12/01/2023 230112-55 27467946	12/01/2023 230112-55 27421238	12/01/2023 230112-55 27402602	12/01/2023 230112-55 27402604	12/01/2023 230112-55 27421239
(F)	Trigger breach confirmed								
1-4&6@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Conductivity @ 20 deg.C	<0.02 mS/cm	TM256					19.7 #	6.87 #	
Trifluralin	<0.01 µg/l	TM343					<0.1	<0.05	
alpha-HCH	<0.01 µg/l	TM343					<0.1	<0.05	
gamma-HCH (Lindane)	<0.01 µg/l	TM343					<0.2	<0.1	
Heptachlor	<0.01 µg/l	TM343					<0.1	<0.05	
Aldrin	<0.01 µg/l	TM343					<0.1	<0.05	
beta-HCH	<0.01 µg/l	TM343					<0.2	<0.1	
Isodrin	<0.01 µg/l	TM343					<0.1	<0.05	
delta-HCH	<0.01 µg/l	TM343					<0.1	<0.05	
Heptachlor epoxide	<0.01 µg/l	TM343					<0.1	<0.05	
o,p'-DDE	<0.01 µg/l	TM343					<0.1	<0.05	
Endosulphan I	<0.01 µg/l	TM343					<0.1	<0.05	
trans-Chlordane	<0.01 µg/l	TM343					<0.1	<0.05	
cis-Chlordane	<0.01 µg/l	TM343					<0.1	<0.05	
p,p'-DDE	<0.01 µg/l	TM343					<0.1	<0.05	
Dieldrin	<0.01 µg/l	TM343					<0.1	<0.05	
o,p'-DDD (TDE)	<0.01 µg/l	TM343					<0.1	<0.05	
Endrin	<0.01 µg/l	TM343					<0.1	<0.05	
o,p'-DDT	<0.01 µg/l	TM343					<0.1	<0.05	
p,p'-DDD (TDE)	<0.01 µg/l	TM343					<0.1	<0.05	
Endosulphan II	<0.02 µg/l	TM343					<0.2	<0.1	
p,p'-DDT	<0.01 µg/l	TM343					<0.1	<0.05	
o,p'-Methoxychlor	<0.01 µg/l	TM343					<0.1	<0.05	
p,p'-Methoxychlor	<0.01 µg/l	TM343					<0.1	<0.05	
Endosulphan Sulphate	<0.02 µg/l	TM343					<0.2	<0.1	
Permethrin I	<0.01 µg/l	TM343					<0.1	<0.05	
Permethrin II	<0.01 µg/l	TM343					<0.1	<0.05	
Mecoprop	<0.04 µg/l	TM411					6.33	8.67	



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.		CELL 7 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LA GOON	LEACHATE HOLDING LA GOON
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				16/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	26/01/2023
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.				12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
tot.unfilt	Total / unfiltered sample.				230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
*	Subcontracted - refer to subcontractor report for accreditation status.				27421240	27402605	27402600	27402601	27402606	27467952
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-4-5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Chloroxuron*	µg/l	SUB								<0.5
Chlortoluron*	µg/l	SUB								<0.5
Diflufenzuron*	µg/l	SUB								<0.5
Dimefuron*	µg/l	SUB								<0.5
Diuron*	µg/l	SUB								<0.5
Isoproturon*	µg/l	SUB								<0.5
Linuron*	µg/l	SUB								<0.5
Methabenzthiazuron*	µg/l	SUB								<0.5
Metoxuron*	µg/l	SUB								<0.5
Monolinuron*	µg/l	SUB								<0.5
Monuron*	µg/l	SUB								<0.5
Pencycuron*	µg/l	SUB								<0.5
Alkalinity, Total as CaCO3	<2 mg/l	TM043				1750	2480	3530	3400	
BOD, unfiltered	<1 mg/l	TM045				76.5	28.2	56.4	70	
Organic Carbon, Total	<3 mg/l	TM090				159	224	368	436	
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099				336	535	680	1070	
COD, unfiltered	<7 mg/l	TM107				570	890	1250	1490	
Cadmium (diss.filt)	<0.08 µg/l	TM152			<0.08	<0.48	0.202	<0.8		
Chromium (diss.filt)	<1 µg/l	TM152			40.9	43.6	65.5	77.9		
Copper (diss.filt)	<0.3 µg/l	TM152			1.43	2.51	13	11.5		
Lead (diss.filt)	<0.2 µg/l	TM152			0.551	1.7	0.992	2.32		
Manganese (diss.filt)	<3 µg/l	TM152			630	498	548	581		
Nickel (diss.filt)	<0.4 µg/l	TM152			39.4	37.7	136	105		
Zinc (diss.filt)	<1 µg/l	TM152			16.4	19.5	46.1	51.6		
Sodium (Dis.Filt)	<0.076 mg/l	TM152			399	400	923	1600		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152			16.3	14.4	33.3	58.6		
Potassium (Dis.Filt)	<0.2 mg/l	TM152			187	163	426	961		
Calcium (Dis.Filt)	<0.2 mg/l	TM152			61.8	61	54.4	76.4		
Iron (Dis.Filt)	<0.019 mg/l	TM152			1.24	0.838	3.51	2.18		
Sulphate	<2 mg/l	TM184				190	30.3	136	<40	
Chloride	<2 mg/l	TM184				449	3820	1460	2760	
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184				0.119	2.83	1.32	<0.1	



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.	CELL 7 SUMP	CELL 7 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LA GOON	LEACHATE HOLDING LAG OON
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.			16/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	26/01/2023
aq	Aqueous / settled sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
+	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery			12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
(F)	Trigger breach confirmed			230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
1-4+5@	Sample deviation (see appendix)			27421240	27402605	27402600	27402601	27402606	27467952
Component	LOD/Units	Method							
PCB congener 28	<0.015 µg/l	TM197			<0.015	<0.015	<0.015	<0.015	
PCB congener 52	<0.015 µg/l	TM197			<0.015	<0.015	<0.015	<0.015	
PCB congener 101	<0.015 µg/l	TM197			<0.015	<0.015	<0.015	<0.015	
PCB congener 118	<0.015 µg/l	TM197			<0.015	<0.015	<0.015	<0.015	
PCB congener 138	<0.015 µg/l	TM197			<0.015	<0.015	<0.015	<0.015	
PCB congener 153	<0.015 µg/l	TM197			<0.015	<0.015	<0.015	<0.015	
PCB congener 180	<0.015 µg/l	TM197			<0.015	<0.015	<0.015	<0.015	
Sum of detected EC7 PCB's	<0.105 µg/l	TM197			<0.105	<0.105	<0.105	<0.105	
Phenol	<0.5 µg/l	TM205			<3.5	<3	<3.5	<2	
2-methylphenol	<0.5 µg/l	TM205			<2	<2	<2	<1	
3-methylphenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
4-methylphenol	<0.5 µg/l	TM205			<1	<1	<1	<1	
2-chlorophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2,4-dimethylphenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
4-chloro-3-methylphenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2,6-dichlorophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
4-Chlorophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2,4-dichlorophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2-nitrophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2,4,6-trichlorophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2,4,5-trichlorophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
4-nitrophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205			<1	<1	<1	<0.5	
2,4-dinitrophenol	<2.5 µg/l	TM205			<5	<5	<5	<2.5	
DNOC	<3 µg/l	TM205			<6	<6	<6	<3	
Pentachlorophenol	<2 µg/l	TM205			<4	<4	<4	<2	
Dinoseb	<4 µg/l	TM205			<8	<8	<8	<4	
Cyanide, Total	<0.05 mg/l	TM227			<0.05 @ #	<0.05 @ #	<0.05 @ #	<0.05 @ #	
Conductivity @ 20 deg.C	<0.02 mS/cm	TM256			4.61 #	13.9 #	9.48 #	13 #	
Trifluralin	<0.01 µg/l	TM343			<0.05	<0.01	<0.1	<0.01	
alpha-HCH	<0.01 µg/l	TM343			<0.05	<0.01	<0.1	<0.01	

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.		NACW 203	NACW 205	NACW 212	NACW 219	NACW 228	NACW 229
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.				12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
aq	Aqueous / filtered sample.				230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
diss,filtr	Dissolved / filtered sample.				27395997	27395998	27396001	27396002	27396003	27396004
tot.unfiltr	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-4	Sample deviation (see appendix)									
Component			LOD/Units	Method						
Alkalinity, Total as CaCO3			<2 mg/l	TM043	245 \$ #	215 \$ #	90 \$ #	145 \$ #	60 \$ #	39 \$ #
Ammoniacal Nitrogen as N			<0.2 mg/l	TM099	<0.2 \$ #	<0.2 \$ #	<0.2 \$ #	<0.2 \$ #	<0.2 \$ #	<0.2 \$ #
Cadmium (diss.filtr)			<0.08 µg/l	TM152	<0.08 \$ #	<0.08 \$ #	<0.08 \$ #	<0.08 \$ #	<0.08 \$ #	<0.08 \$ #
Chromium (diss.filtr)			<1 µg/l	TM152	<1 \$ #	<1 \$ #	<1 \$ #	<1 \$ #	<1 \$ #	<1 \$ #
Copper (diss.filtr)			<0.3 µg/l	TM152	1.97 \$ #	0.425 \$ #	7.24 \$ #	1.54 \$ #	0.622 \$ #	0.832 \$ #
Lead (diss.filtr)			<0.2 µg/l	TM152	<0.2 \$ #	<0.2 \$ #	<0.2 \$ #	<0.2 \$ #	<0.2 \$ #	<0.2 \$ #
Manganese (diss.filtr)			<3 µg/l	TM152	<3 \$ #	<3 \$ #	<3 \$ #	111 \$ #	<3 \$ #	<3 \$ #
Nickel (diss.filtr)			<0.4 µg/l	TM152	<0.4 \$ #	<0.4 \$ #	2.78 \$ #	1.05 \$ #	<0.4 \$ #	0.478 \$ #
Zinc (diss.filtr)			<1 µg/l	TM152	6.82 \$ #	10.1 \$ #	116 \$ #	3.67 \$ #	3.66 \$ #	2.83 \$ #
Sodium (Dis.Filtr)			<0.076 mg/l	TM152	14.1 \$ #	11.1 \$ #	12.6 \$ #	8.23 \$ #	4.29 \$ #	7.34 \$ #
Magnesium (Dis.Filtr)			<0.036 mg/l	TM152	8.75 \$ #	7.86 \$ #	7.65 \$ #	4.62 \$ #	1.57 \$ #	4.49 \$ #
Potassium (Dis.Filtr)			<0.2 mg/l	TM152	1.37 \$ #	1.01 \$ #	6.4 \$ #	0.959 \$ #	0.378 \$ #	0.433 \$ #
Calcium (Dis.Filtr)			<0.2 mg/l	TM152	94.8 \$ #	105 \$ #	128 \$ #	66.6 \$ #	20.8 \$ #	36.5 \$ #
Iron (Dis.Filtr)			<0.019 mg/l	TM152	<0.019 \$ #	<0.019 \$ #	0.0579 \$ #	<0.019 \$ #	<0.019 \$ #	<0.019 \$ #
Nitrite as NO2			<0.05 mg/l	TM184	<0.05 \$ #	<0.05 \$ #	<0.05 \$ #	<0.05 \$ #	<0.05 \$ #	<0.05 \$ #
Sulphate			<2 mg/l	TM184	11.6 \$ #	19.6 \$ #	245 \$ #	36 \$ #	<2 \$ #	71 \$ #
Chloride			<2 mg/l	TM184	41.9 \$ #	42.2 \$ #	22.8 \$ #	21.2 \$ #	10.4 \$ #	19.8 \$ #
Nitrate as NO3			<0.3 mg/l	TM184	9.41 \$ #	9.41 \$ #	25.7 \$ #	1.13 \$ #	2.16 \$ #	3.39 \$ #
Total Oxidised Nitrogen as N			<0.1 mg/l	TM184	2.13 \$ #	2.13 \$ #	5.8 \$ #	0.254 \$ #	0.487 \$ #	0.765 \$ #
PCB congener 28			<0.015 µg/l	TM197	<0.03 \$	<0.075 \$	<0.015 \$	<0.015 \$	<0.075 \$	<0.03 \$
PCB congener 52			<0.015 µg/l	TM197	<0.03 \$	<0.075 \$	<0.015 \$	<0.015 \$	<0.075 \$	<0.03 \$
PCB congener 101			<0.015 µg/l	TM197	<0.03 \$	<0.075 \$	<0.015 \$	<0.015 \$	<0.075 \$	<0.03 \$
PCB congener 118			<0.015 µg/l	TM197	<0.03 \$	<0.075 \$	<0.015 \$	<0.015 \$	<0.075 \$	<0.03 \$
PCB congener 138			<0.015 µg/l	TM197	<0.03 \$	<0.075 \$	<0.015 \$	<0.015 \$	<0.075 \$	<0.03 \$
PCB congener 153			<0.015 µg/l	TM197	<0.03 \$	<0.075 \$	<0.015 \$	<0.015 \$	<0.075 \$	<0.03 \$
PCB congener 180			<0.015 µg/l	TM197	<0.03 \$	<0.075 \$	<0.015 \$	<0.015 \$	<0.075 \$	<0.03 \$
Sum of detected EC7 PCB's			<0.105 µg/l	TM197	<0.21 \$	<0.525 \$	<0.105 \$	<0.105 \$	<0.525 \$	<0.21 \$
Phenol			<0.5 µg/l	TM205	<2 \$	<2 \$	<2 \$	<2 \$	<2 \$	<2 \$
2-methylphenol			<0.5 µg/l	TM205	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$
3-methylphenol			<0.5 µg/l	TM205	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$
4-methylphenol			<0.5 µg/l	TM205	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$
2-chlorophenol			<0.5 µg/l	TM205	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$	<0.5 \$

Superseded Report:

Location: Nantycaws Landfill

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.		SW 201	SW 202	SW 203	SW 204	SW 205	SW 206
# M aq diss.filt tot.unfilt * ** (F) 1-4+5@	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 Trigger breach confirmed Sample deviation (see appendix)		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023
					12/01/2023 230112-55 27396008	12/01/2023 230112-55 27396009	12/01/2023 230112-55 27396010	12/01/2023 230112-55 27396011	12/01/2023 230112-55 27396012	12/01/2023 230112-55 27396013
Component		LOD/Units	Method							
Ionic balance		% Diff	CALC		-1.45	-0.738	-1.85	-1.32	-1.38	-3.78
Suspended solids, Total		<2 mg/l	TM022		4.85 #	63.6 #	9.3 #	7.6 #	8.95 #	6.5 #
Alkalinity, Total as CaCO3		<2 mg/l	TM043		275 #	200 #	350 #	170 #	190 #	70 #
Alkalinity, Total as CaCO3 (diss.filt)		<2 mg/l	TM043		285	200	350	170	190	70
Alkalinity, Bicarbonate as CaCO3 (diss.filt)		<2 mg/l	TM043		285	200	350	170	190	70
Organic Carbon, Total		<3 mg/l	TM090		20.4 #	<3 #	27.4 #	19.5 #	31.9 #	6.34 #
Ammoniacal Nitrogen as N		<0.2 mg/l	TM099		4.86 #	0.313 #	11 #	<0.2 #	4.06 #	<0.2 #
Cadmium (diss.filt)		<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)		<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Copper (diss.filt)		<0.3 µg/l	TM152		2.94 #	0.741 #	7.72 #	7.14 #	5.74 #	2.5 #
Lead (diss.filt)		<0.2 µg/l	TM152		1.38 #	<0.2 #	1.28 #	3.56 #	1.23 #	0.25 #
Manganese (diss.filt)		<3 µg/l	TM152		183 #	20.2 #	321 #	13.7 #	90.8 #	6.2 #
Nickel (diss.filt)		<0.4 µg/l	TM152		3.07 #	0.537 #	4.29 #	2.85 #	3.95 #	0.81 #
Zinc (diss.filt)		<1 µg/l	TM152		14.4 #	3.32 #	14.4 #	8.48 #	14.3 #	7.04 #
Sodium (Dis.Filt)		<0.076 mg/l	TM152		20.1 #	12.5 #	30.7 #	14.8 #	18.2 #	5.97 #
Magnesium (Dis.Filt)		<0.036 mg/l	TM152		9.39 #	6.16 #	9.37 #	4.6 #	5.12 #	1.72 #
Potassium (Dis.Filt)		<0.2 mg/l	TM152		45.4 #	4.96 #	83.2 #	42.4 #	57.1 #	1.83 #
Calcium (Dis.Filt)		<0.2 mg/l	TM152		102 #	73.9 #	89 #	67.9 #	62.4 #	29.2 #
Iron (Dis.Filt)		<0.019 mg/l	TM152		0.219 #	<0.019 #	0.162 #	0.0989 #	0.179 #	0.0802 #
Nitrite as NO2		<0.05 mg/l	TM184		0.095 #	<0.05 #	0.257 #	<0.05 #	0.274 #	<0.05 #
Sulphate		<2 mg/l	TM184		28.3 #	13.6 #	55.9 #	51.2 #	38.8 #	6.8 #
Chloride		<2 mg/l	TM184		72.8 #	20.1 #	49.9 #	33.9 #	51.3 #	15.2 #
Nitrate as NO3		<0.3 mg/l	TM184		9.37 #	6.8 #	15.4 #	13.6 #	11.8 #	5.25 #
Total Oxidised Nitrogen as N		<0.1 mg/l	TM184		2.14 #	1.54 #	3.57 #	3.08 #	2.76 #	1.19 #
PCB congener 28		<0.015 µg/l	TM197		<0.03	<0.075	<0.075	<0.075	<0.075	<0.075
PCB congener 52		<0.015 µg/l	TM197		<0.03	<0.075	<0.075	<0.075	<0.075	<0.075
PCB congener 101		<0.015 µg/l	TM197		<0.03	<0.075	<0.075	<0.075	<0.075	<0.075
PCB congener 118		<0.015 µg/l	TM197		<0.03	<0.075	<0.075	<0.075	<0.075	<0.075
PCB congener 138		<0.015 µg/l	TM197		<0.03	<0.075	<0.075	<0.075	<0.075	<0.075
PCB congener 153		<0.015 µg/l	TM197		<0.03	<0.075	<0.075	<0.075	<0.075	<0.075
PCB congener 180		<0.015 µg/l	TM197		<0.03	<0.075	<0.075	<0.075	<0.075	<0.075
Sum of detected EC7 PCB's		<0.105 µg/l	TM197		<0.21	<0.525	<0.525	<0.525	<0.525	<0.525



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.		SW 201	SW 202	SW 203	SW 204	SW 205	SW 206
#	ISO17025 accredited.	mCERTS accredited. Aqueous / filtered 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 Trigger breach confirmed Sample deviation (see appendix)	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023	Surface Water (SW) 11/01/2023
M										
aq										
dis.filt										
tot.unfilt										
**					12/01/2023 230112-55 27396008	12/01/2023 230112-55 27396009	12/01/2023 230112-55 27396010	12/01/2023 230112-55 27396011	12/01/2023 230112-55 27396012	12/01/2023 230112-55 27396013
Component	LOD/Units	Method								
Phenol	<0.5 µg/l	TM205	<2	<2	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
2-methylphenol	<0.5 µg/l	TM205	<1	<1	<1.5	<2	<2	<2	<2	<1.5
3-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
4-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2-chlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2,4-dimethylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
4-chloro-3-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2,6-dichlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
4-Chlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2,4-dichlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2-nitrophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2,4,6-trichlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2,4,5-trichlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
4-nitrophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<1.5	<1	<1	<1	<1	<1.5
2,4-dinitrophenol	<2.5 µg/l	TM205	<2.5	<2.5	<7.5	<5	<5	<5	<5	<7.5
DNOC	<3 µg/l	TM205	<3	<3	<9	<6	<6	<6	<6	<9
Pentachlorophenol	<2 µg/l	TM205	<2	<2	<6	<4	<4	<4	<4	<6
Dinoseb	<4 µg/l	TM205	<4	<4	<12	<8	<8	<8	<8	<12
pH	<1 pH Units	TM256	7.6	7.21	7.78	7.8	7.8	7.8	7.8	7.92
Conductivity @ 20 deg.C	<0.02 mS/cm	TM256	0.729	0.422	0.837	0.491	0.572	0.572	0.572	0.194
Phenol	<0.002 mg/l	TM259	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cresols	<0.006 mg/l	TM259	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Xylenols	<0.008 mg/l	TM259	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016
Mecoprop	<0.04 µg/l	TM411	0.186	<0.04	<0.2	<0.2	<0.2	<0.2	<0.2	<0.04



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.	SW 207	UD1	UD3	UD4	UD5	
# M aq diss.filt tot.unfilt * ** (F) 1-4+5@	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 Trigger breach confirmed Sample deviation (see appendix)		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Surface Water (SW) 11/01/2023	Ground Water (GW) 11/01/2023	Ground Water (GW) 11/01/2023	Ground Water (GW) 11/01/2023	Ground Water (GW) 11/01/2023	
				12/01/2023 230112-55 27396014	12/01/2023 230112-55 27395992	12/01/2023 230112-55 27395993	12/01/2023 230112-55 27395995	12/01/2023 230112-55 27395996	
Component	LOD/Units	Method							
Ionic balance	% Diff	CALC	-4.43						
Suspended solids, Total	<2 mg/l	TM022	12.6 #						
Alkalinity, Total as CaCO3	<2 mg/l	TM043	120 #	245 #	225 #	260 #	265 #		
Alkalinity, Total as CaCO3 (diss.filt)	<2 mg/l	TM043	115						
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043	115						
Organic Carbon, Total	<3 mg/l	TM090	15.2 #						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	0.947 #	<0.2 #	<0.2 #	0.626 #	0.625 #		
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #		
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	<1 #	<1 #	<1 #	<1 #		
Copper (diss.filt)	<0.3 µg/l	TM152	13.5 #	0.573 #	0.792 #	2.12 #	2.05 #		
Lead (diss.filt)	<0.2 µg/l	TM152	2.96 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #		
Manganese (diss.filt)	<3 µg/l	TM152	21.1 #	23.4 #	<3 #	150 #	151 #		
Nickel (diss.filt)	<0.4 µg/l	TM152	2.69 #	<0.4 #	<0.4 #	0.736 #	0.899 #		
Zinc (diss.filt)	<1 µg/l	TM152	14.3 #	6.89 #	7.56 #	4.95 #	7.71 #		
Sodium (Dis.Filt)	<0.076 mg/l	TM152	12.2 #	12.5 #	11.4 #	13.7 #	13.5 #		
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	3.16 #	9.09 #	7.84 #	5.53 #	5.54 #		
Potassium (Dis.Filt)	<0.2 mg/l	TM152	21.9 #	1.15 #	1.36 #	8.13 #	8.01 #		
Calcium (Dis.Filt)	<0.2 mg/l	TM152	42 #	106 #	87.9 #	101 #	99.8 #		
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.126 #	<0.019 #	<0.019 #	0.821 #	0.82 #		
Nitrite as NO2	<0.05 mg/l	TM184	0.151 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #		
Sulphate	<2 mg/l	TM184	22.3 #	12.8 #	12.1 #	20.9 #	21.2 #		
Chloride	<2 mg/l	TM184	31.6 #	49.8 #	24.2 #	22.1 #	22.1 #		
Nitrate as NO3	<0.3 mg/l	TM184	11.2 #	9.27 #	9.93 #	6.32 #	6.3 #		
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	2.59 #	2.09 #	2.24 #	1.43 #	1.42 #		
PCB congener 28	<0.015 µg/l	TM197	<0.075	<0.075	<0.075	<0.075	<0.03		
PCB congener 52	<0.015 µg/l	TM197	<0.075	<0.075	<0.075	<0.075	<0.03		
PCB congener 101	<0.015 µg/l	TM197	<0.075	<0.075	<0.075	<0.075	<0.03		
PCB congener 118	<0.015 µg/l	TM197	<0.075	<0.075	<0.075	<0.075	<0.03		
PCB congener 138	<0.015 µg/l	TM197	<0.075	<0.075	<0.075	<0.075	<0.03		
PCB congener 153	<0.015 µg/l	TM197	<0.075	<0.075	<0.075	<0.075	<0.03		
PCB congener 180	<0.015 µg/l	TM197	<0.075	<0.075	<0.075	<0.075	<0.03		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.525	<0.525	<0.525	<0.525	<0.21		



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Results Legend			Customer Sample Ref.		SW 207	UD1	UD3	UD4	UD5	
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Surface Water (SW) 11/01/2023	Ground Water (GW) 11/01/2023	Ground Water (GW) 11/01/2023	Ground Water (GW) 11/01/2023	Ground Water (GW) 11/01/2023	
M	mCERTS accredited.									
aq	Aqueous / settled sample.									
dis.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
**	Subcontracted - refer to subcontractor report for accreditation status.				12/01/2023 230112-55 27396014	12/01/2023 230112-55 27395992	12/01/2023 230112-55 27395993	12/01/2023 230112-55 27395995	12/01/2023 230112-55 27395996	
(F)	% 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									
1-4&6@	Trigger breach confirmed									
	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Phenol	<0.5 µg/l	TM205			<2.5	<2	<2	<2	<2	
2-methylphenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
3-methylphenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
4-methylphenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2-chlorophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2,4-dimethylphenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
4-chloro-3-methylphenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2,6-dichlorophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
4-Chlorophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2,4-dichlorophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2-nitrophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2,4,6-trichlorophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2,4,5-trichlorophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
4-nitrophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205			<1.5	<0.5	<0.5	<0.5	<0.5	
2,4-dinitrophenol	<2.5 µg/l	TM205			<7.5	<2.5	<2.5	<2.5	<2.5	
DNOC	<3 µg/l	TM205			<9	<3	<3	<3	<3	
Pentachlorophenol	<2 µg/l	TM205			<6	<2	<2	<2	<2	
Dinoseb	<4 µg/l	TM205			<12	<4	<4	<4	<4	
pH	<1 pH Units	TM256			7.87					
Conductivity @ 20 deg.C	<0.02 mS/cm	TM256			0.346	0.574	0.465	0.532	0.531	
Phenol	<0.002 mg/l	TM259			<0.002	<0.002	<0.002	<0.002	<0.002	
Cresols	<0.006 mg/l	TM259			<0.006	<0.006	<0.006	<0.006	<0.006	
Xylenols	<0.008 mg/l	TM259			<0.008	<0.008	<0.008	<0.008	<0.008	
Phenols, Total Detected monohydric	<0.016 mg/l	TM259			<0.016	<0.016	<0.016	<0.016	<0.016	
Mecoprop	<0.04 µg/l	TM411			0.0471	0.0731	<0.04	0.0688	<0.04	

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

PAH Spec MS - Aqueous (W)

[illegible]

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

PAH Spec MS - Aqueous (W)

[illegible]

CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

SVOC MS (W) - Aqueous

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	BH 318	BH 319	BH 5102	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Ground Water (GW) 11/01/2023 12/01/2023 230112-55 27395989	Ground Water (GW) 11/01/2023 12/01/2023 230112-55 27395991	Ground Water (GW) - 12/01/2023 230112-55 27396000	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402602	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402604	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402605	
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss,flt	Dissolved / filtered sample.								
tot.unflt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-4	Sample deviation (see appendix)								
Component	LOD/Units	Method							
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176				<40	<20	<10	
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176				<40	<20	<10	
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176				<40	<20	<10	
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176				<40	<20	<10	
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176				<40	<20	<10	
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176				<40	<20	<10	
2,4-Dichlorophenol (aq)	<1 µg/l	TM176				<40	<20	<10	
2,4-Dimethylphenol (aq)	<1 µg/l	TM176				<40	<20	<10	
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176				<40	<20	<10	
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176				<40	<20	<10	
2-Chloronaphthalene (aq)	<1 µg/l	TM176				<40	<20	<10	
2-Chlorophenol (aq)	<1 µg/l	TM176				<40	<20	<10	
2-Methylnaphthalene (aq)	<1 µg/l	TM176				<40	<20	<10	
2-Methylphenol (aq)	<1 µg/l	TM176				<40	<20	<10	
2-Nitroaniline (aq)	<1 µg/l	TM176				<40	<20	<10	
2-Nitrophenol (aq)	<1 µg/l	TM176				<40	<20	<10	
3-Nitroaniline (aq)	<1 µg/l	TM176				<40	<20	<10	
4-Bromophenylphenylether (aq)	<1 µg/l	TM176				<40	<20	<10	
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176				<40	<20	<10	
4-Chloroaniline (aq)	<1 µg/l	TM176				<40	<20	<10	
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176				<40	<20	<10	
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 \$ #	<40	<20	<10	
4-Nitroaniline (aq)	<1 µg/l	TM176				<40	<20	<10	
4-Nitrophenol (aq)	<1 µg/l	TM176				<40	<20	<10	
Azobenzene (aq)	<1 µg/l	TM176				<40	<20	<10	
Acenaphthylene (aq)	<1 µg/l	TM176				<40	<20	<10	
Acenaphthene (aq)	<1 µg/l	TM176				<40	<20	<10	
Anthracene (aq)	<1 µg/l	TM176				<40	<20	<10	
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176				<40	<20	<10	
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176				<40	<20	<10	
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176				<80	<40	<20	
Butylbenzyl phthalate (aq)	<1 µg/l	TM176				<40	<20	<10	



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref. Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	BH 318	BH 319	BH 5102	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP
#	ISO17025 accredited.			Ground Water (GW) 11/01/2023 12/01/2023 230112-55 27395989	Ground Water (GW) 11/01/2023 12/01/2023 230112-55 27395991	Ground Water (GW) - 12/01/2023 230112-55 27396000	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402602	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402604	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402605
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-4&6@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Benzo(a)anthracene (aq)	<1 µg/l	TM176				<40	<20	<10	
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176				<40	<20	<10	
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176				<40	<20	<10	
Benzo(a)pyrene (aq)	<1 µg/l	TM176				<40	<20	<10	
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176				<40	<20	<10	
Carbazole (aq)	<1 µg/l	TM176				<40	<20	<10	
Chrysene (aq)	<1 µg/l	TM176				<40	<20	<10	
Dibenzofuran (aq)	<1 µg/l	TM176				<40	<20	<10	
n-Dibutyl phthalate (aq)	<1 µg/l	TM176				<40	<20	<10	
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #	<1 #	<1 \$ #	<40	<20	<10	
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176				<40	<20	<10	
Dimethyl phthalate (aq)	<1 µg/l	TM176				<40	<20	<10	
n-Dioctyl phthalate (aq)	<5 µg/l	TM176				<200	<100	<50	
Fluoranthene (aq)	<1 µg/l	TM176				<40	<20	<10	
Fluorene (aq)	<1 µg/l	TM176				<40	<20	<10	
Hexachlorobenzene (aq)	<1 µg/l	TM176				<40	<20	<10	
Hexachlorobutadiene (aq)	<1 µg/l	TM176				<40	<20	<10	
Pentachlorophenol (aq)	<1 µg/l	TM176				<40	<20	<10	
Phenol (aq)	<1 µg/l	TM176				<40	<20	<10	
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176				<40	<20	<10	
Hexachloroethane (aq)	<1 µg/l	TM176				<40	<20	<10	
Nitrobenzene (aq)	<1 µg/l	TM176				<40	<20	<10	
Naphthalene (aq)	<1 µg/l	TM176				<40	<20	<10	
Isophorone (aq)	<1 µg/l	TM176				<40	<20	<10	
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176				<40	<20	<10	
Phenanthrene (aq)	<1 µg/l	TM176				<40	<20	<10	
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176				<40	<20	<10	
Pyrene (aq)	<1 µg/l	TM176				<40	<20	<10	



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LA GOON	NACW 203	NACW 205	NACW 212
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.			12/01/2023	12/01/2023	12/01/2023			
aq	Aqueous / settled sample.								
diss,filtr	Dissolved / filtered sample.			12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
tot.unfilt	Total / unfiltered sample.			230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
*	Subcontracted - refer to subcontractor report for accreditation status.			27402600	27402601	27402606	27395997	27395998	27396001
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-4	Sample deviation (see appendix)								
Component			Method						
1,2,4-Trichlorobenzene (aq)			TM176	<20	<40	<40			
			µg/l						
1,2-Dichlorobenzene (aq)			TM176	<20	<40	<40			
			µg/l						
1,3-Dichlorobenzene (aq)			TM176	<20	<40	<40			
			µg/l						
1,4-Dichlorobenzene (aq)			TM176	<20	<40	<40			
			µg/l						
2,4,5-Trichlorophenol (aq)			TM176	<20	<40	<40			
			µg/l						
2,4,6-Trichlorophenol (aq)			TM176	<20	<40	<40			
			µg/l						
2,4-Dichlorophenol (aq)			TM176	<20	<40	<40			
			µg/l						
2,4-Dimethylphenol (aq)			TM176	<20	<40	<40			
			µg/l						
2,4-Dinitrotoluene (aq)			TM176	<20	<40	<40			
			µg/l						
2,6-Dinitrotoluene (aq)			TM176	<20	<40	<40			
			µg/l						
2-Chloronaphthalene (aq)			TM176	<20	<40	<40			
			µg/l						
2-Chlorophenol (aq)			TM176	<20	<40	<40			
			µg/l						
2-Methylnaphthalene (aq)			TM176	<20	<40	<40			
			µg/l						
2-Methylphenol (aq)			TM176	<20	<40	<40			
			µg/l						
2-Nitroaniline (aq)			TM176	<20	<40	<40			
			µg/l						
2-Nitrophenol (aq)			TM176	<20	<40	<40			
			µg/l						
3-Nitroaniline (aq)			TM176	<20	<40	<40			
			µg/l						
4-Bromophenylphenylether (aq)			TM176	<20	<40	<40			
			µg/l						
4-Chloro-3-methylphenol (aq)			TM176	<20	<40	<40			
			µg/l						
4-Chloroaniline (aq)			TM176	<20	<40	<40			
			µg/l						
4-Chlorophenylphenylether (aq)			TM176	<20	<40	<40			
			µg/l						
4-Methylphenol (aq)			TM176	<20	<40	<40	<1	<1	<4
			µg/l				\$ #	\$ #	\$ #
4-Nitroaniline (aq)			TM176	<20	<40	<40			
			µg/l						
4-Nitrophenol (aq)			TM176	<20	<40	<40			
			µg/l						
Azobenzene (aq)			TM176	<20	<40	<40			
			µg/l						
Acenaphthylene (aq)			TM176	<20	<40	<40			
			µg/l						
Acenaphthene (aq)			TM176	<20	<40	<40			
			µg/l						
Anthracene (aq)			TM176	<20	<40	<40			
			µg/l						
bis(2-Chloroethyl)ether (aq)			TM176	<20	<40	<40			
			µg/l						
bis(2-Chloroethoxy)methane (aq)			TM176	<20	<40	<40			
			µg/l						
bis(2-Ethylhexyl) phthalate (aq)			TM176	<40	<80	<80			
			µg/l						
Butylbenzyl phthalate (aq)			TM176	<20	<40	<40			
			µg/l						



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

SVOC MS (W) - Aqueous

Results Legend			Customer Sample Ref.	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LA GOON	NACW 203	NACW 205	NACW 212
#	ISO17025 accredited.	mCERTS accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Land Leachate (LE) 12/01/2023	Land Leachate (LE) 12/01/2023	Land Leachate (LE) 12/01/2023	Ground Water (GW) -	Ground Water (GW) -	Ground Water (GW) -
M	aq	Aqueous / settled sample.		12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
dis.filt	Total / unfiltered sample.	Dissolved / filtered sample.		230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
tot.unfilt	Subcontracted - refer to subcontractor report for accreditation status.	Total / unfiltered sample.		27402600	27402601	27402606	27395997	27395998	27396001
**	% 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	% 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	Trigger breach confirmed							
1-466@	Sample deviation (see appendix)	Sample deviation (see appendix)							
Component	LOD/Units	Method							
Benzo(a)anthracene (aq)	<1 µg/l	TM176		<20	<40	<40			
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176		<20	<40	<40			
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<20	<40	<40			
Benzo(a)pyrene (aq)	<1 µg/l	TM176		<20	<40	<40			
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176		<20	<40	<40			
Carbazole (aq)	<1 µg/l	TM176		<20	<40	<40			
Chrysene (aq)	<1 µg/l	TM176		<20	<40	<40			
Dibenzofuran (aq)	<1 µg/l	TM176		<20	<40	<40			
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<20	<40	<40			
Diethyl phthalate (aq)	<1 µg/l	TM176		<20	<40	<40	<1 \$ #	<1 \$ #	<4 \$ #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176		<20	<40	<40			
Dimethyl phthalate (aq)	<1 µg/l	TM176		<20	<40	<40			
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<100	<200	<200			
Fluoranthene (aq)	<1 µg/l	TM176		<20	<40	<40			
Fluorene (aq)	<1 µg/l	TM176		<20	<40	<40			
Hexachlorobenzene (aq)	<1 µg/l	TM176		<20	<40	<40			
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<20	<40	<40			
Pentachlorophenol (aq)	<1 µg/l	TM176		<20	<40	<40			
Phenol (aq)	<1 µg/l	TM176		<20	<40	<40			
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<20	<40	<40			
Hexachloroethane (aq)	<1 µg/l	TM176		<20	<40	<40			
Nitrobenzene (aq)	<1 µg/l	TM176		<20	<40	<40			
Naphthalene (aq)	<1 µg/l	TM176		<20	<40	<40			
Isophorone (aq)	<1 µg/l	TM176		<20	<40	<40			
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<20	<40	<40			
Phenanthrene (aq)	<1 µg/l	TM176		<20	<40	<40			
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<20	<40	<40			
Pyrene (aq)	<1 µg/l	TM176		<20	<40	<40			

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

SVOC MS (W) - Aqueous

[illegible]

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

SVOC MS (W) - Aqueous

[illegible]

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

SVOC MS (W) - Aqueous

[illegible]

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

TPH CWG (W)

[illegible]

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

TPH CWG (W)

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		BH 318	BH 319	BH 5102	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)
M	mCERTS accredited.				11/01/2023	11/01/2023		12/01/2023	12/01/2023	12/01/2023
aq	Aqueous / settled sample.									
diss.filt	Dissolved / filtered sample.									
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
(F)	Trigger breach confirmed				230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
1-456	Sample deviation (see appendix)				27395989	27395991	27396000	27402602	27402604	27402605
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208						108	107	111
Toluene-d8**	%	TM208						97.3	93.8	96.8
4-Bromofluorobenzene**	%	TM208						95.6	102	99
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 \$ #	<3 #	<3 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1 #	<1 #	<1 \$ #	<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
Bromochloromethane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
Chloroform	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1 \$ #	<1 #	<1 #	1.57 #	<1 #	<1 #
Trichloroethene	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
Dibromomethane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208	<1 #	<1 #	<1 \$ #	<1 #	<1 #	1.99 #	<1 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208					<1 #	<1 #	<1 #	<1 #



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.	BH 318	BH 319	BH 5102	CELL 5 SUMP	CELL 6 SUMP	CELL 7 SUMP
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Ground Water (GW) 11/01/2023 12/01/2023 230112-55 27395989	Ground Water (GW) 11/01/2023 12/01/2023 230112-55 27395991	Ground Water (GW) - 12/01/2023 230112-55 27396000	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402602	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402604	Land Leachate (LE) 12/01/2023 12/01/2023 230112-55 27402605	
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
dis.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-4	Sample deviation (see appendix)								
Component		LOD/Units	Method						
1,3-Dichloropropane		<1 µg/l	TM208						
Tetrachloroethene		<1 µg/l	TM208						
Dibromochloromethane		<1 µg/l	TM208						
1,2-Dibromoethane		<1 µg/l	TM208						
Chlorobenzene		<1 µg/l	TM208						
1,1,1,2-Tetrachloroethane		<1 µg/l	TM208						
Ethylbenzene		<1 µg/l	TM208	<1	<1	<1	<1	1.17	1.7
m,p-Xylene		<1 µg/l	TM208	#	#	\$ #	#	#	#
o-Xylene		<1 µg/l	TM208	#	#	\$ #	#	#	#
Styrene		<1 µg/l	TM208	#	#	\$ #	#	#	#
Bromoform		<1 µg/l	TM208				<1	<1	1.36
Isopropylbenzene		<1 µg/l	TM208				#	#	#
1,1,2,2-Tetrachloroethane		<1 µg/l	TM208				<1	<1	<1
1,2,3-Trichloropropane		<1 µg/l	TM208				#	#	#
Bromobenzene		<1 µg/l	TM208				<1	<1	<1
Propylbenzene		<1 µg/l	TM208				#	#	#
2-Chlorotoluene		<1 µg/l	TM208				<1	<1	<1
1,3,5-Trimethylbenzene		<1 µg/l	TM208				#	#	#
4-Chlorotoluene		<1 µg/l	TM208				<1	<1	<1
tert-Butylbenzene		<1 µg/l	TM208				#	#	#
1,2,4-Trimethylbenzene		<1 µg/l	TM208				<1	2.88	2.14
sec-Butylbenzene		<1 µg/l	TM208				#	#	#
4-iso-Propyltoluene		<1 µg/l	TM208				<1	<1	<1
1,3-Dichlorobenzene		<1 µg/l	TM208				#	#	#
1,4-Dichlorobenzene		<1 µg/l	TM208				<1	<1	<1
n-Butylbenzene		<1 µg/l	TM208				#	#	#
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	TM208				#	#	#
Hexachlorobutadiene		<1 µg/l	TM208				<1	<1	<1
tert-Amyl methyl ether (TAME)		<1 µg/l	TM208				#	#	#
Naphthalene		<1 µg/l	TM208				<1	<1	<1



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantcaws Landfill

Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.		CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LA GOON	NACW 203	NACW 205	NACW 212
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference		Land Leachate (LE)	Land Leachate (LE)	Land Leachate (LE)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	mCERTS accredited.				12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
aq	Aqueous / settled sample.				230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
diss,filtr	Dissolved / filtered sample.				27402600	27402601	27402606	27395997	27395998	27396001
tot.unfilt	Total / unfiltered sample.									
*	Subcontracted - refer to subcontractor report for accreditation status.									
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F)	Trigger breach confirmed									
1-4+5@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208			106	104	105			
Toluene-d8**	%	TM208			99.5	98.1	98.6			
4-Bromofluorobenzene**	%	TM208			98.4	97.3	97.8			
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	<3 \$ #	<3 \$ #	<3 \$ #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208			<1	<1	<1	<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	<1	<1			
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	1.24	2	<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	<1	<1			
cis-1,3-Dichloropropene	<1 µg/l	TM208			<1	<1	<1			
Toluene	<1 µg/l	TM208			<1	<1	1.98	<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			



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

VOC MS (W)

Results Legend			Customer Sample Ref.	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDING LA GOON	NACW 203	NACW 205	NACW 212
#	ISO17025 accredited.	mCERTS accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Land Leachate (LE) 12/01/2023	Land Leachate (LE) 12/01/2023	Land Leachate (LE) 12/01/2023	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
M	Aqueous / settled sample.	Dissolved / filtered sample.		12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023	12/01/2023
aq	Total / unfiltered sample.	Subcontracted - refer to subcontractor report for accreditation status.		230112-55	230112-55	230112-55	230112-55	230112-55	230112-55
dis.filt	% 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		27402600	27402601	27402606	27395997	27395998	27396001
tot.unfilt	Sample deviation (see appendix)								
+									
**									
(F)									
1-4									
5									
@									
Component	LOD/Units	Method							
1,3-Dichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Tetrachloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Dibromochloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,2-Dibromoethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Chlorobenzene	<1 µg/l	TM208		<1 #	1.29 #	1.43 #			
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Ethylbenzene	<1 µg/l	TM208		<1 #	2.07 #	3.82 #	<1 \$ #	<1 \$ #	<1 \$ #
m,p-Xylene	<1 µg/l	TM208		<1 #	1.83 #	4.23 #	<1 \$ #	<1 \$ #	<1 \$ #
o-Xylene	<1 µg/l	TM208		<1 #	1.78 #	3.84 #	<1 \$ #	<1 \$ #	<1 \$ #
Styrene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Bromoform	<1 µg/l	TM208		<1 #	<1 #	1.79 #			
Isopropylbenzene	<1 µg/l	TM208		<1 #	<1 #	1.15 #			
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 #	1.39 #			
Propylbenzene	<1 µg/l	TM208		<1 #	<1 #	1.07 #			
2-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	1.42 #			
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	1.4 #			
4-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	1.53 #			
tert-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1 #	2.03 #	2.49 #			
sec-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	1.24 #			
4-iso-Propyltoluene	<1 µg/l	TM208		<1 #	<1 #	1.92 #			
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	1.25 #			
1,4-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	2.41 #			
n-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	1.21 #			
1,2-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	2.01 #			
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #			
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	2.81 #			
Hexachlorobutadiene	<1 µg/l	TM208		<1 #	<1 #	2.54 #			
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 #	<1 #	<1 #			
Naphthalene	<1 µg/l	TM208		<1 #	1.1 #	4.54 #			

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

VOC MS (W)

[illegible]

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

VOC MS (W)

[illegible]

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

VOC MS (W)

[illegible]



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Notification of NDPs (No determination possible)

Date Received : 12/01/2023 09:59:59

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
27402602	CELL 5 SUMP		Anions by Kone (w)	Sample too coloured
27402600	CELL 1-2 SUMP		Urea Herbicides (Suite 1)*	Insufficient sample supplied
27402601	CELL 3-4 SUMP		Urea Herbicides (Suite 1)*	Insufficient sample supplied
27402602	CELL 5 SUMP		Urea Herbicides (Suite 1)*	Insufficient sample supplied
27402604	CELL 6 SUMP		Urea Herbicides (Suite 1)*	Insufficient sample supplied
27402605	CELL 7 SUMP		Urea Herbicides (Suite 1)*	Insufficient sample supplied
27402606	LEACHATE HOLDING LAGOON		Urea Herbicides (Suite 1)*	Insufficient sample supplied
27396008	SW 201		Pesticides (Suite I) by GCMS	Insufficient Sample
27396009	SW 202		Pesticides (Suite I) by GCMS	Insufficient Sample



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantcaws Landfill

Superseded Report:

Table of Results - Appendix

Method No	Description
CALC	Ionic Balance
SUB	Subcontracted Test
TM022	Determination of total suspended solids in waters
TM043	Determination of alkalinity in aqueous samples
TM045	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM090	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM152	Analysis of Aqueous Samples by ICP-MS
TM174	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	Determination of SVOCs in Water by GCMS
TM178	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM197	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
TM205	Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM226	Determination of Anions in Waters using Ion Chromatography
TM227	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM245	Determination of GRO by Headspace in waters
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM259	Determination of Phenols in Waters and Leachates by HPLC
TM343	Determination of Selected Pesticides (Suite I) in Liquids by GCMS
TM411	Acid Herbs in Water by GCMS

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Test Completion Dates

Lab Sample No(s) Customer Sample Ref.	27395999	27396005	27396006	27396007	27395987	27395988	27395989	27395991	27396000	27467947
	BH 208	BH 312	BH 313	BH 314	BH 315	BH 316	BH 318	BH 319	BH 5102	CELL 5
AGS Ref.										
Depth										
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Land
Acid Herbicides by GCMS	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	
Alkalinity as CaCO ₃	19-Jan-2023	19-Jan-2023	16-Jan-2023	16-Jan-2023	13-Jan-2023	16-Jan-2023	16-Jan-2023	19-Jan-2023	16-Jan-2023	
Ammoniacal Nitrogen	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	
Anions by Kone (w)	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	
Dissolved Metals by ICP-MS	17-Jan-2023	17-Jan-2023	18-Jan-2023	18-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	20-Feb-2023
EPH CWG (Aliphatic) Aqueous GC (W)	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	
EPH CWG (Aromatic) Aqueous GC (W)	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	
GRO by GC-FID (W)	24-Jan-2023	24-Jan-2023	24-Jan-2023	24-Jan-2023	24-Jan-2023	24-Jan-2023	24-Jan-2023	24-Jan-2023	24-Jan-2023	
Nitrite by Kone (w)	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	
PAH Spec MS - Aqueous (W)	26-Jan-2023	26-Jan-2023	26-Jan-2023	27-Jan-2023	26-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	26-Jan-2023	
PCB Congeners - Aqueous (W)	01-Feb-2023	01-Feb-2023	01-Feb-2023	01-Feb-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	
pH Value	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	
Phenols by HPLC (W)	27-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	
Phenols by ms (w)	26-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	26-Jan-2023	
SVOC MS (W) - Aqueous	18-Jan-2023	17-Jan-2023	17-Jan-2023	18-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	
TPH CWG (W)	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	
Urea Herbicides (Suite 1)*										20-Feb-2023
VOC MS (W)	16-Jan-2023	18-Jan-2023	18-Jan-2023	17-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	17-Jan-2023	17-Jan-2023	

Lab Sample No(s) Customer Sample Ref.	27467948	27467951	27467945	27467946	27402602	27421238	27402604	27421239	27402605	27421240
	CELL 6	CELL 7	CELL 1-2	CELL 3-4	CELL 5 SUMP	CELL 5 SUMP	CELL 6 SUMP	CELL 6 SUMP	CELL 7 SUMP	CELL 7 SUMP
AGS Ref.										
Depth										
Type	Land	Land	Land	Land	Land	Land	Land	Land	Land	Land
Acid Herbicides by GCMS					20-Jan-2023		20-Jan-2023		20-Jan-2023	
Alkalinity as CaCO ₃					16-Jan-2023		16-Jan-2023		16-Jan-2023	
Ammoniacal Nitrogen					16-Jan-2023		16-Jan-2023	23-Jan-2023	16-Jan-2023	
Anions by ion Chromatography					02-Feb-2023					
Anions by Kone (w)						23-Jan-2023	16-Jan-2023		16-Jan-2023	
BOD True Total					19-Jan-2023		19-Jan-2023		19-Jan-2023	
COD Unfiltered					19-Jan-2023		19-Jan-2023		19-Jan-2023	
Cyanide Comp/Free/Total/Thiocyanate					25-Jan-2023		25-Jan-2023		25-Jan-2023	
Dissolved Metals by ICP-MS			15-Feb-2023			24-Jan-2023		20-Jan-2023	17-Jan-2023	20-Jan-2023
EPH CWG (Aliphatic) Aqueous GC (W)					30-Jan-2023		30-Jan-2023		30-Jan-2023	
EPH CWG (Aromatic) Aqueous GC (W)					30-Jan-2023		30-Jan-2023		30-Jan-2023	
GRO by GC-FID (W)					24-Jan-2023		24-Jan-2023		24-Jan-2023	
PCB Congeners - Aqueous (W)					27-Jan-2023		27-Jan-2023		27-Jan-2023	
Pesticides (Suite I) by GCMS					30-Jan-2023		30-Jan-2023		30-Jan-2023	
pH Value					17-Jan-2023		17-Jan-2023		17-Jan-2023	
Phenols by ms (w)					27-Jan-2023		31-Jan-2023		31-Jan-2023	
SVOC MS (W) - Aqueous					17-Jan-2023		17-Jan-2023		17-Jan-2023	
Total Organic and Inorganic Carbon					15-Jan-2023		15-Jan-2023	19-Jan-2023	15-Jan-2023	
TPH CWG (W)					30-Jan-2023		30-Jan-2023		30-Jan-2023	
Urea Herbicides (Suite 1)*	20-Feb-2023	20-Feb-2023	20-Feb-2023	20-Feb-2023						
VOC MS (W)					17-Jan-2023		17-Jan-2023		17-Jan-2023	



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Lab Sample No(s) Customer Sample Ref. AGS Ref. Depth Type	27402600	27421237	27402601	27402606	27467952	27395997	27395998	27396001	27396002	27396003
	CELL 1-2 SUMP	CELL 1-2 SUMP	CELL 3-4 SUMP	LEACHATE HOLDIN G LAGOON	LEACHATE HOLDIN G LAGOON	NACW 203	NACW 205	NACW 212	NACW 219	NACW 228
	Land	Land	Land	Land	Land	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acid Herbicides by GCMS	20-Jan-2023		20-Jan-2023	20-Jan-2023		20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023
Alkalinity as CaCO3	16-Jan-2023		16-Jan-2023	16-Jan-2023		13-Jan-2023	13-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023
Ammoniacal Nitrogen	16-Jan-2023		16-Jan-2023	16-Jan-2023		17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023
Anions by Kone (w)	16-Jan-2023		18-Jan-2023	16-Jan-2023		14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023
BOD True Total	19-Jan-2023		19-Jan-2023	19-Jan-2023						
COD Unfiltered	19-Jan-2023		19-Jan-2023	19-Jan-2023						
Cyanide Comp/Free/Total/Thiocyanate	25-Jan-2023		25-Jan-2023	25-Jan-2023						
Dissolved Metals by ICP-MS		20-Jan-2023	17-Jan-2023	17-Jan-2023		17-Jan-2023	17-Jan-2023	17-Jan-2023	18-Jan-2023	18-Jan-2023
EPH CWG (Aliphatic) Aqueous GC (W)	30-Jan-2023		30-Jan-2023	30-Jan-2023		27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023
EPH CWG (Aromatic) Aqueous GC (W)	30-Jan-2023		30-Jan-2023	30-Jan-2023		27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023
GRO by GC-FID (W)	24-Jan-2023		24-Jan-2023	24-Jan-2023		24-Jan-2023	24-Jan-2023	24-Jan-2023	24-Jan-2023	24-Jan-2023
Nitrite by Kone (w)						13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023
PAH Spec MS - Aqueous (W)						26-Jan-2023	26-Jan-2023	27-Jan-2023	26-Jan-2023	27-Jan-2023
PCB Congeners - Aqueous (W)	27-Jan-2023		27-Jan-2023	27-Jan-2023		27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	01-Feb-2023
Pesticides (Suite I) by GCMS	30-Jan-2023		30-Jan-2023	30-Jan-2023						
pH Value	17-Jan-2023		17-Jan-2023	17-Jan-2023		16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023
Phenols by HPLC (W)						27-Jan-2023	27-Jan-2023	27-Jan-2023	26-Jan-2023	27-Jan-2023
Phenols by ms (w)	31-Jan-2023		31-Jan-2023	31-Jan-2023		26-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023
SVOC MS (W) - Aqueous	17-Jan-2023		17-Jan-2023	17-Jan-2023		17-Jan-2023	17-Jan-2023	18-Jan-2023	17-Jan-2023	17-Jan-2023
Total Organic and Inorganic Carbon	15-Jan-2023		15-Jan-2023	15-Jan-2023						
TPH CWG (W)	30-Jan-2023		30-Jan-2023	30-Jan-2023		27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023
Urea Herbicides (Suite 1)*					20-Feb-2023					
VOC MS (W)	17-Jan-2023		17-Jan-2023	17-Jan-2023		16-Jan-2023	16-Jan-2023	16-Jan-2023	17-Jan-2023	17-Jan-2023

Lab Sample No(s) Customer Sample Ref. AGS Ref. Depth Type	27396004	27396008	27396009	27396010	27396011	27396012	27396013	27396014	27395992	27395993
	NACW 229	SW 201	SW 202	SW 203	SW 204	SW 205	SW 206	SW 207	UD1	UD3
	Ground Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Ground Water	Ground Water
Acid Herbicides by GCMS	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023	20-Jan-2023
Alkalinity as CaCO3	19-Jan-2023	16-Jan-2023	13-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	13-Jan-2023	13-Jan-2023
Alkalinity Filtered as CaCO3		16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023		
Ammoniacal Nitrogen	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023
Anions by Kone (w)	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023
Dissolved Metals by ICP-MS	18-Jan-2023	17-Jan-2023	17-Jan-2023	18-Jan-2023	18-Jan-2023	18-Jan-2023	18-Jan-2023	18-Jan-2023	18-Jan-2023	17-Jan-2023
EPH CWG (Aliphatic) Aqueous GC (W)	27-Jan-2023								27-Jan-2023	27-Jan-2023
EPH CWG (Aromatic) Aqueous GC (W)	27-Jan-2023								27-Jan-2023	27-Jan-2023
GRO by GC-FID (W)	24-Jan-2023								24-Jan-2023	24-Jan-2023
Ionic Balance		18-Jan-2023	18-Jan-2023	18-Jan-2023	18-Jan-2023	18-Jan-2023	18-Jan-2023	18-Jan-2023		
Nitrite by Kone (w)	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023	13-Jan-2023
PAH Spec MS - Aqueous (W)	26-Jan-2023	27-Jan-2023	26-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	26-Jan-2023	26-Jan-2023
PCB Congeners - Aqueous (W)	01-Feb-2023	27-Jan-2023	31-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	27-Jan-2023	01-Feb-2023	01-Feb-2023
pH Value	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023
Phenols by HPLC (W)	26-Jan-2023	31-Jan-2023	27-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	27-Jan-2023	26-Jan-2023
Phenols by ms (w)	26-Jan-2023	27-Jan-2023	27-Jan-2023	26-Jan-2023	27-Jan-2023	27-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023	26-Jan-2023
Suspended Solids		17-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023		
SVOC MS (W) - Aqueous	18-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	17-Jan-2023	18-Jan-2023	17-Jan-2023	17-Jan-2023	18-Jan-2023
Total Organic and Inorganic Carbon		14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023	14-Jan-2023		
TPH CWG (W)	27-Jan-2023								27-Jan-2023	27-Jan-2023
VOC MS (W)	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	16-Jan-2023	17-Jan-2023



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55

Report Number: 679393

Superseded Report:

Client Ref.:

Location: Nantycaws Landfill

Lab Sample No(s)	27395995	27395996
Customer Sample Ref.	UD4	UD5
AGS Ref.		
Depth		
Type	Ground Water	Ground Water

Acid Herbicides by GCMS	20-Jan-2023	20-Jan-2023
Alkalinity as CaCO3	13-Jan-2023	13-Jan-2023
Ammoniacal Nitrogen	17-Jan-2023	17-Jan-2023
Anions by Kone (w)	14-Jan-2023	14-Jan-2023
Dissolved Metals by ICP-MS	17-Jan-2023	17-Jan-2023
EPH CWG (Aliphatic) Aqueous GC (W)	27-Jan-2023	27-Jan-2023
EPH CWG (Aromatic) Aqueous GC (W)	27-Jan-2023	27-Jan-2023
GRO by GC-FID (W)	24-Jan-2023	24-Jan-2023
Nitrite by Kone (w)	13-Jan-2023	13-Jan-2023
PAH Spec MS - Aqueous (W)	26-Jan-2023	26-Jan-2023
PCB Congeners - Aqueous (W)	01-Feb-2023	01-Feb-2023
pH Value	16-Jan-2023	16-Jan-2023
Phenols by HPLC (W)	27-Jan-2023	26-Jan-2023
Phenols by ms (w)	26-Jan-2023	26-Jan-2023
SVOC MS (W) - Aqueous	17-Jan-2023	17-Jan-2023
TPH CWG (W)	27-Jan-2023	27-Jan-2023
VOC MS (W)	17-Jan-2023	17-Jan-2023



CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

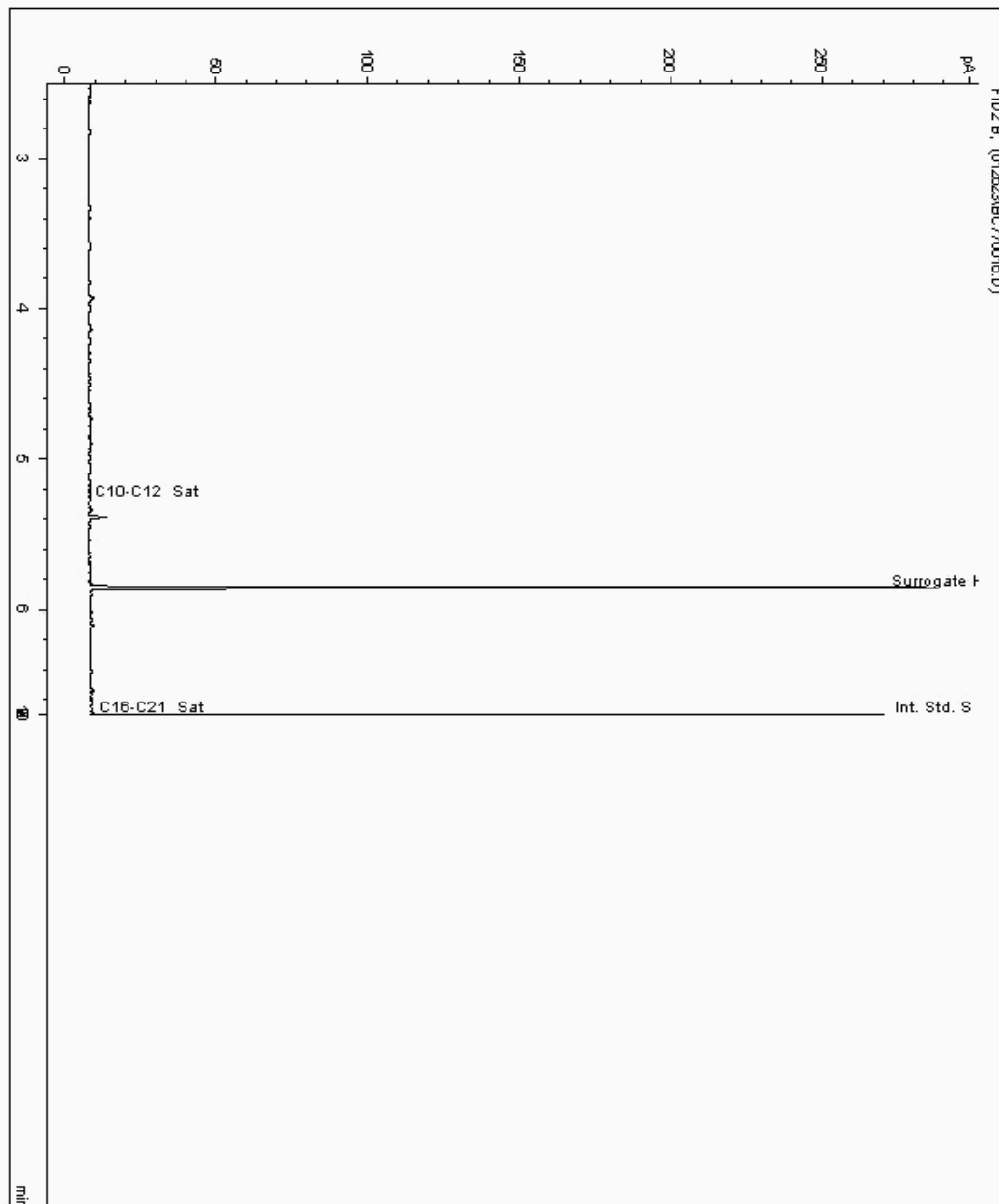
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 27444600
Sample ID : CELL 6 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548115-
Date Acquired : 1/27/2023 9:49:02 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

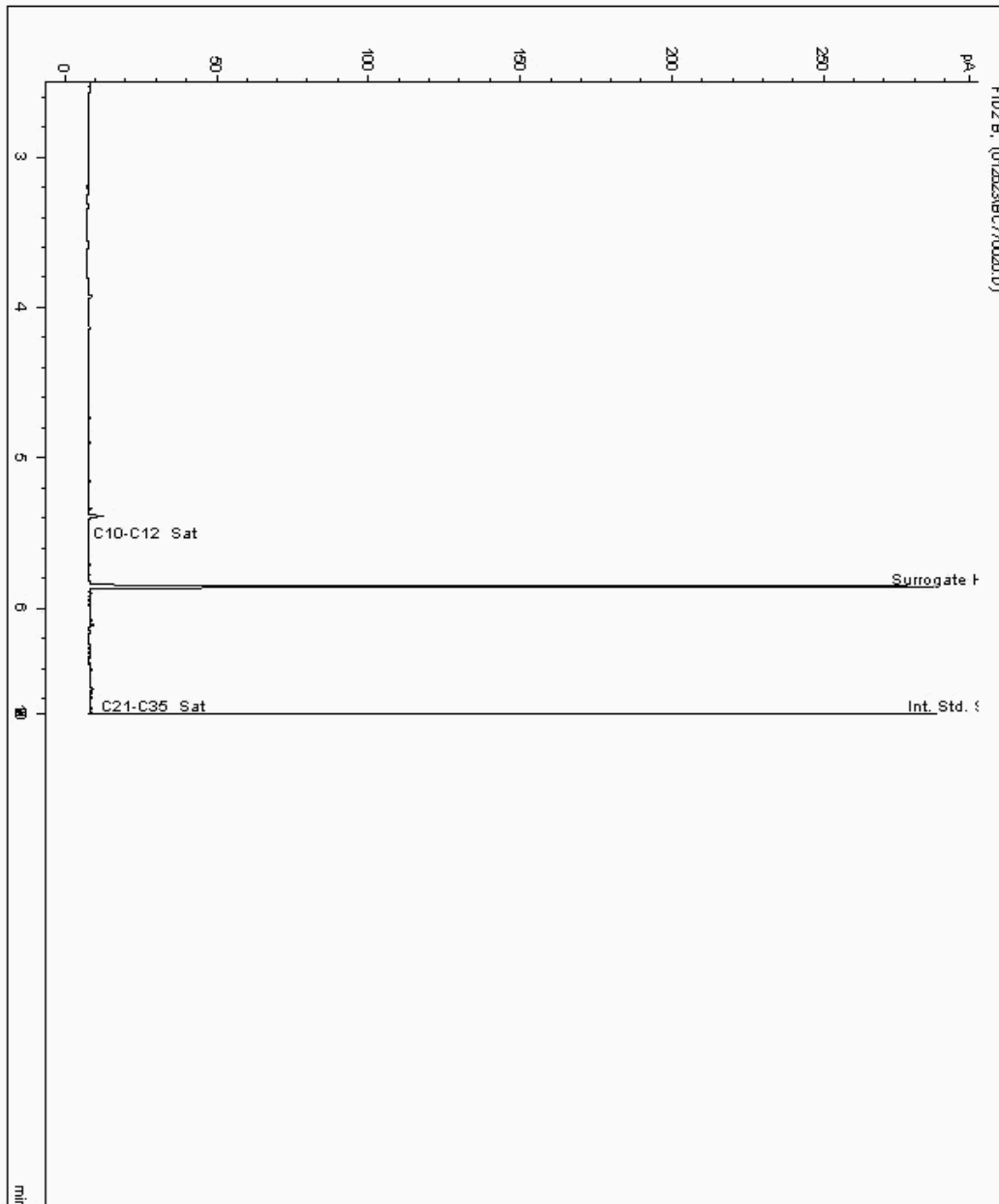
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 27444617
Sample ID : CELL 3-4 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548087-
Date Acquired : 1/27/2023 11:24:12 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

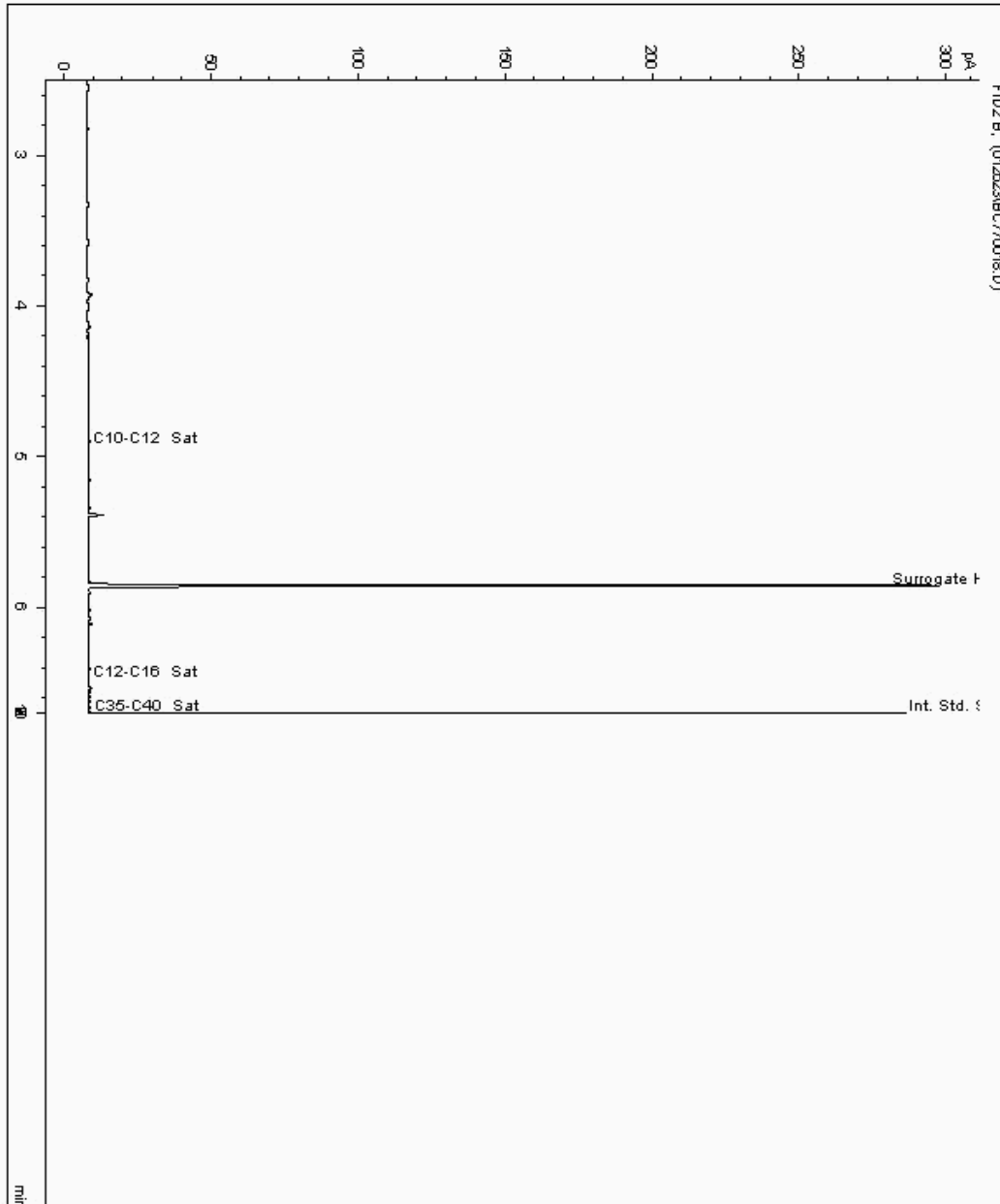
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 27444660
Sample ID : CELL 5 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548101-
Date Acquired : 1/27/2023 10:36:34 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

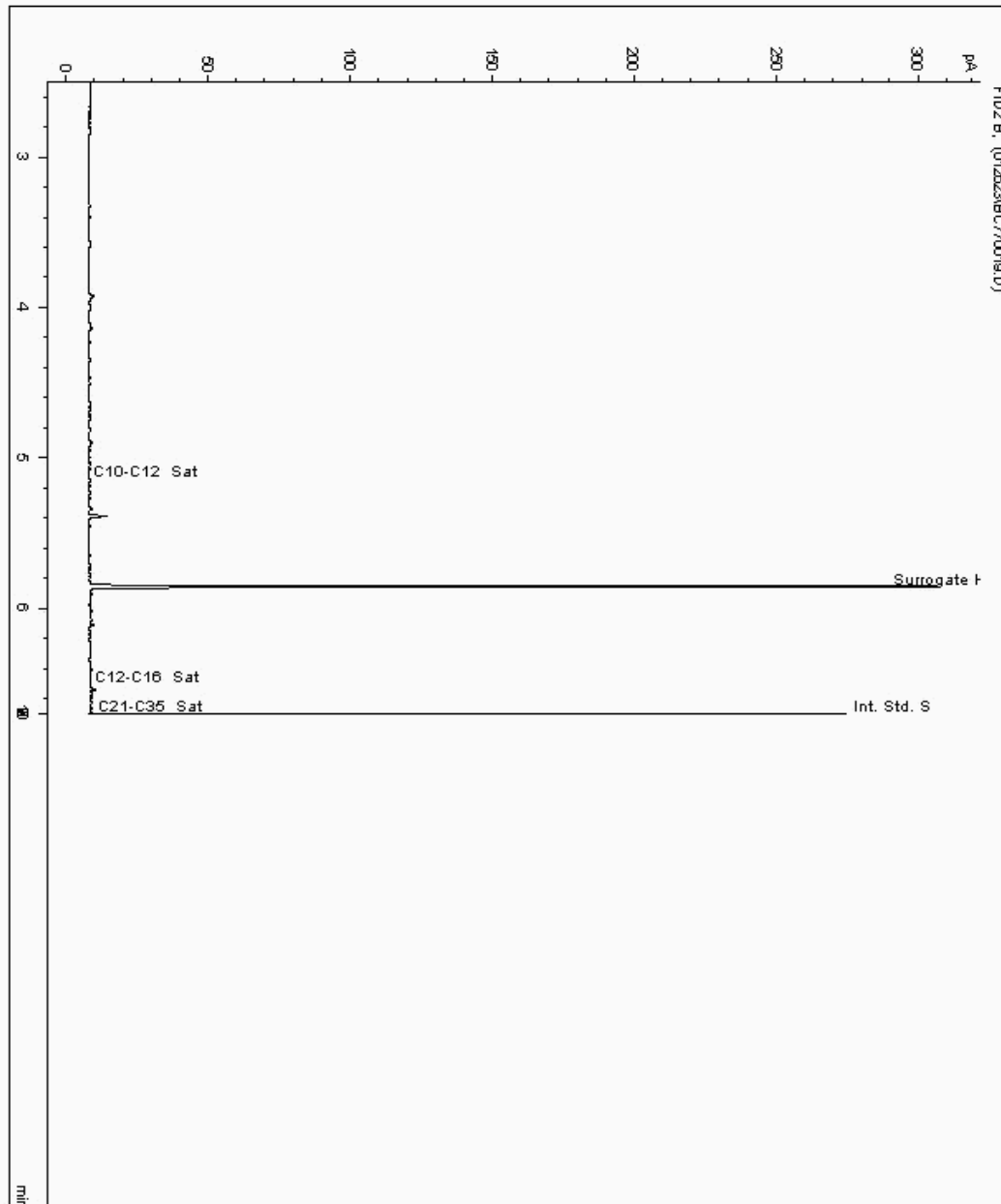
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 27444675
Sample ID : CELL 7 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548129-
Date Acquired : 1/27/2023 11:00:23 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

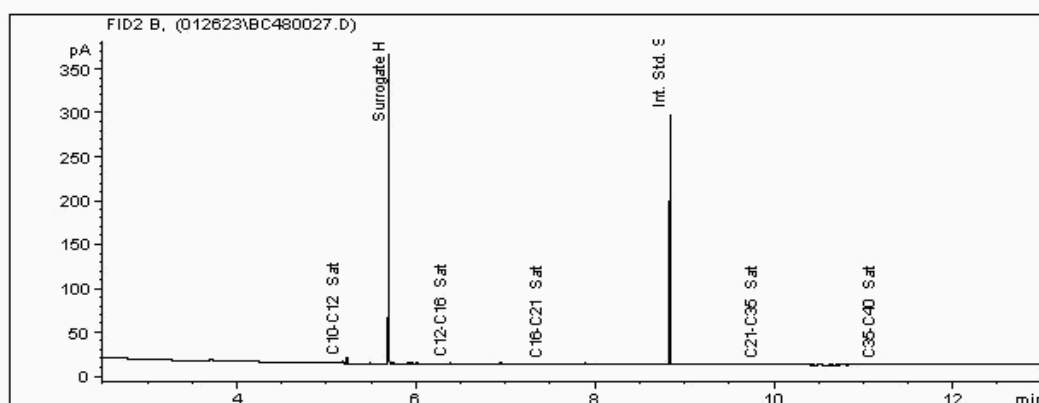
Sample No : 27444940
Sample ID : UD5

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547836-
Date Acquired : 26/01/2023 21:36:50 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.026

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	259.0	0.208
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	238.1	0.256
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		497.1	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

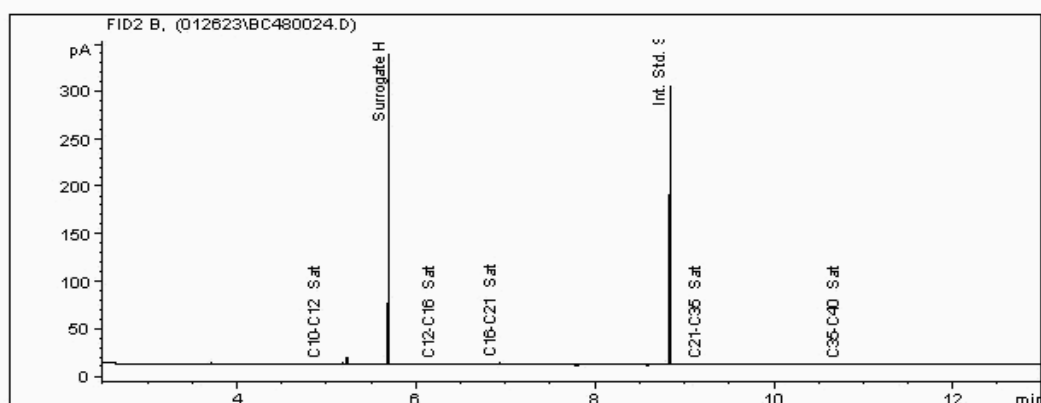
Sample No : 27444942
Sample ID : UD3

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547816-
Date Acquired : 26/01/2023 20:27:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	255.2	0.201
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	236.4	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		491.6	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantcaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

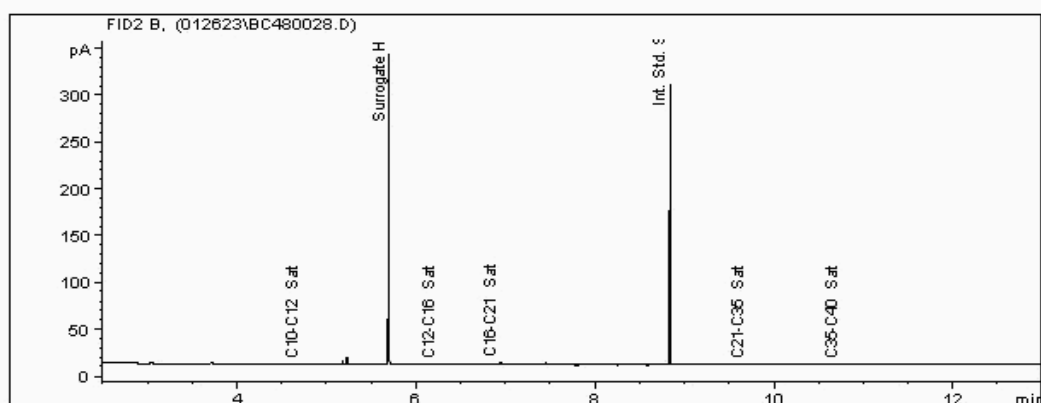
Sample No : 27444943
Sample ID : UD1

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547806-
Date Acquired : 26/01/2023 22:00:07 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	258.2	0.201
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	239.6	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		497.9	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantcaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

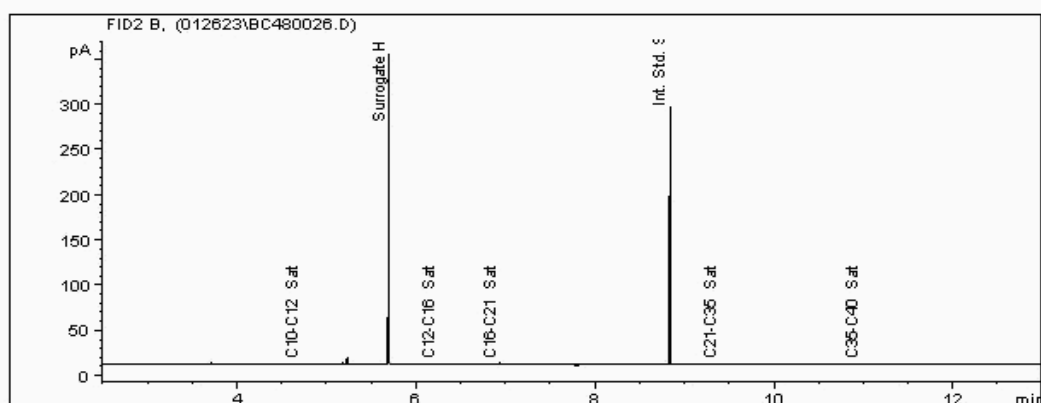
Sample No : 27444945
Sample ID : UD4

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547826-
Date Acquired : 26/01/2023 21:13:24 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	256.3	0.206
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	232.2	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		488.6	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

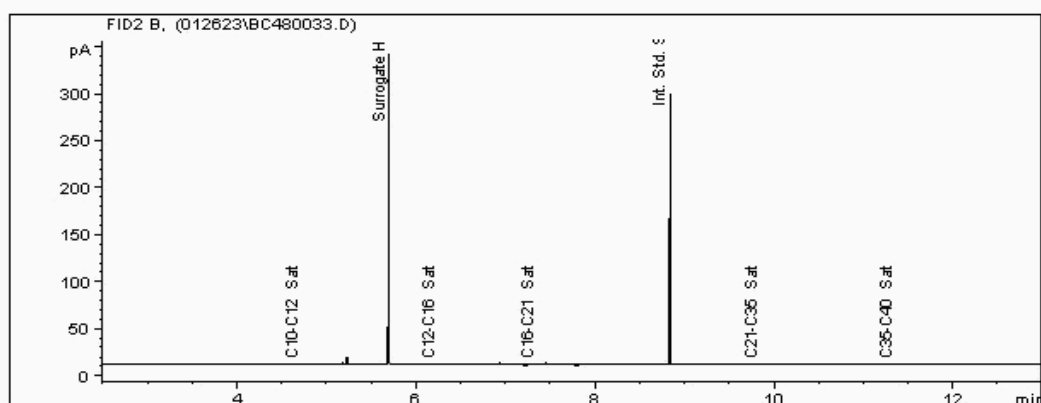
Sample No : 27444946
Sample ID : BH 315

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547766-
Date Acquired : 26/01/2023 23:55:52 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	242.1	0.197
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	228.7	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		470.8	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

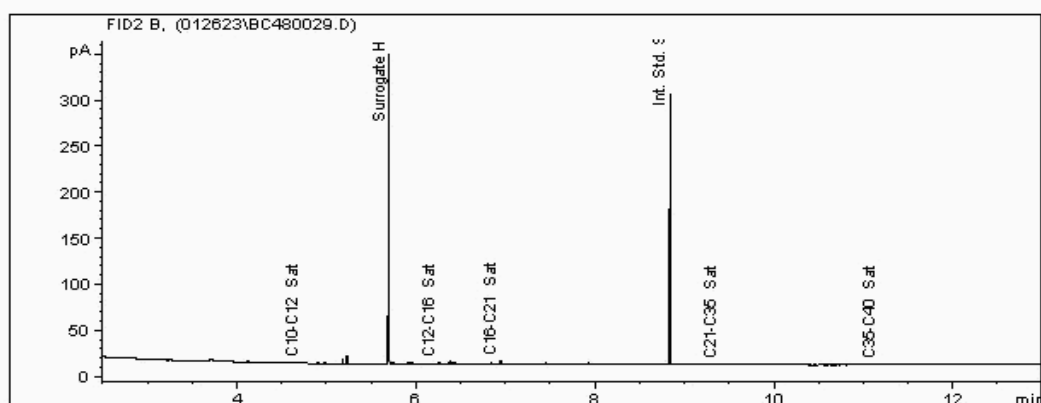
Sample No : 27444978
Sample ID : BH 208

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547880-
Date Acquired : 26/01/2023 22:23:18 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	260.6	0.203
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	239.8	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		500.4	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantcaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

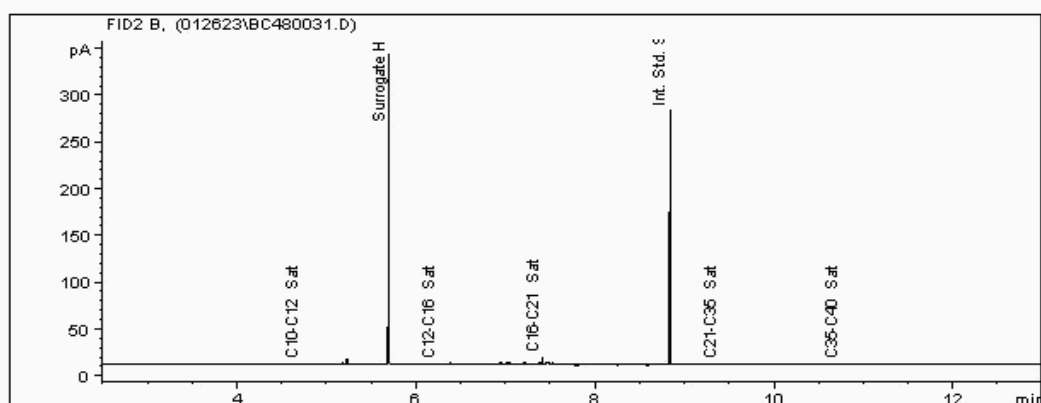
Sample No : 27444981
Sample ID : NACW 203

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547860-
Date Acquired : 26/01/2023 23:09:41 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	249.0	0.202
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	30.4	0.025
5	Int. Std. S	229.6	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		508.9	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantcaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

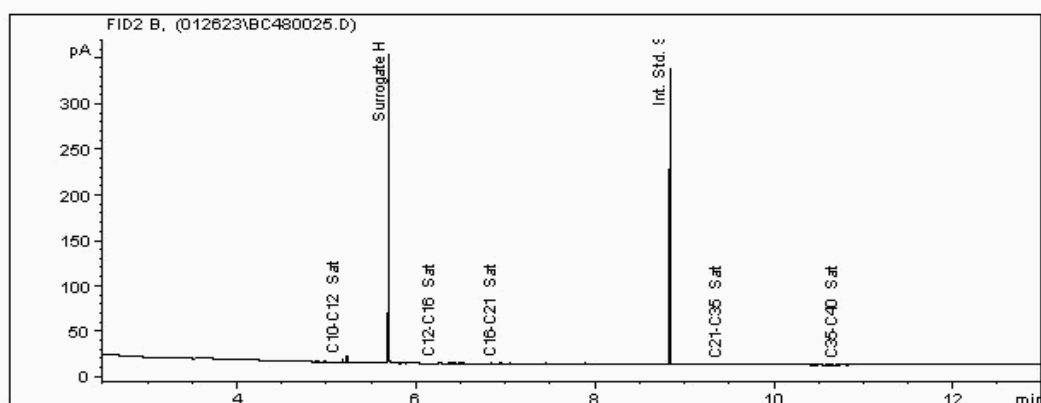
Sample No : 27444984
Sample ID : NACW 205

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547870-
Date Acquired : 26/01/2023 20:50:18 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	252.7	0.189
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	249.9	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		502.6	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

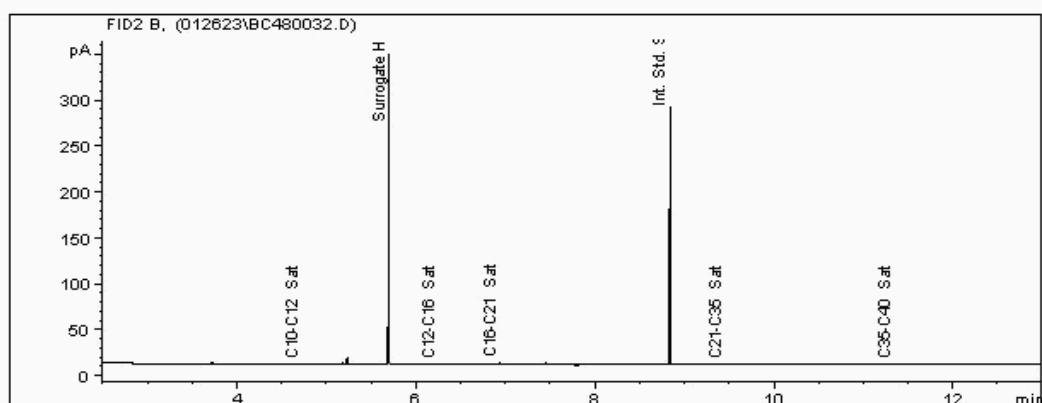
Sample No : 27444995
Sample ID : NACW 219

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547923-
Date Acquired : 26/01/2023 23:32:39 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	254.4	0.201
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	235.5	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		489.9	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

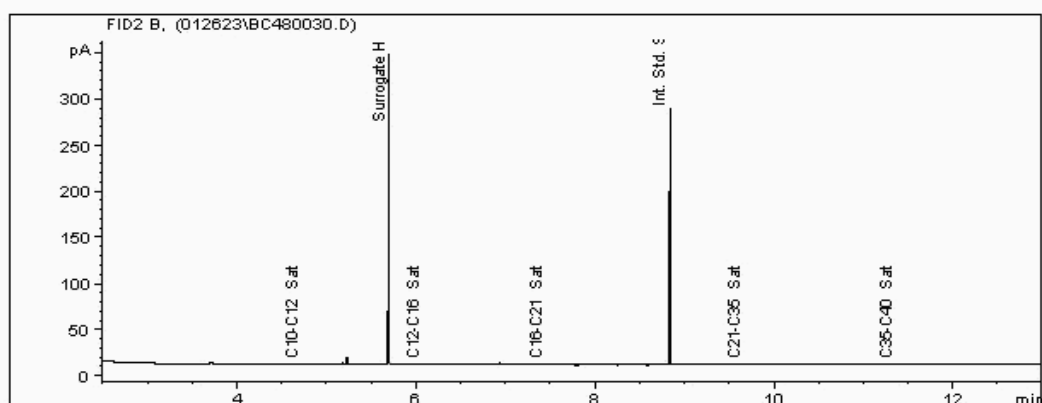
Sample No : 27445012
Sample ID : BH 5102

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547890-
Date Acquired : 26/01/2023 22:46:36 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	255.3	0.200
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	238.2	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		493.5	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

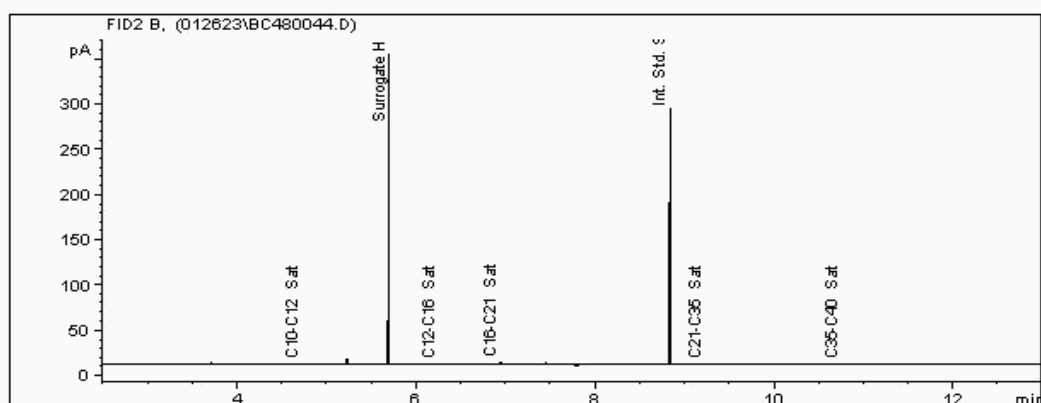
Sample No : 27445015
Sample ID : NACW 212

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547906-
Date Acquired : 27/01/2023 04:08:40 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	250.8	0.201
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	232.8	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		483.5	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

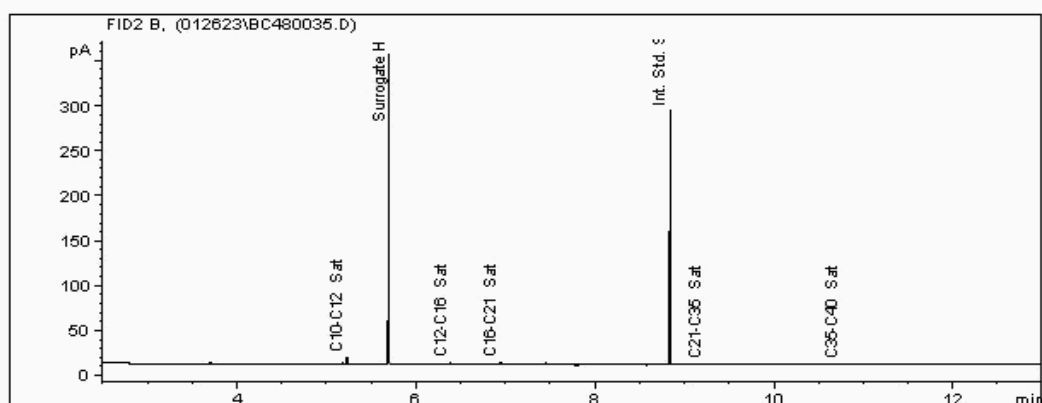
Sample No : 27445061
Sample ID : BH 313

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547989-
Date Acquired : 27/01/2023 00:41:46 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	247.8	0.202
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	229.4	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		477.2	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

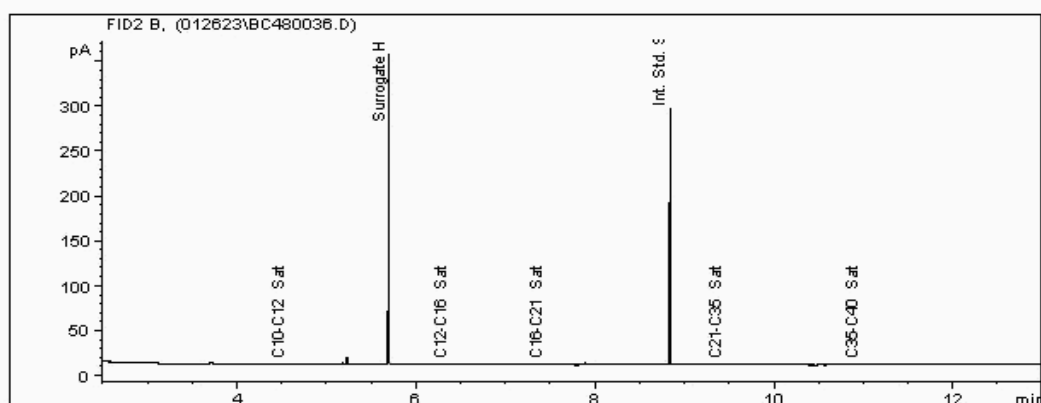
Sample No : 27445070
Sample ID : NACW 229

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547962-
Date Acquired : 27/01/2023 01:04:53 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	253.0	0.198
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	238.5	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		491.5	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

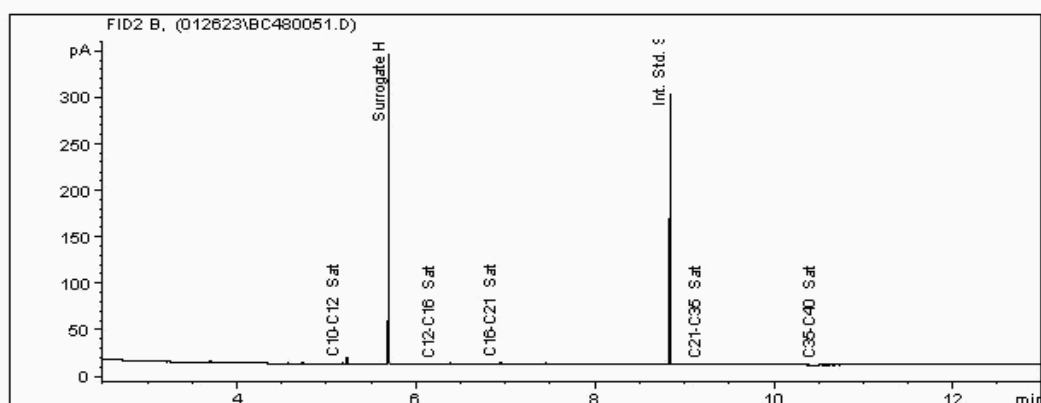
Sample No : 27445084
Sample ID : BH 314

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547999-
Date Acquired : 27/01/2023 06:51:57 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	238.9	0.197
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	226.6	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		465.4	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

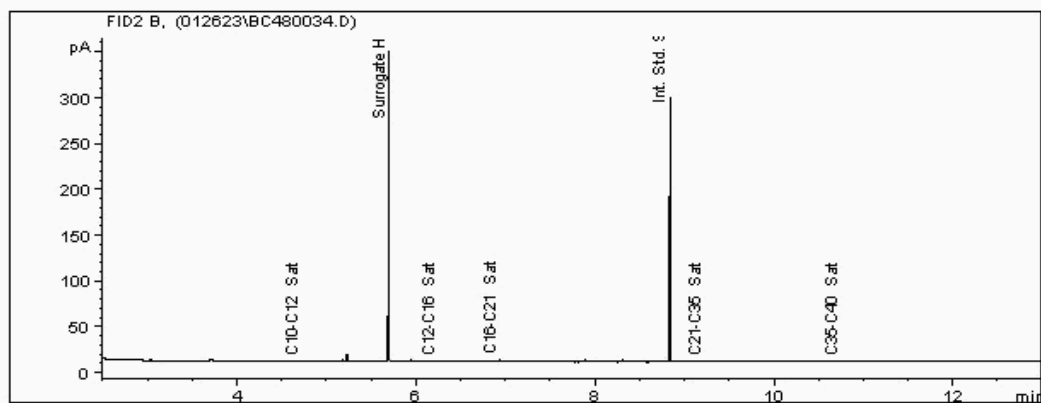
Sample No : 27445117
Sample ID : BH 312

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547972-
Date Acquired : 27/01/2023 00:18:51 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	256.9	0.199
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	240.8	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		497.7	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantcaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

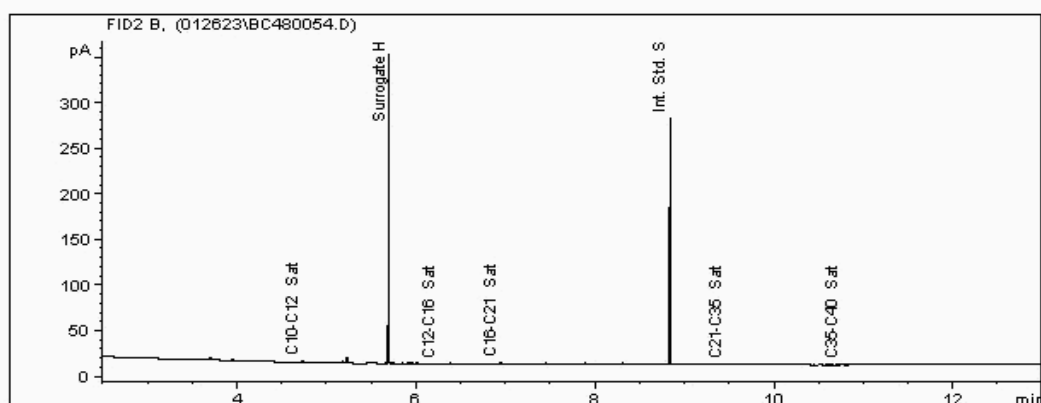
Sample No : 27445133
Sample ID : NACW 228

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547941-
Date Acquired : 27/01/2023 08:01:42 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	237.1	0.199
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	222.4	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		459.5	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

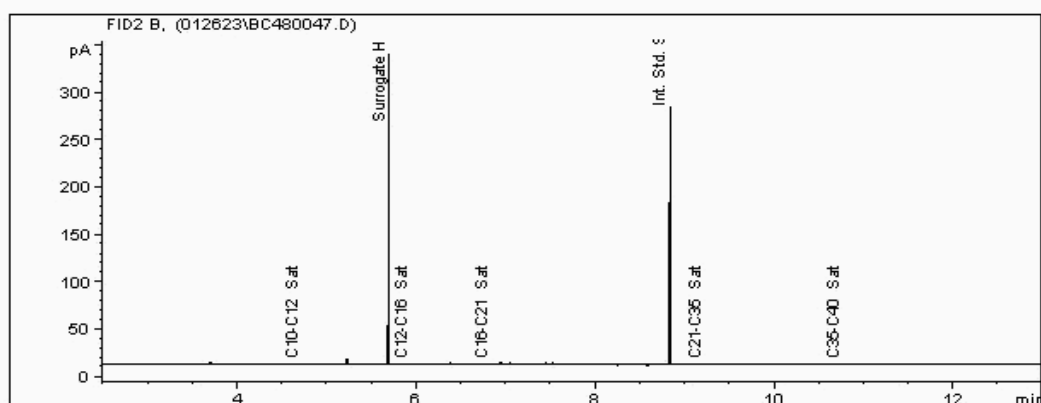
Sample No : 27451432
Sample ID : BH 319

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547796-
Date Acquired : 27/01/2023 05:18:45 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	242.1	0.202
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	223.4	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		465.5	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

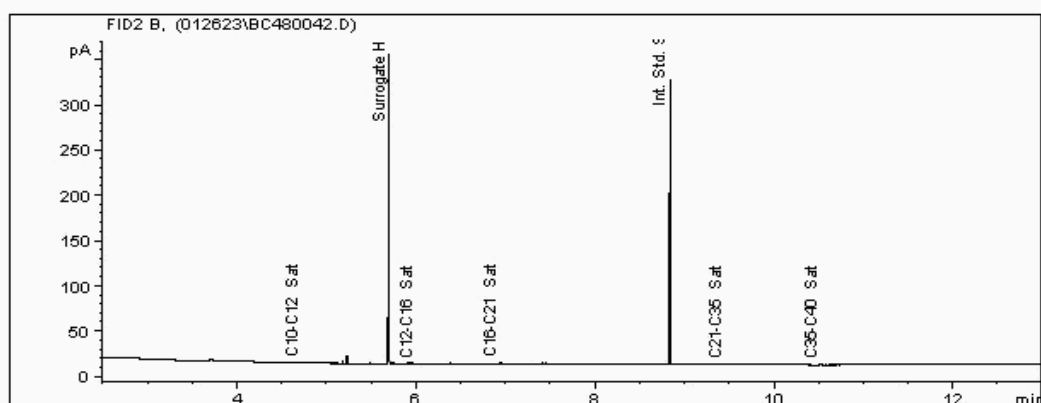
Sample No : 27451448
Sample ID : BH 318

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547786-
Date Acquired : 27/01/2023 03:22:35 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	251.2	0.188
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	248.7	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		499.9	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantcaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

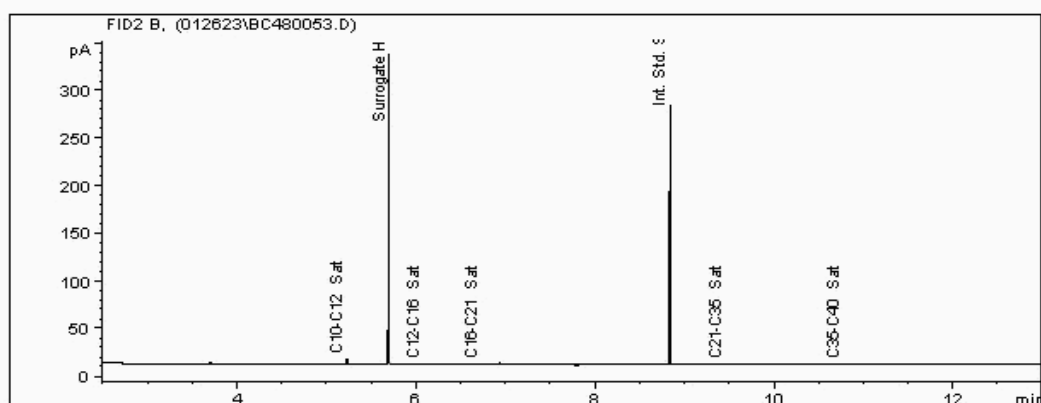
Sample No : 27451457
Sample ID : BH 316

Depth :

Speciated TPH - SATS (C12 - C40)

Sample Identity: 25547776-
Date Acquired : 27/01/2023 07:38:24 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

#	Compound Name	Main Peak Area	Amount
1	C10-C12 Sat	0.0	0.000
2	Surrogate H	234.2	0.198
3	C12-C16 Sat	0.0	0.000
4	C16-C21 Sat	0.0	0.000
5	Int. Std. S	220.3	0.250
6	C21-C35 Sat	0.0	0.000
7	C35-C40 Sat	0.0	0.000
Total Peak Area		454.5	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

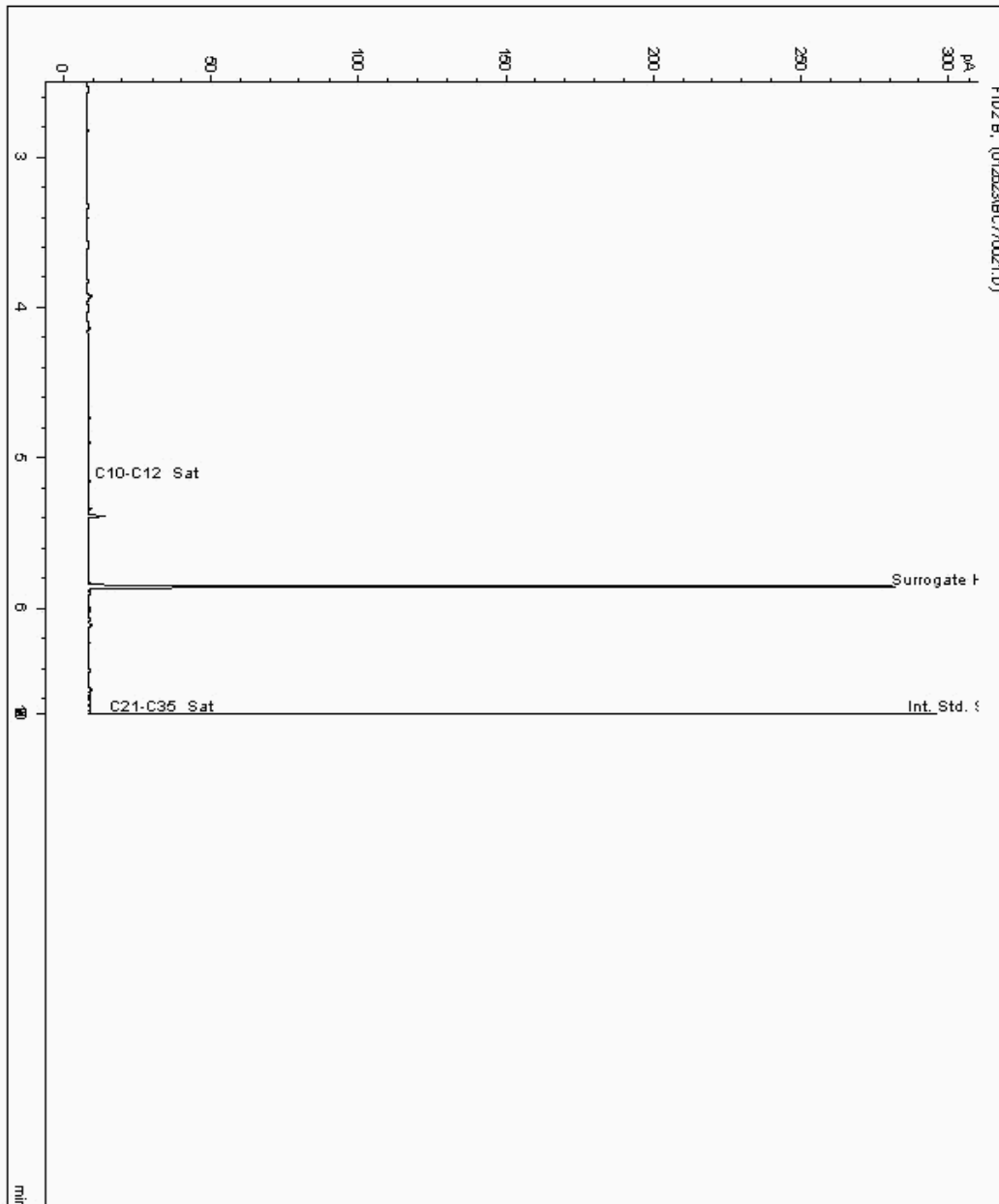
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 27451798
Sample ID : LEACHATE HOLDING LAC

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548143-
Date Acquired : 1/27/2023 11:48:09 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

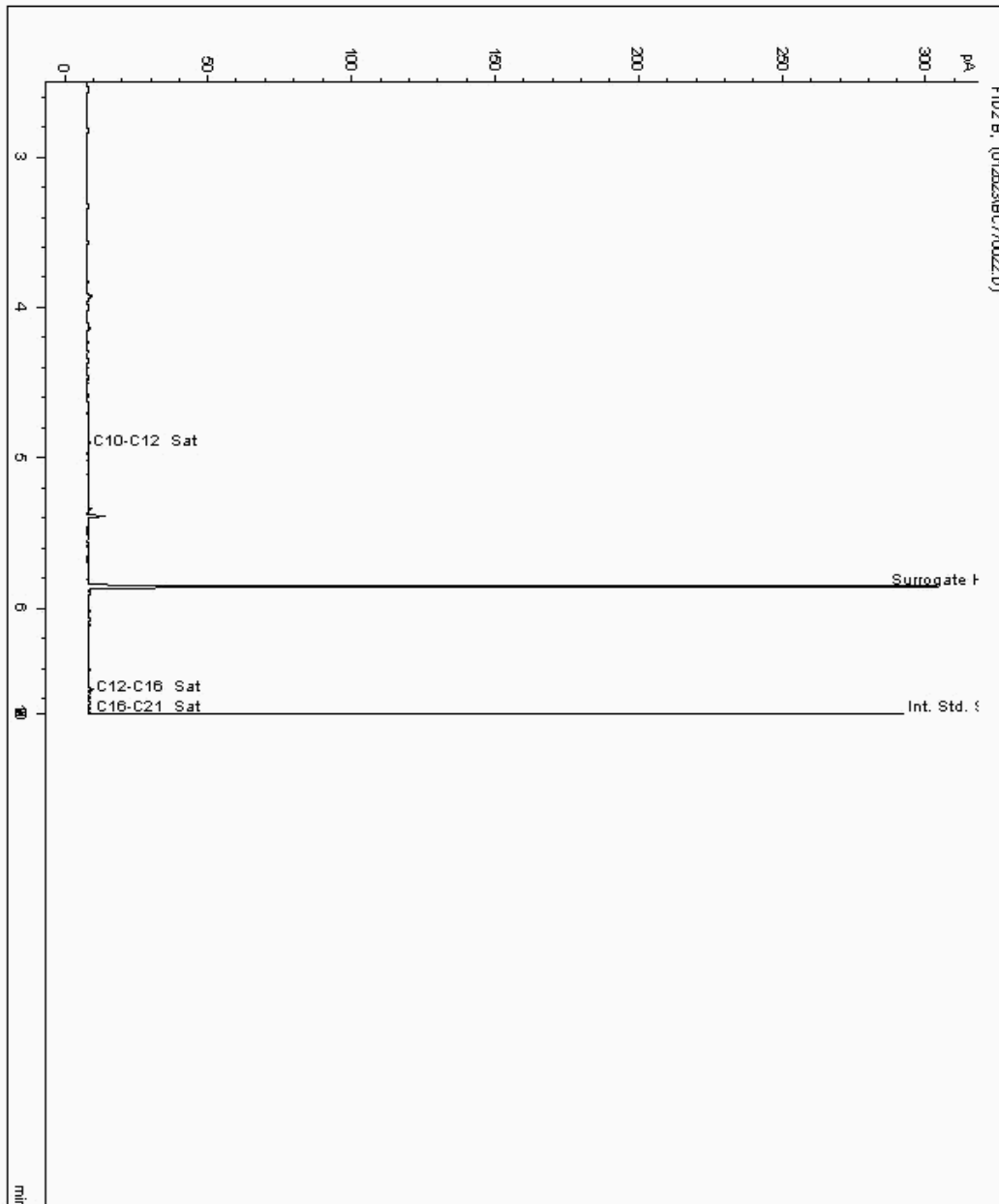
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 27451809
Sample ID : CELL 1-2 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548073-
Date Acquired : 1/27/2023 12:12:07 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

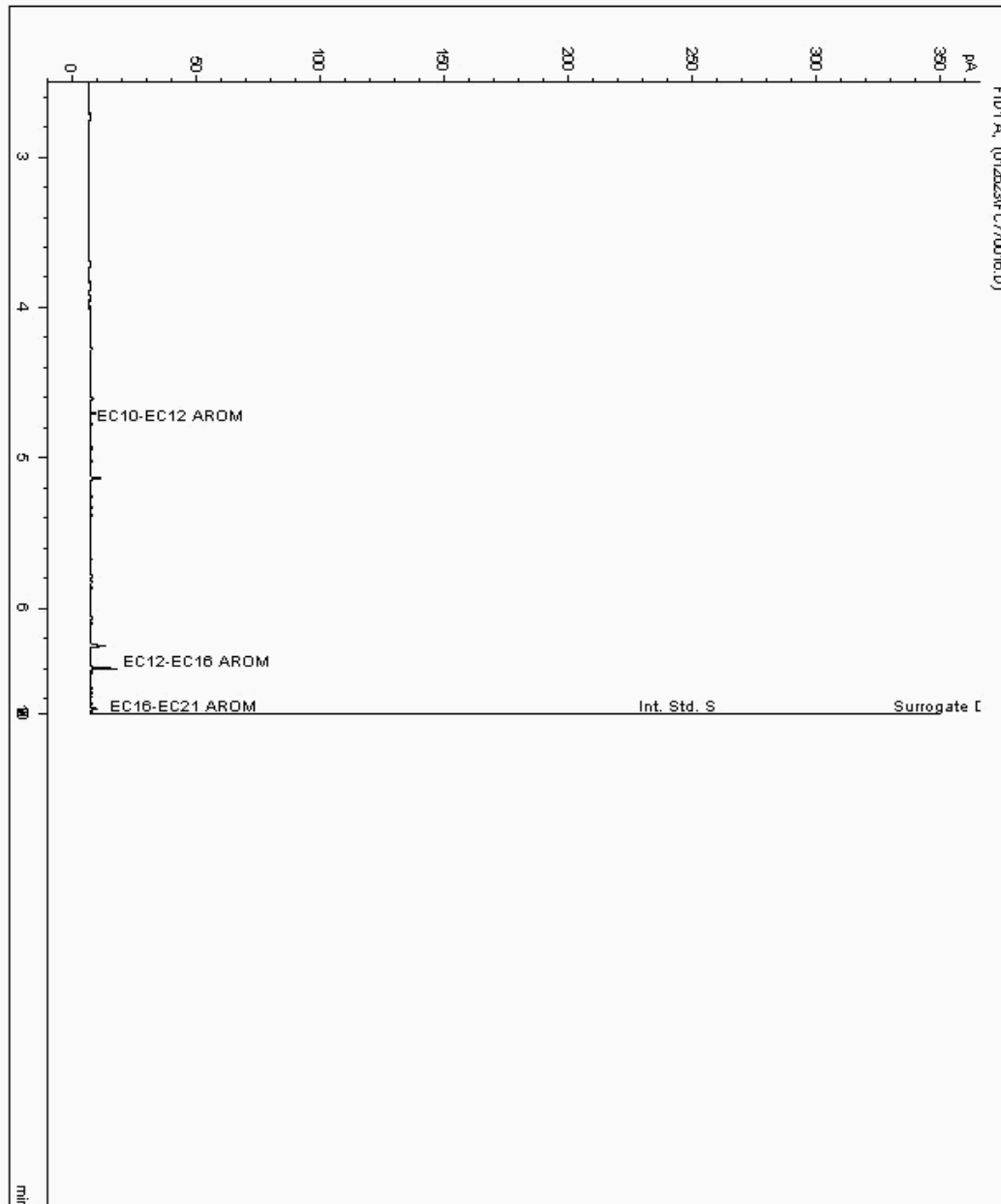
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 27444600
Sample ID : CELL 6 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548116-
Date Acquired : 1/27/2023 9:49:02 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

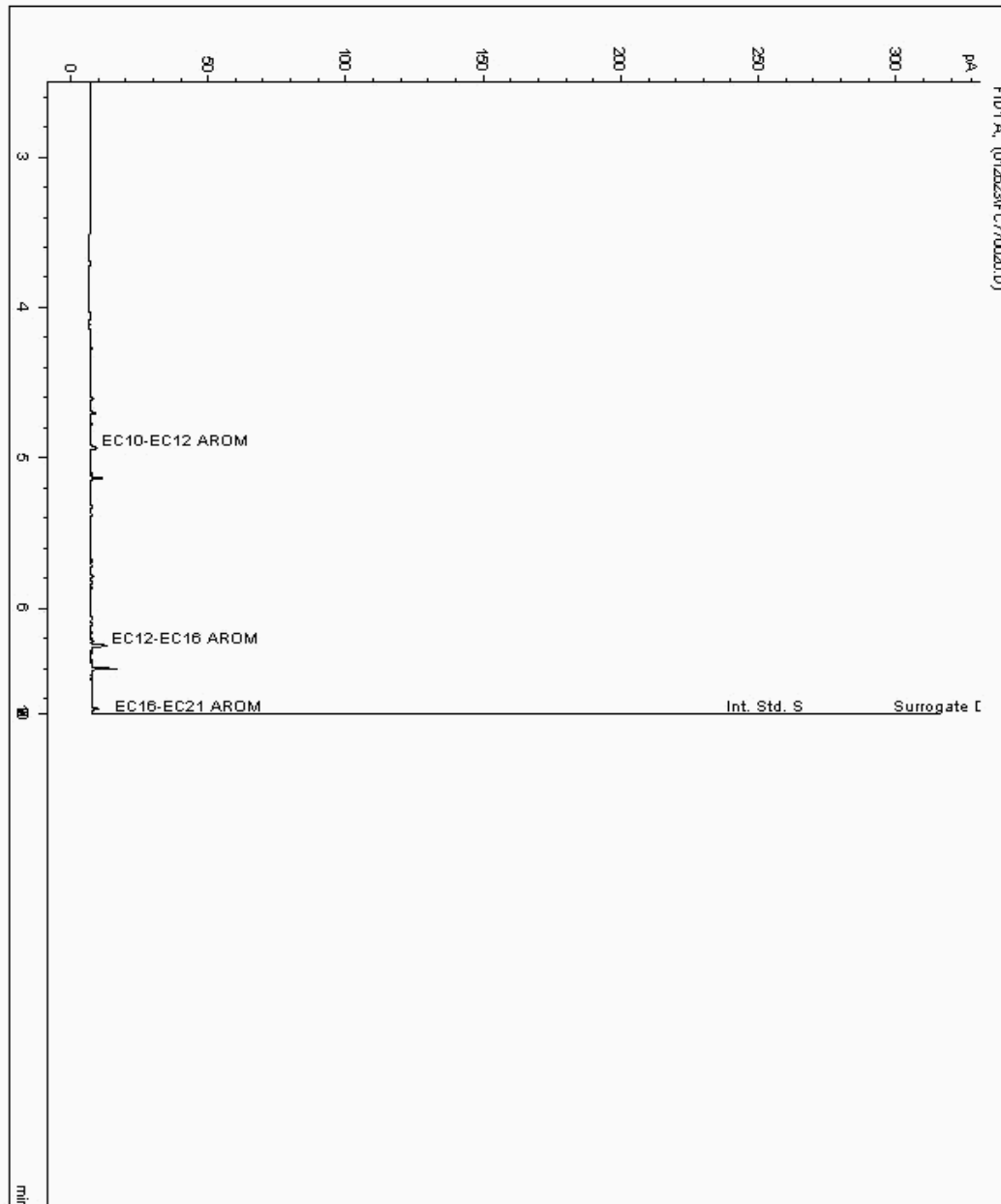
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 27444617
Sample ID : CELL 3-4 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548088-
Date Acquired : 1/27/2023 11:24:12 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

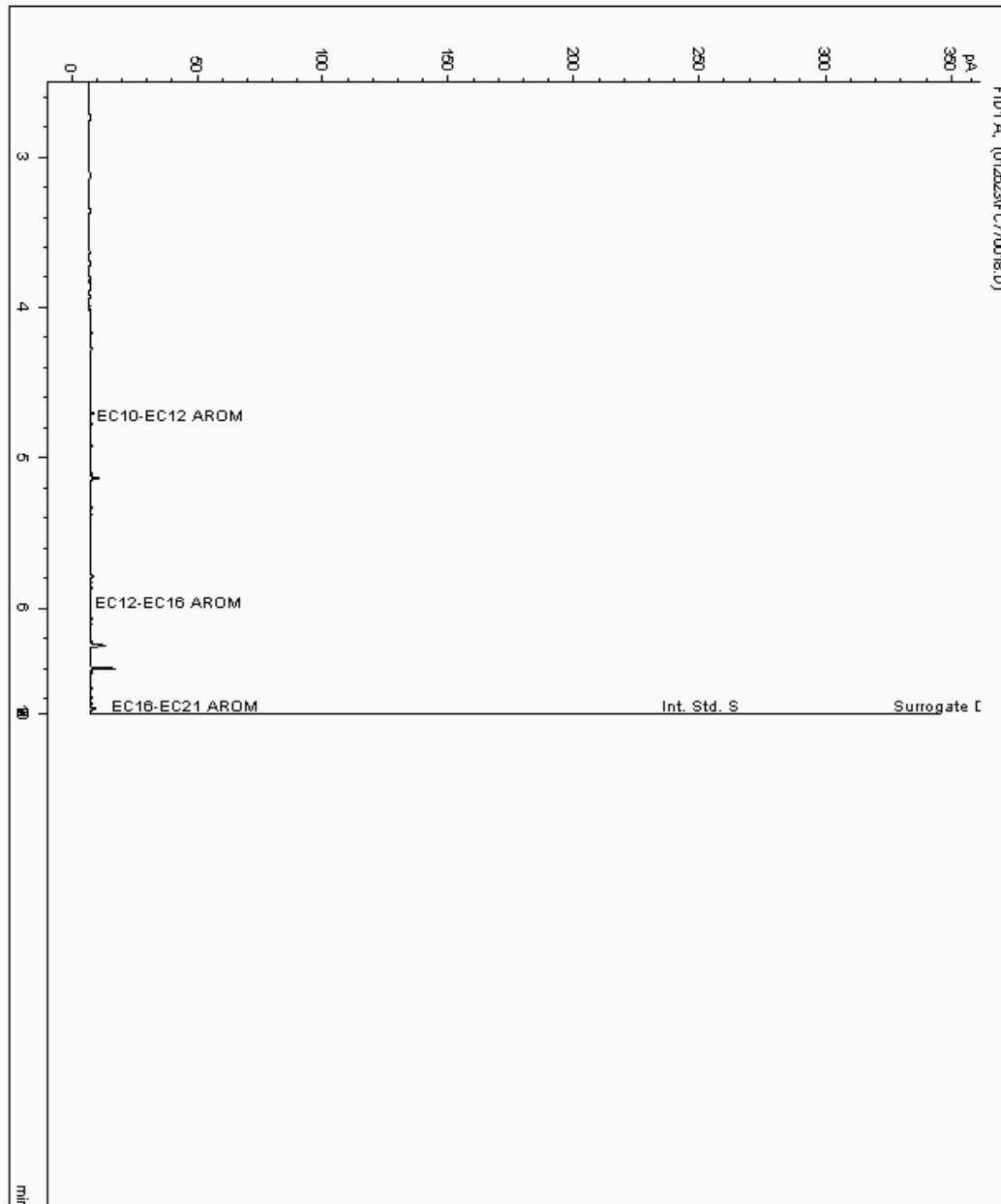
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 27444660
Sample ID : CELL 5 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548102-
Date Acquired : 1/27/2023 10:36:34 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

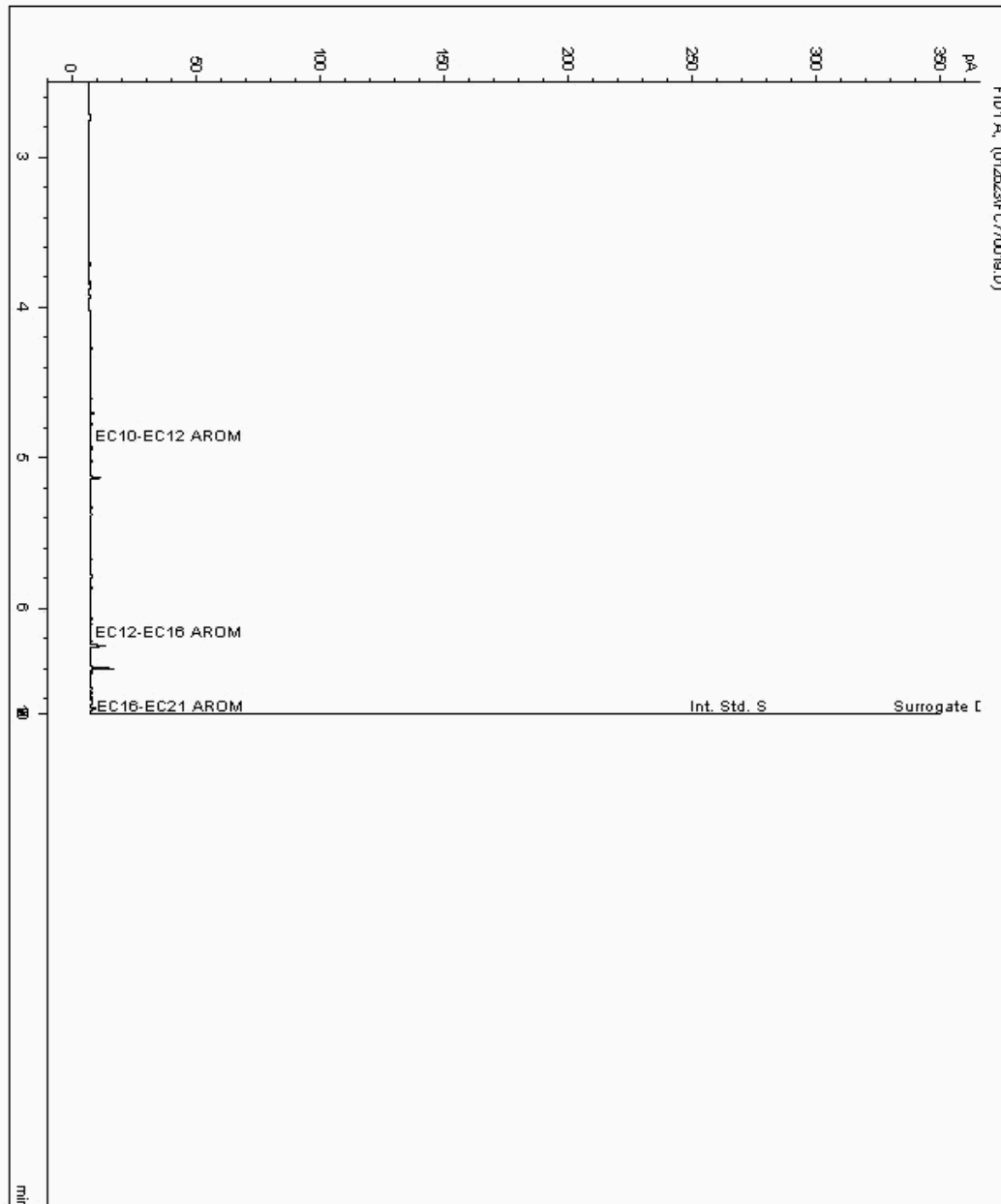
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 27444675
Sample ID : CELL 7 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548130-
Date Acquired : 1/27/2023 11:00:23 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

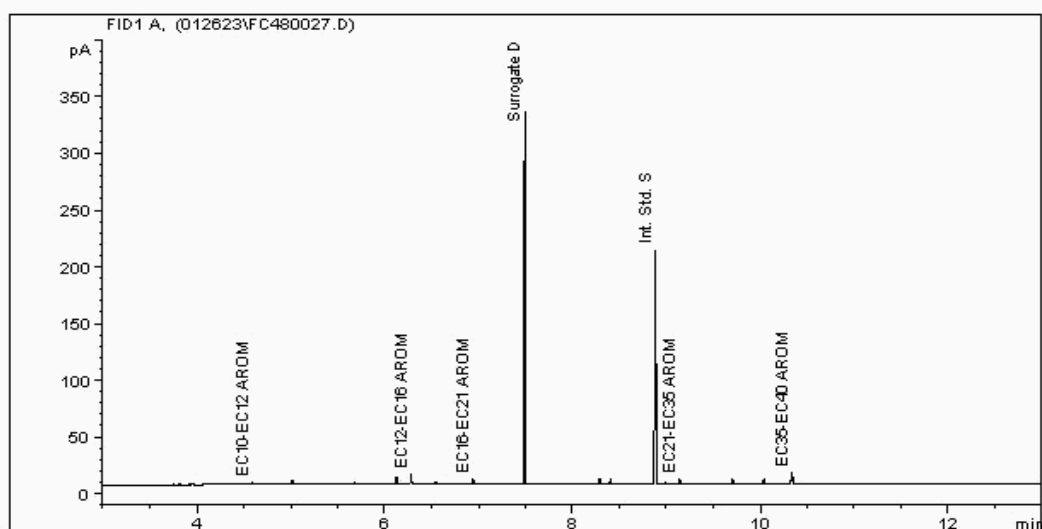
Sample No : 27444940
Sample ID : UD5

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547837-
Date Acquired : 26/01/2023 21:36:50 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	197.6	0.270
5	Int. Std. S	168.0	0.256
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		365.5	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

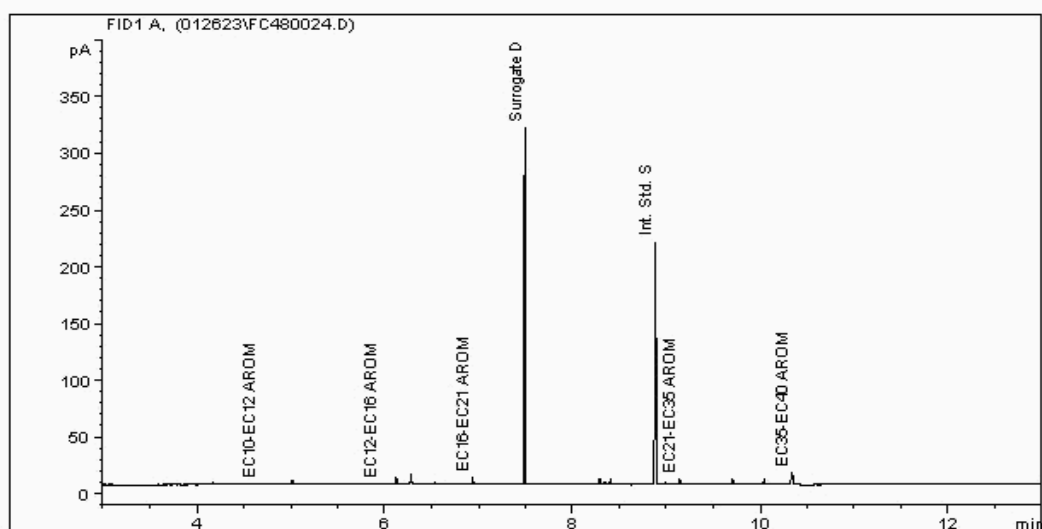
Sample No : 27444942
Sample ID : UD3

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547817-
Date Acquired : 26/01/2023 20:27:33 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	201.1	0.263
5	Int. Std. S	171.3	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		372.4	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

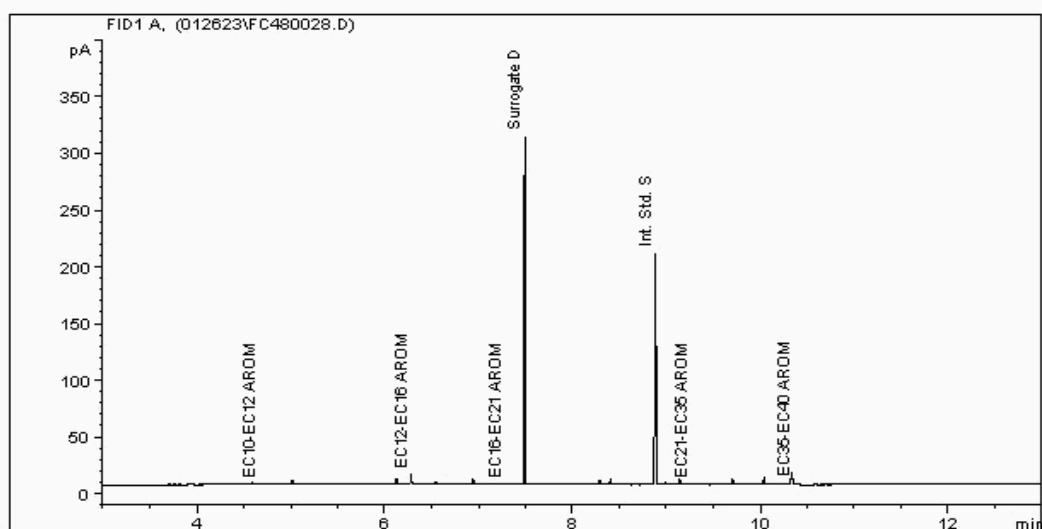
Sample No : 27444943
Sample ID : UD1

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547807-
Date Acquired : 26/01/2023 22:00:08 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	192.3	0.253
5	Int. Std. S	170.1	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		362.4	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

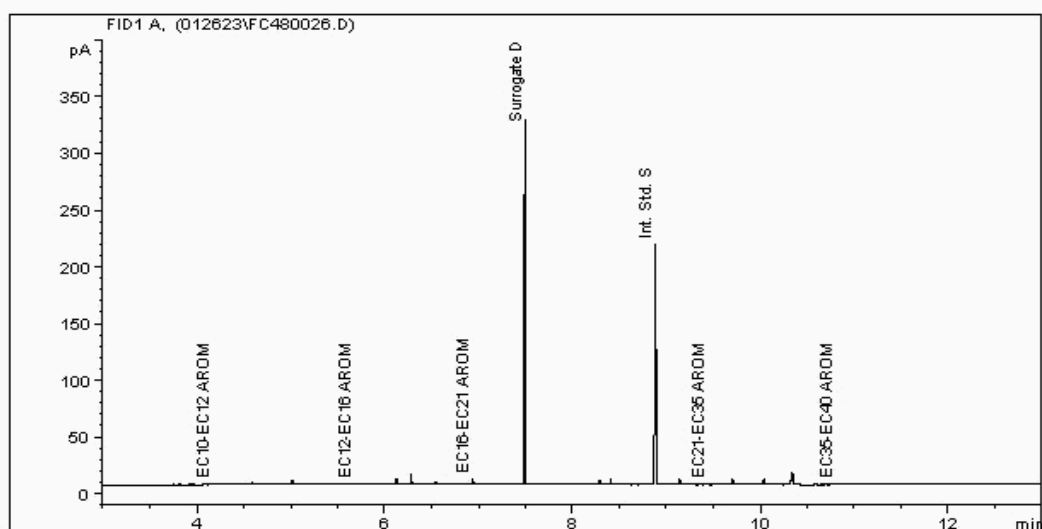
Sample No : 27444945
Sample ID : UD4

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547827-
Date Acquired : 26/01/2023 21:13:24 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	197.2	0.254
5	Int. Std. S	174.2	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		371.4	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

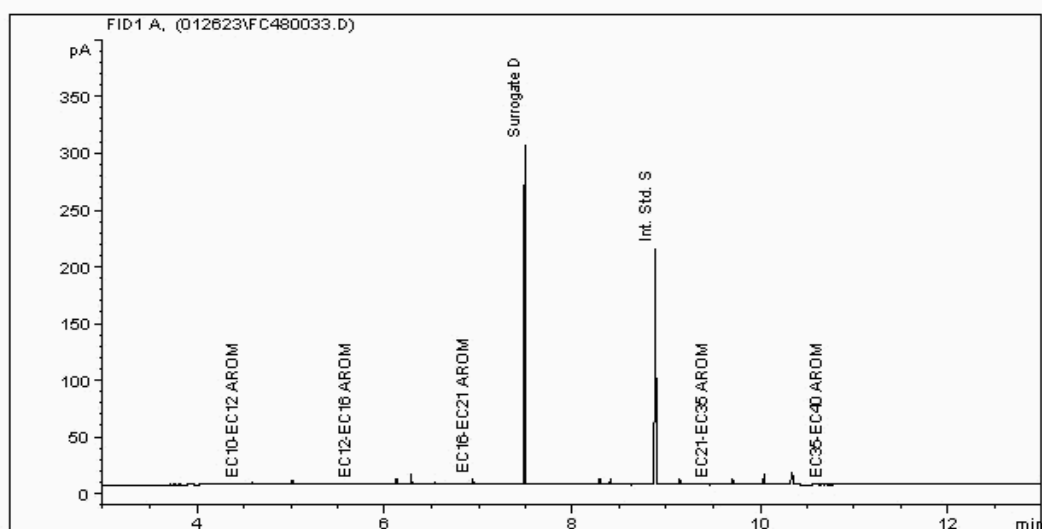
Sample No : 27444946
Sample ID : BH 315

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547767-
Date Acquired : 26/01/2023 23:55:52 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	193.8	0.257
5	Int. Std. S	168.9	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		362.7	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

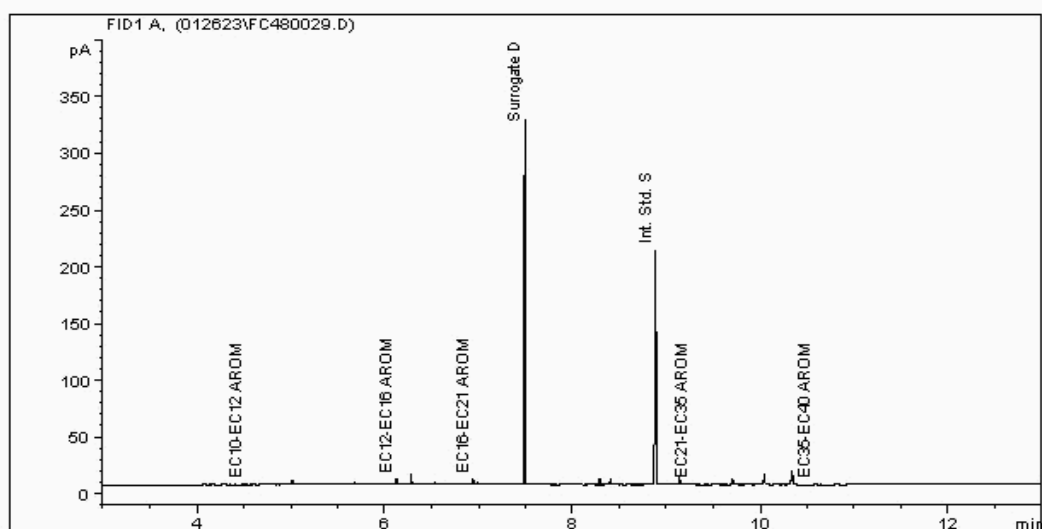
Sample No : 27444978
Sample ID : BH 208

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547881-
Date Acquired : 26/01/2023 22:23:17 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	193.6	0.258
5	Int. Std. S	167.9	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		361.6	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

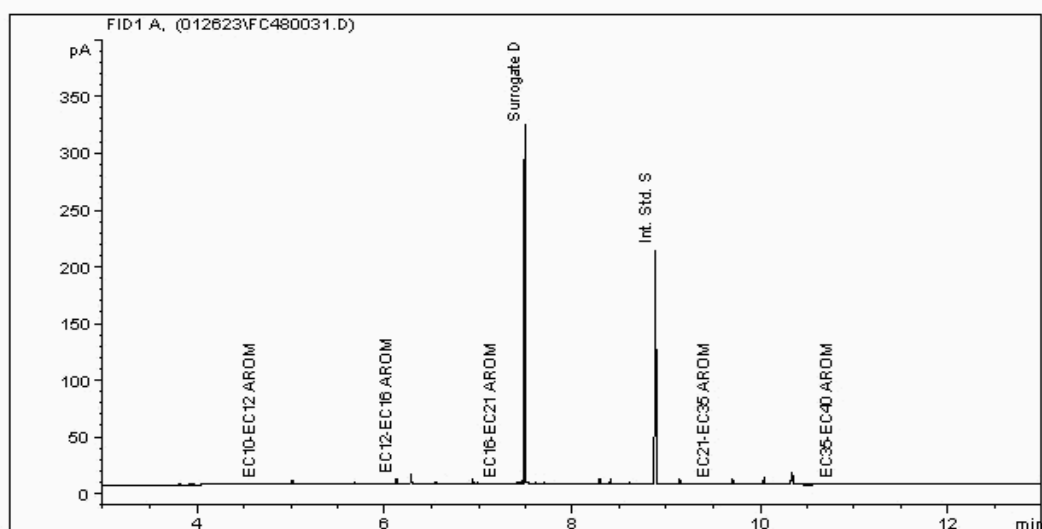
Sample No : 27444981
Sample ID : NACW 203

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547861-
Date Acquired : 26/01/2023 23:09:41 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	9.4	0.012
4	Surrogate D	192.9	0.256
5	Int. Std. S	168.5	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		370.9	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

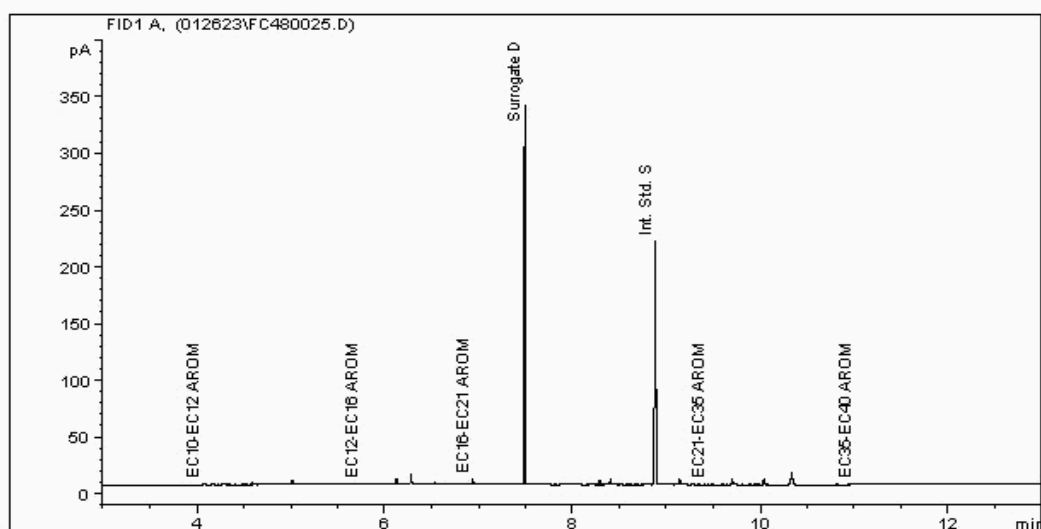
Sample No : 27444984
Sample ID : NACW 205

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547871-
Date Acquired : 26/01/2023 20:50:18 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	202.6	0.259
5	Int. Std. S	175.4	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		378.0	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

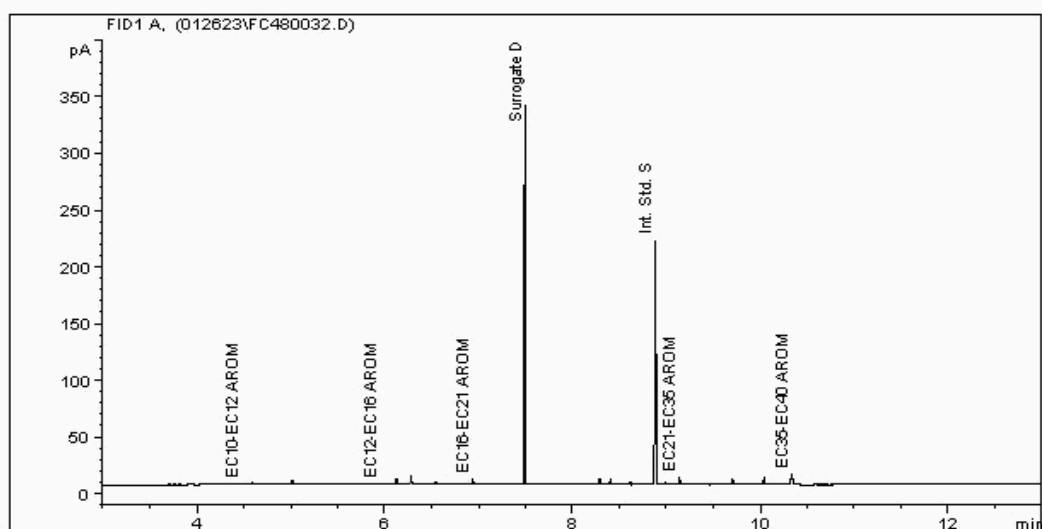
Sample No : 27444995
Sample ID : NACW 219

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547924-
Date Acquired : 26/01/2023 23:32:39 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	199.3	0.259
5	Int. Std. S	172.5	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		371.8	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

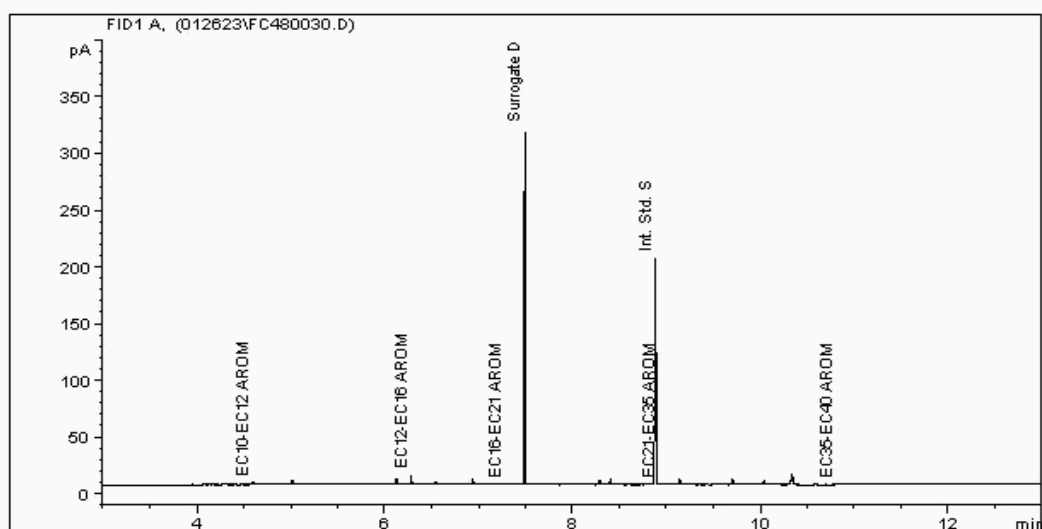
Sample No : 27445012
Sample ID : BH 5102

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547891-
Date Acquired : 26/01/2023 22:46:37 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	189.2	0.253
5	Int. Std. S	167.3	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		356.5	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

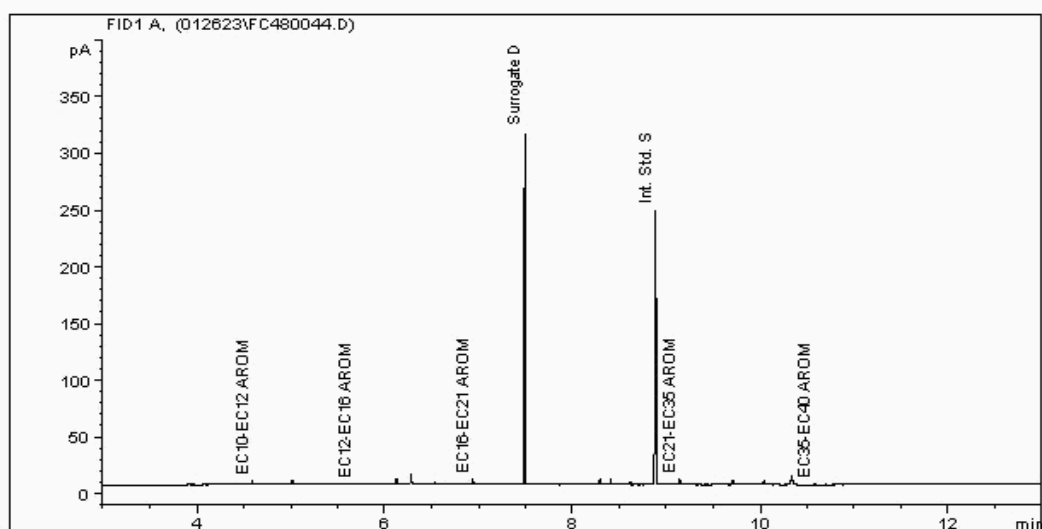
Sample No : 27445015
Sample ID : NACW 212

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547907-
Date Acquired : 27/01/2023 04:08:40 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	188.9	0.231
5	Int. Std. S	183.3	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		372.1	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

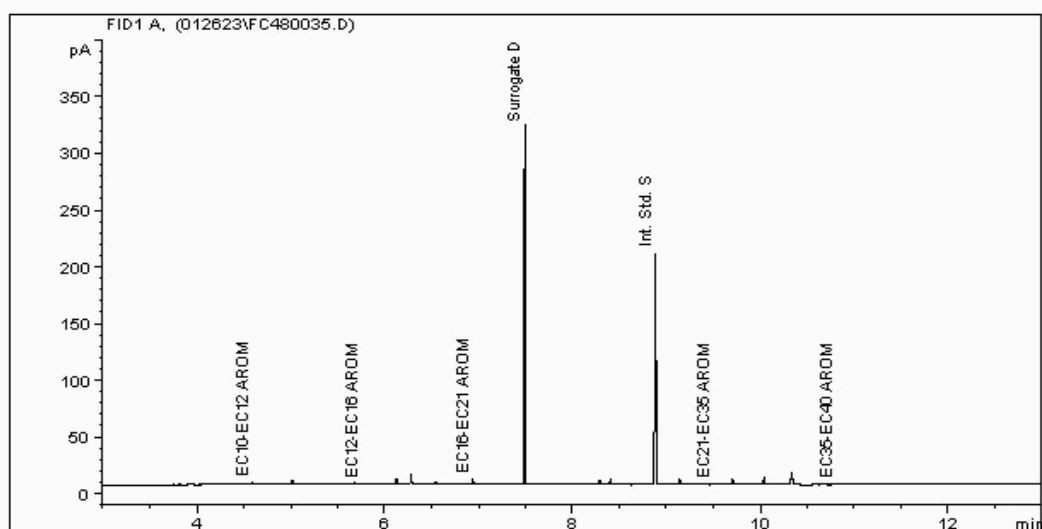
Sample No : 27445061
Sample ID : BH 313

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547990-
Date Acquired : 27/01/2023 00:41:46 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	191.4	0.252
5	Int. Std. S	170.4	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		361.7	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

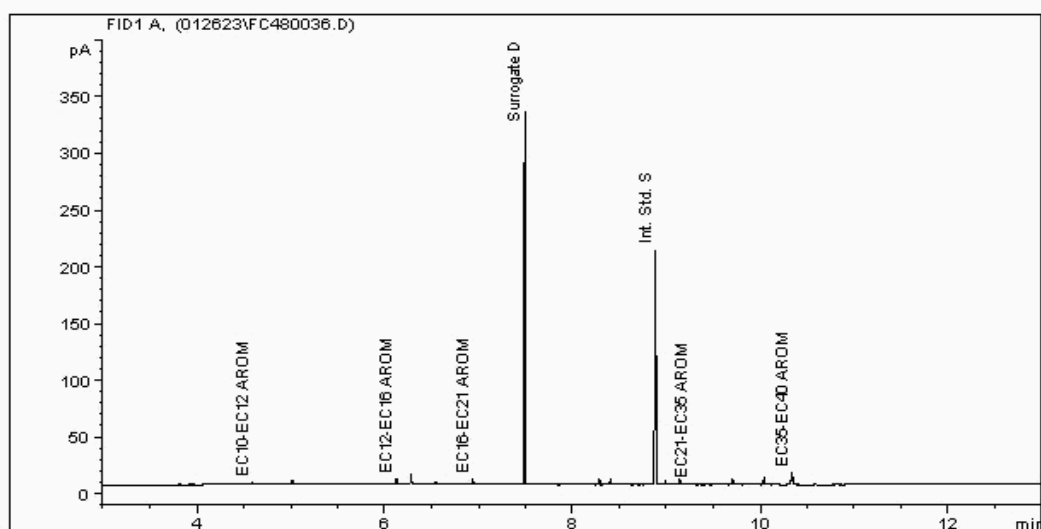
Sample No : 27445070
Sample ID : NACW 229

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547963-
Date Acquired : 27/01/2023 01:04:53 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	195.8	0.252
5	Int. Std. S	173.8	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		369.6	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

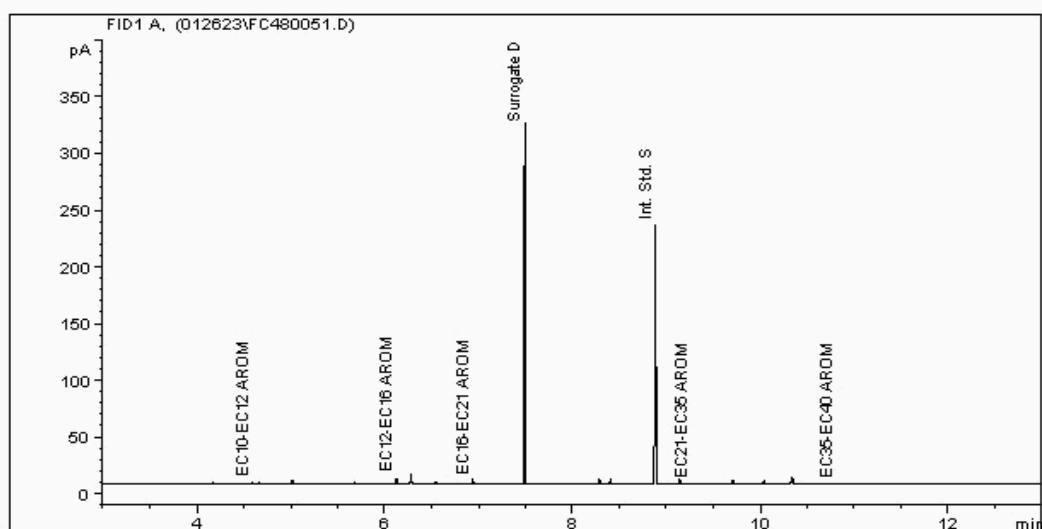
Sample No : 27445084
Sample ID : BH 314

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25548000-
Date Acquired : 27/01/2023 06:51:57 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	195.3	0.247
5	Int. Std. S	177.1	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		372.4	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

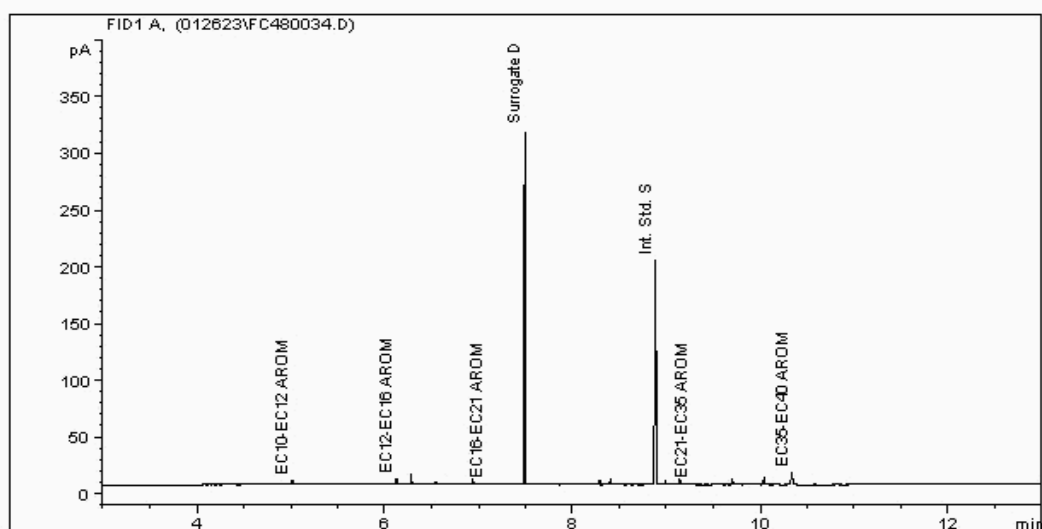
Sample No : 27445117
Sample ID : BH 312

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547973-
Date Acquired : 27/01/2023 00:18:51 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	194.8	0.255
5	Int. Std. S	171.3	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		366.0	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

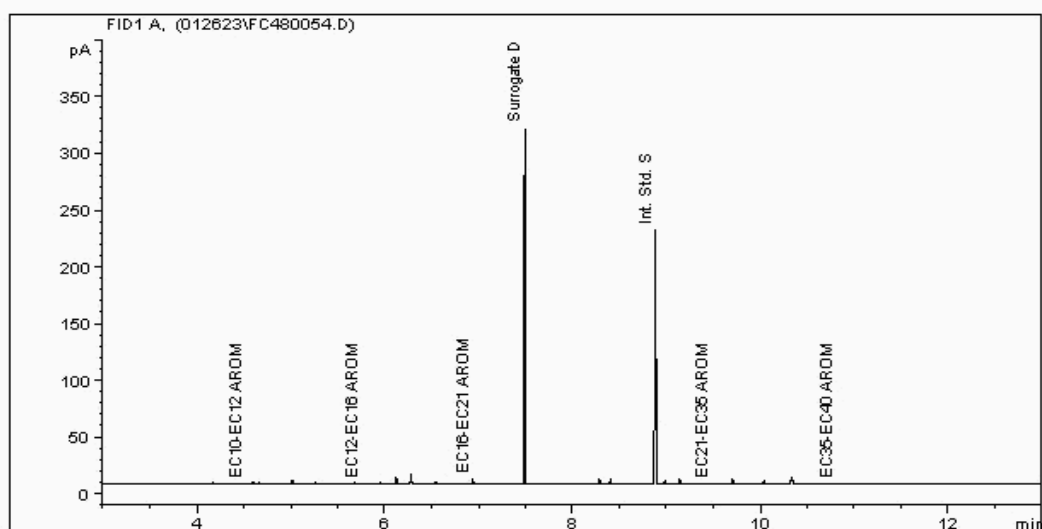
Sample No : 27445133
Sample ID : NACW 228

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547942-
Date Acquired : 27/01/2023 08:01:42 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	191.1	0.242
5	Int. Std. S	176.6	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		367.7	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

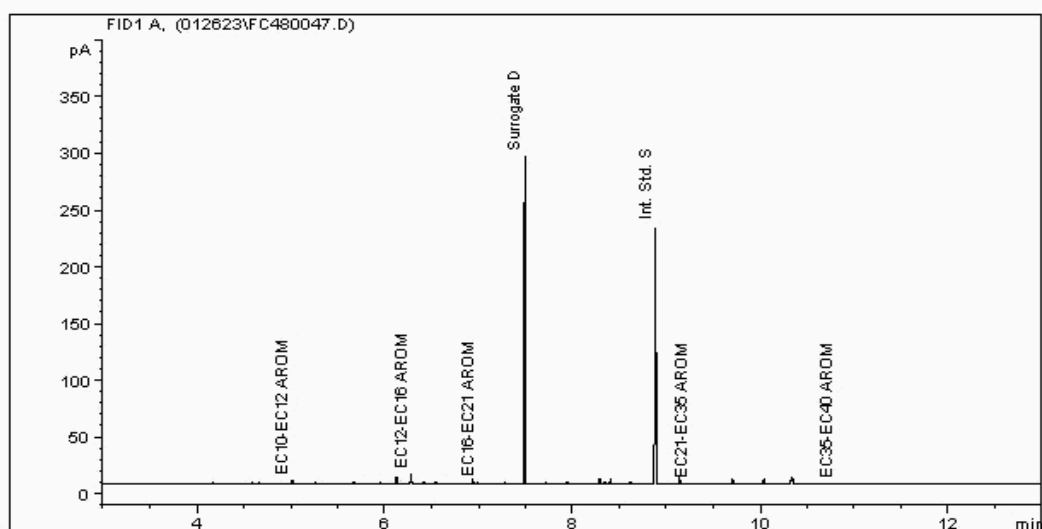
Sample No : 27451432
Sample ID : BH 319

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547797-
Date Acquired : 27/01/2023 05:18:45 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	188.9	0.240
5	Int. Std. S	176.5	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		365.4	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

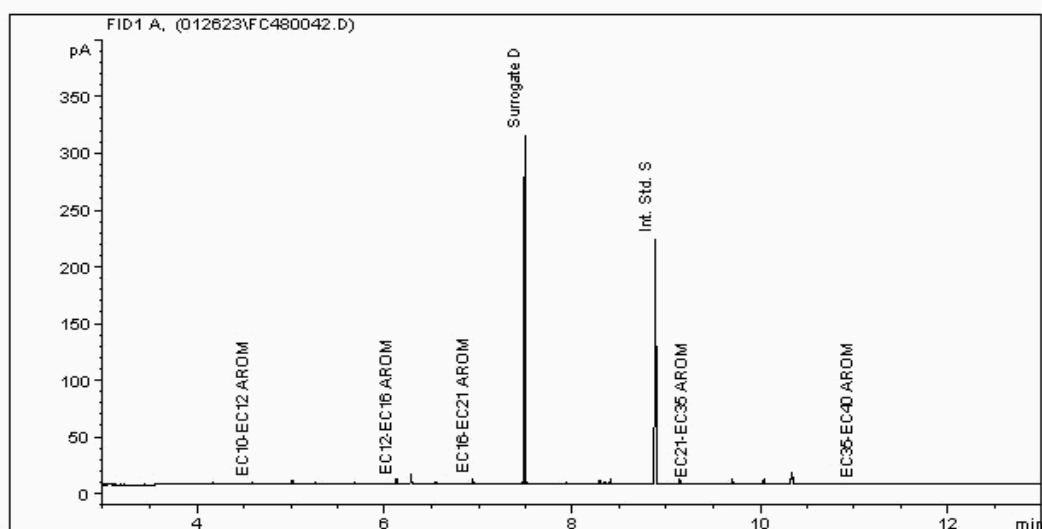
Sample No : 27451448
Sample ID : BH 318

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547787-
Date Acquired : 27/01/2023 03:22:35 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	194.8	0.242
5	Int. Std. S	180.2	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		375.0	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W)

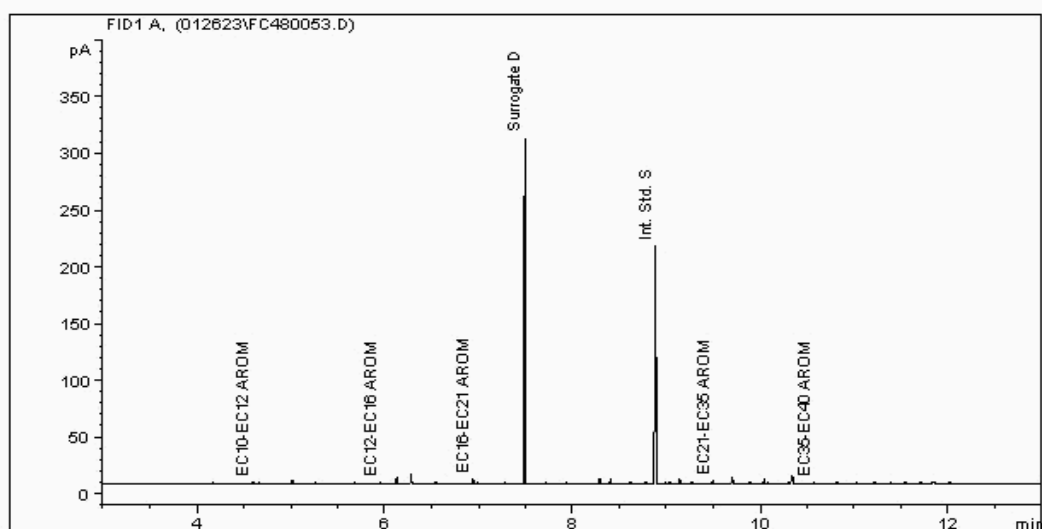
Sample No : 27451457
Sample ID : BH 316

Depth :

Speciated TPH - AROM (C12 - C40)

Sample Identity: 25547777-
Date Acquired : 27/01/2023 07:38:24 PM
Units : ppb
Dilution:

#	Compound Name	Main Peak Area	Amount
1	EC10-EC12 AROM	0.0	0.000
2	EC12-EC16 AROM	0.0	0.000
3	EC16-EC21 AROM	0.0	0.000
4	Surrogate D	187.0	0.243
5	Int. Std. S	172.0	0.250
6	EC21-EC35 AROM	0.0	0.000
7	EC35-EC40 AROM	0.0	0.000
Total Peak Area		359.0	





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

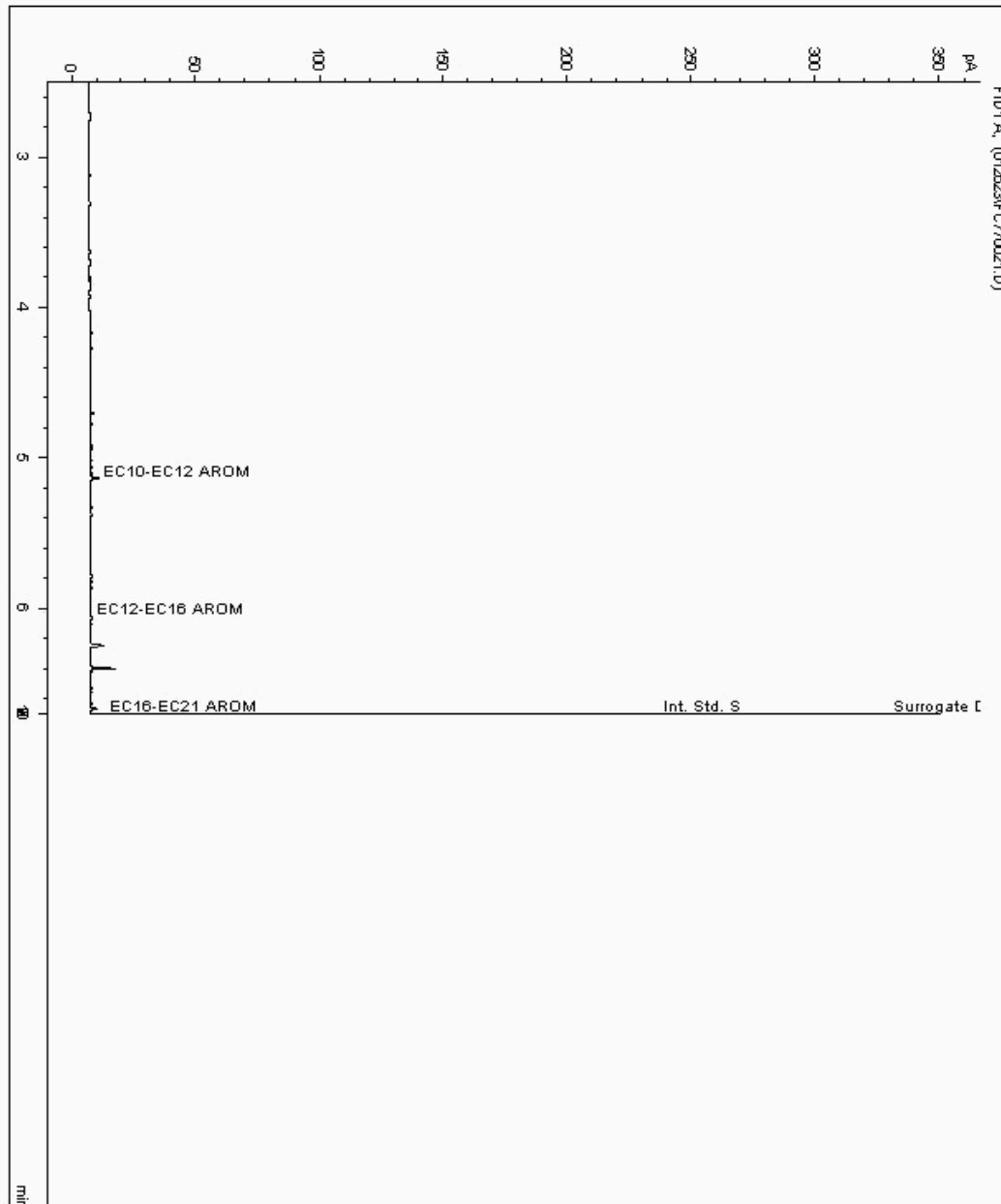
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 27451798
Sample ID : LEACHATE HOLDING LAC

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548144-
Date Acquired : 1/27/2023 11:48:09 AM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Chromatogram

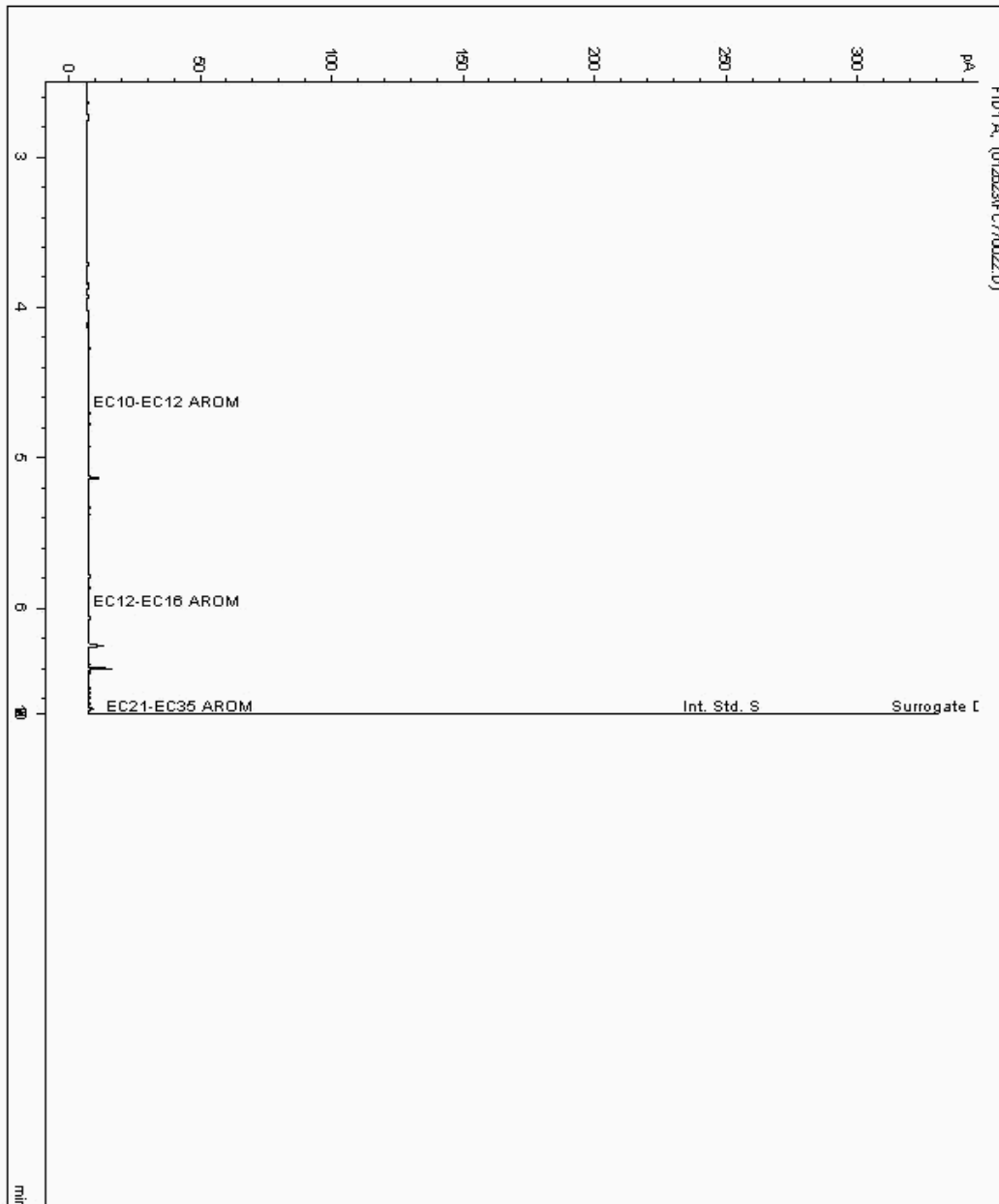
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 27451809
Sample ID : CELL 1-2 SUMP

Depth :

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 25548074-
Date Acquired : 1/27/2023 12:12:07 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

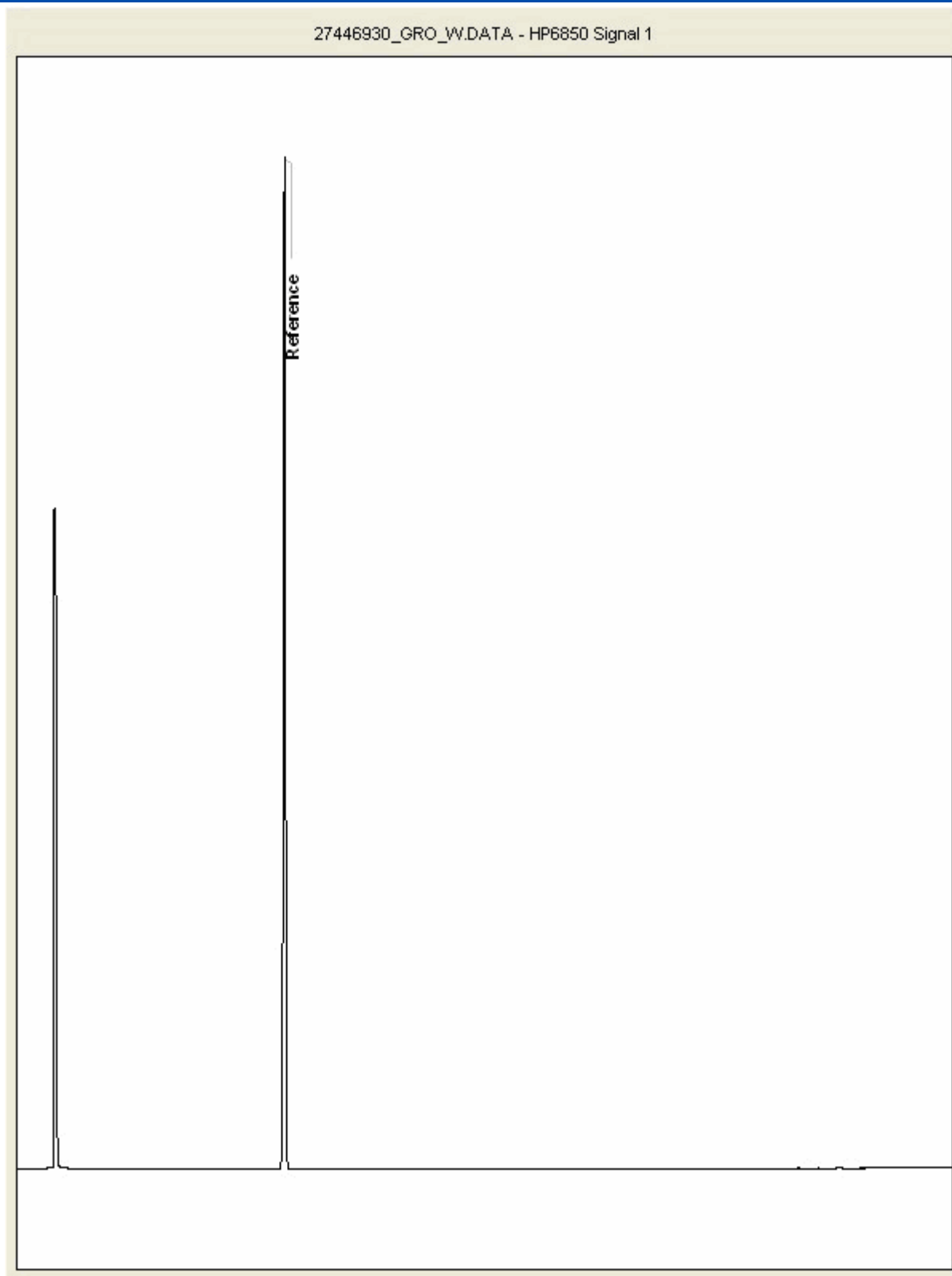
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27446930
Sample ID : NACW 203

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

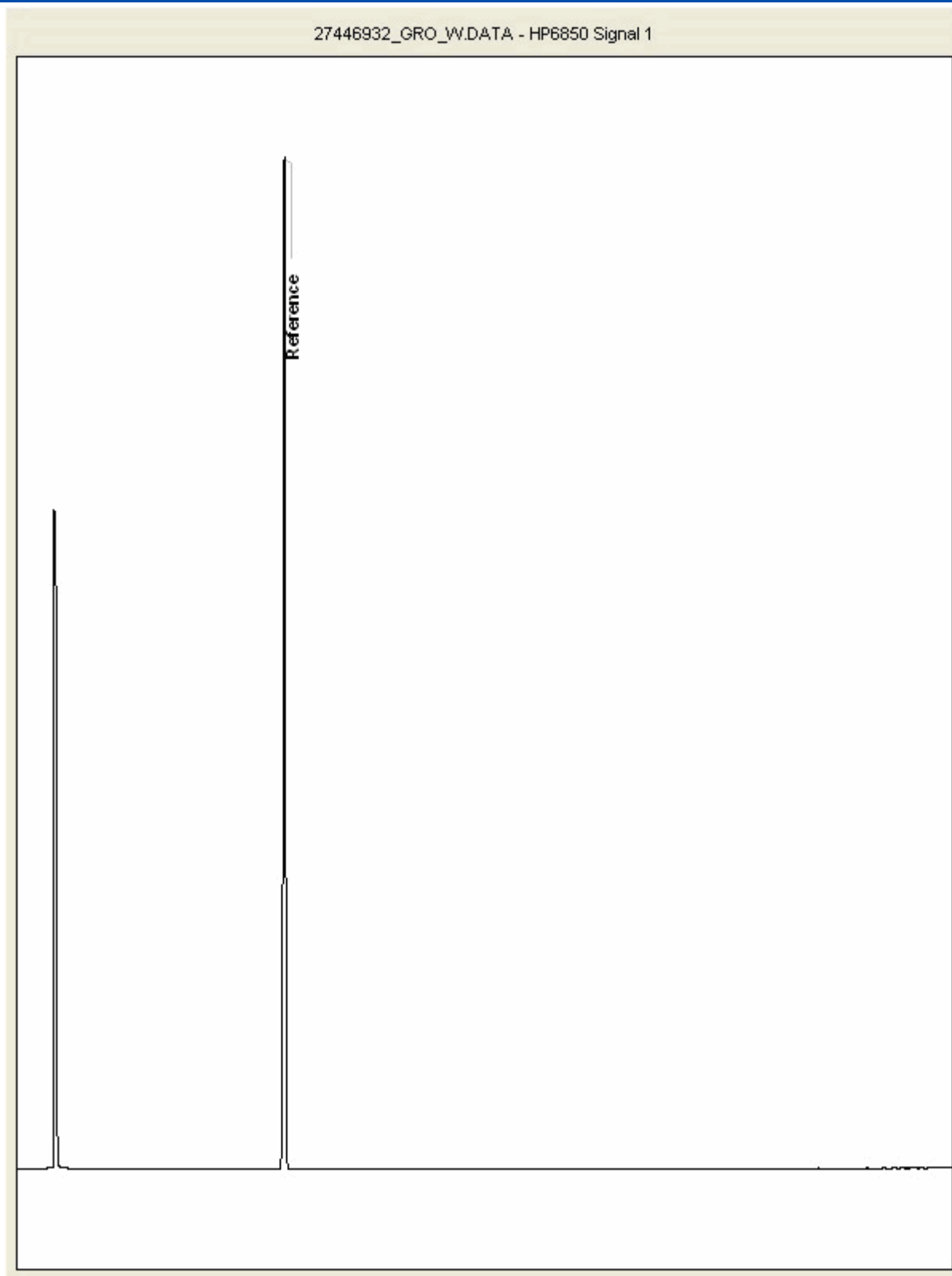
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27446932
Sample ID : NACW 228

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

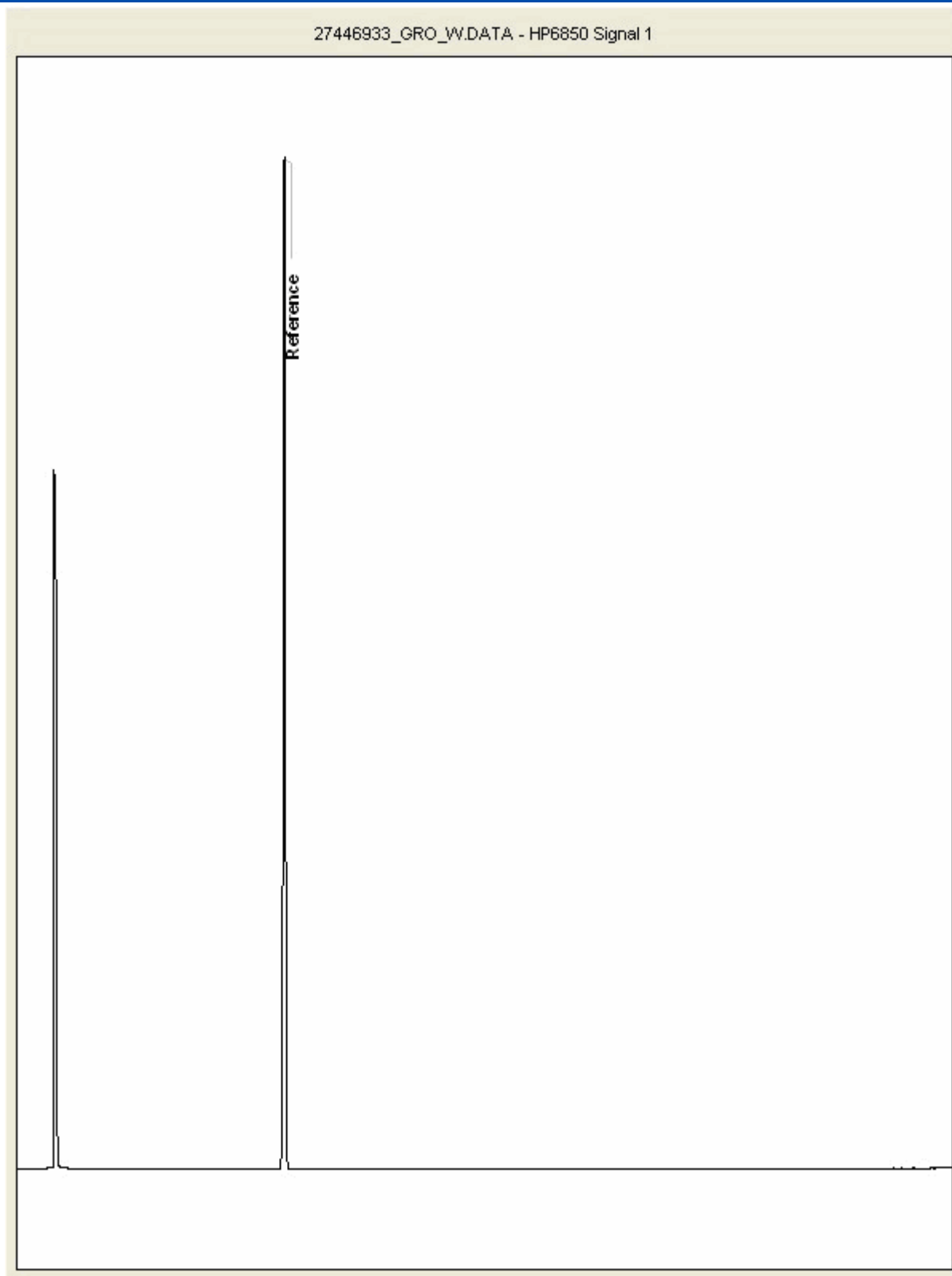
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27446933
Sample ID : UD5

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

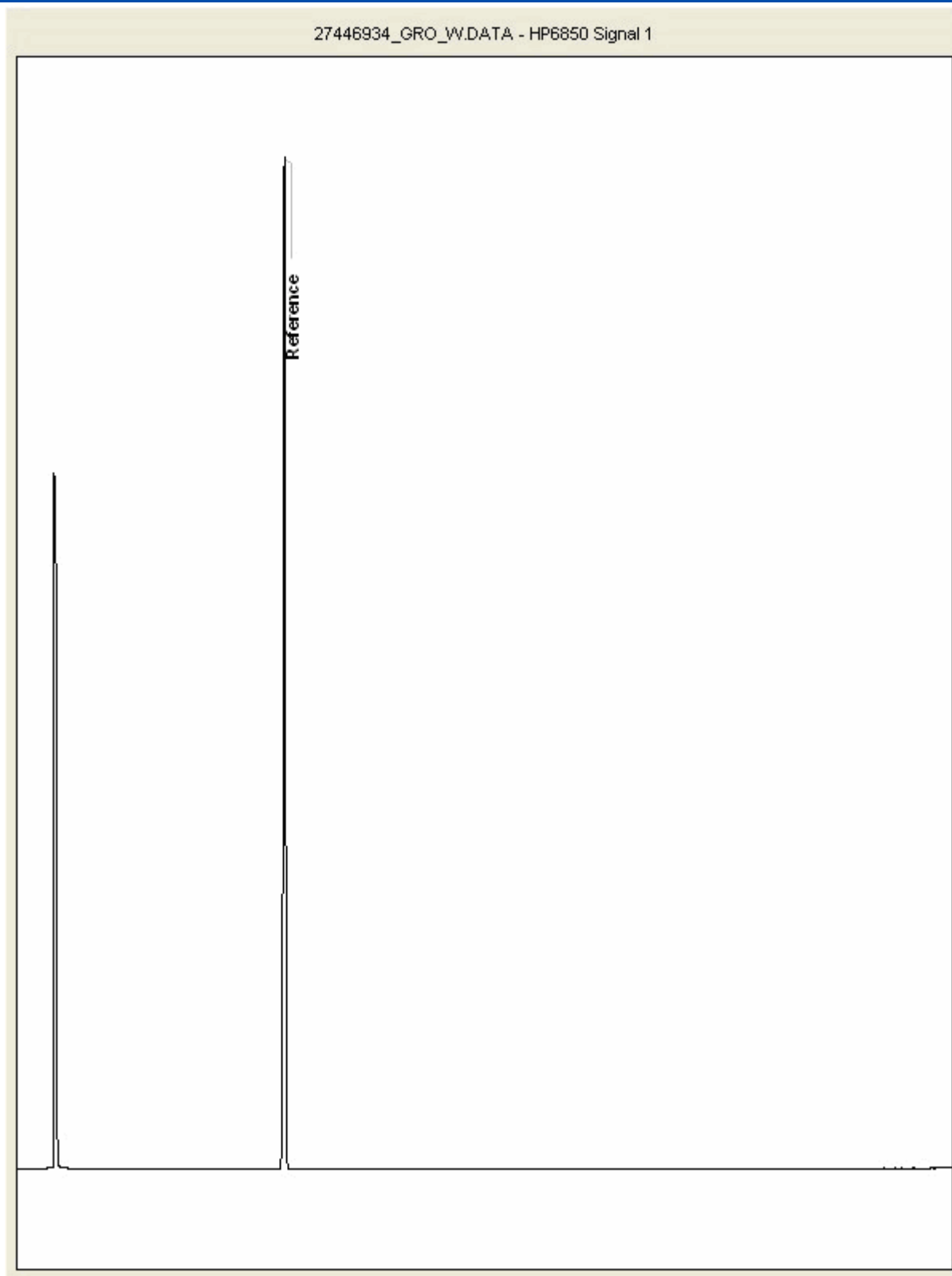
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27446934
Sample ID : NACW 219

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

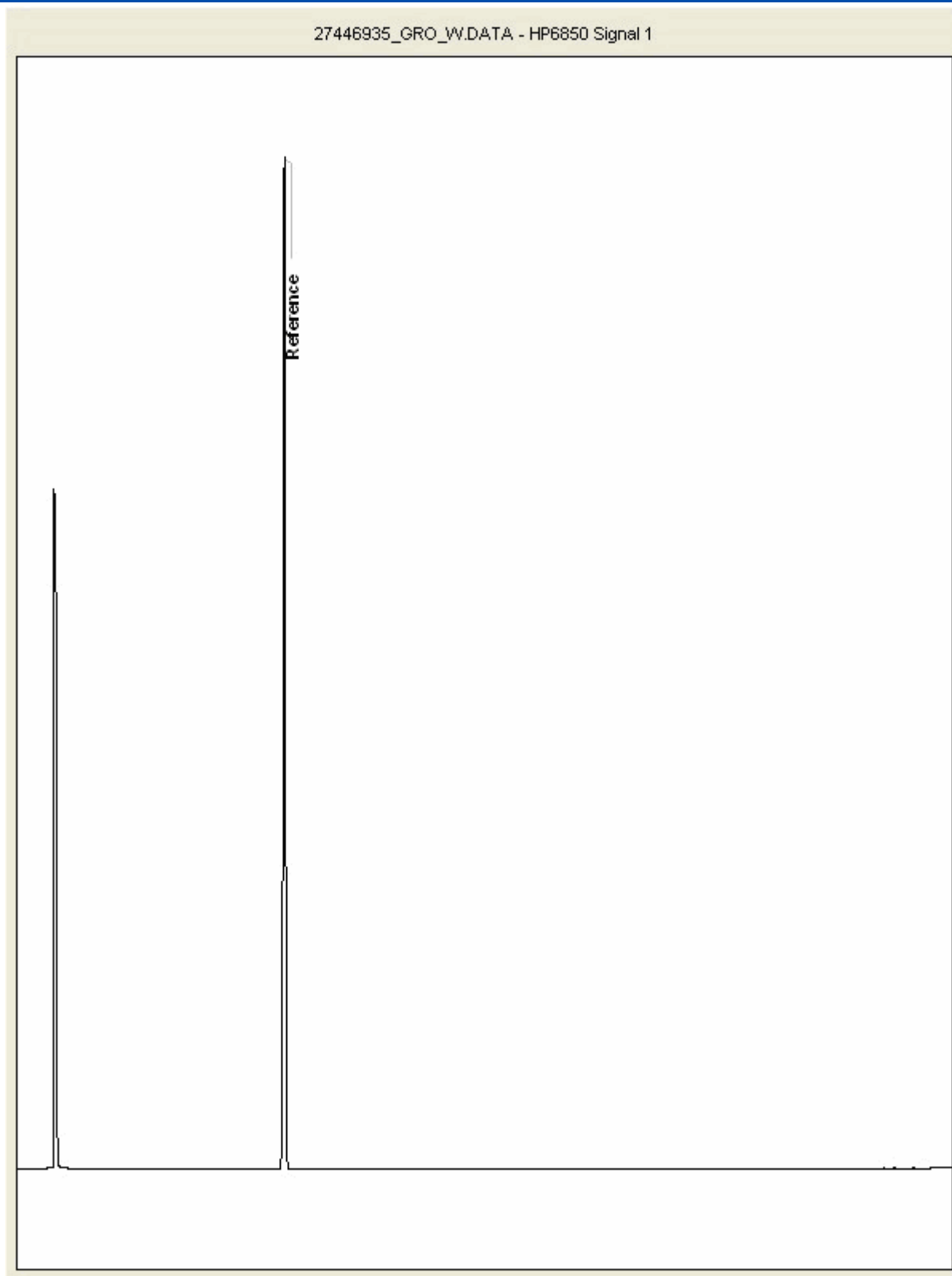
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27446935
Sample ID : BH 312

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

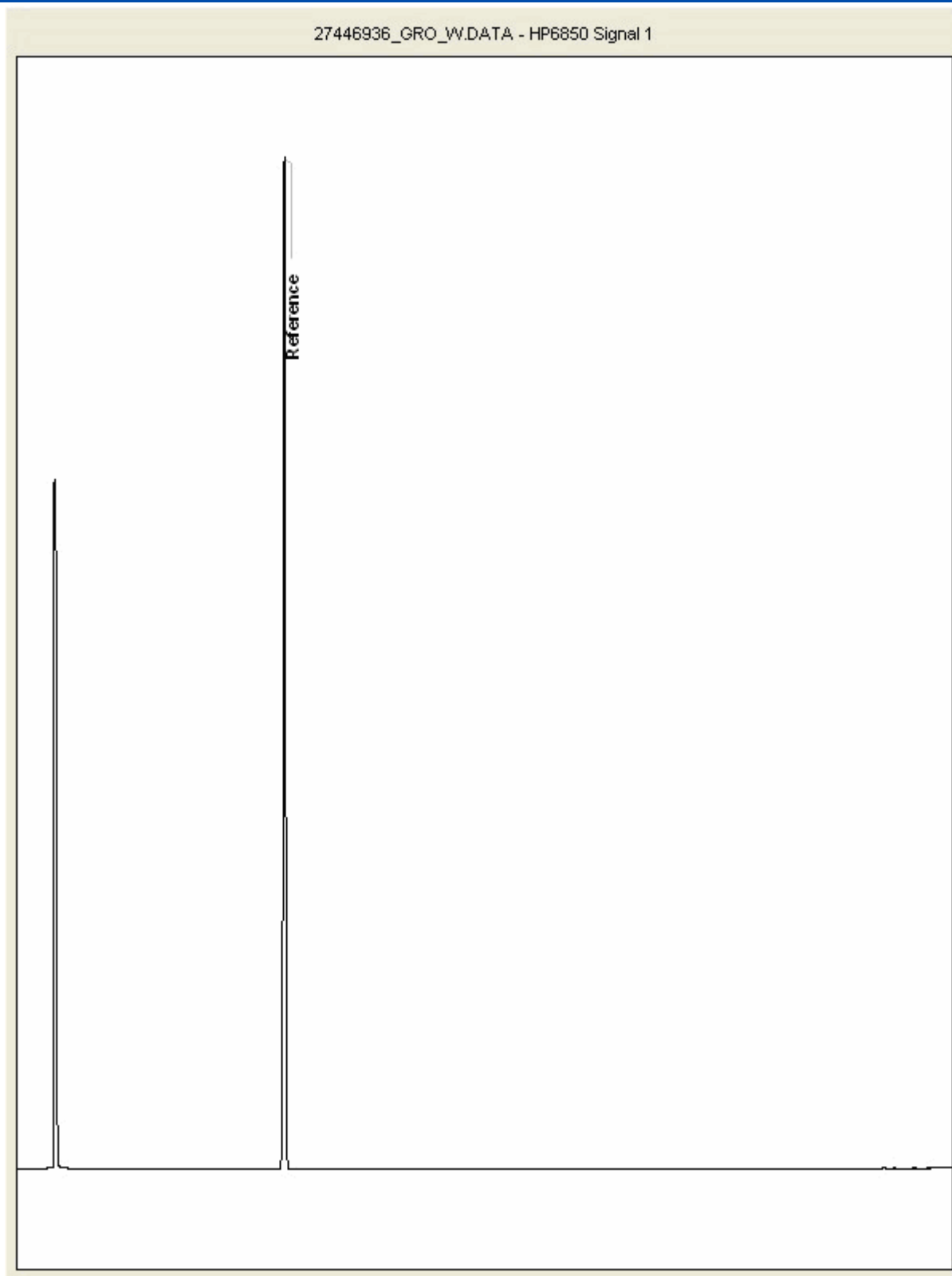
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27446936
Sample ID : BH 313

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

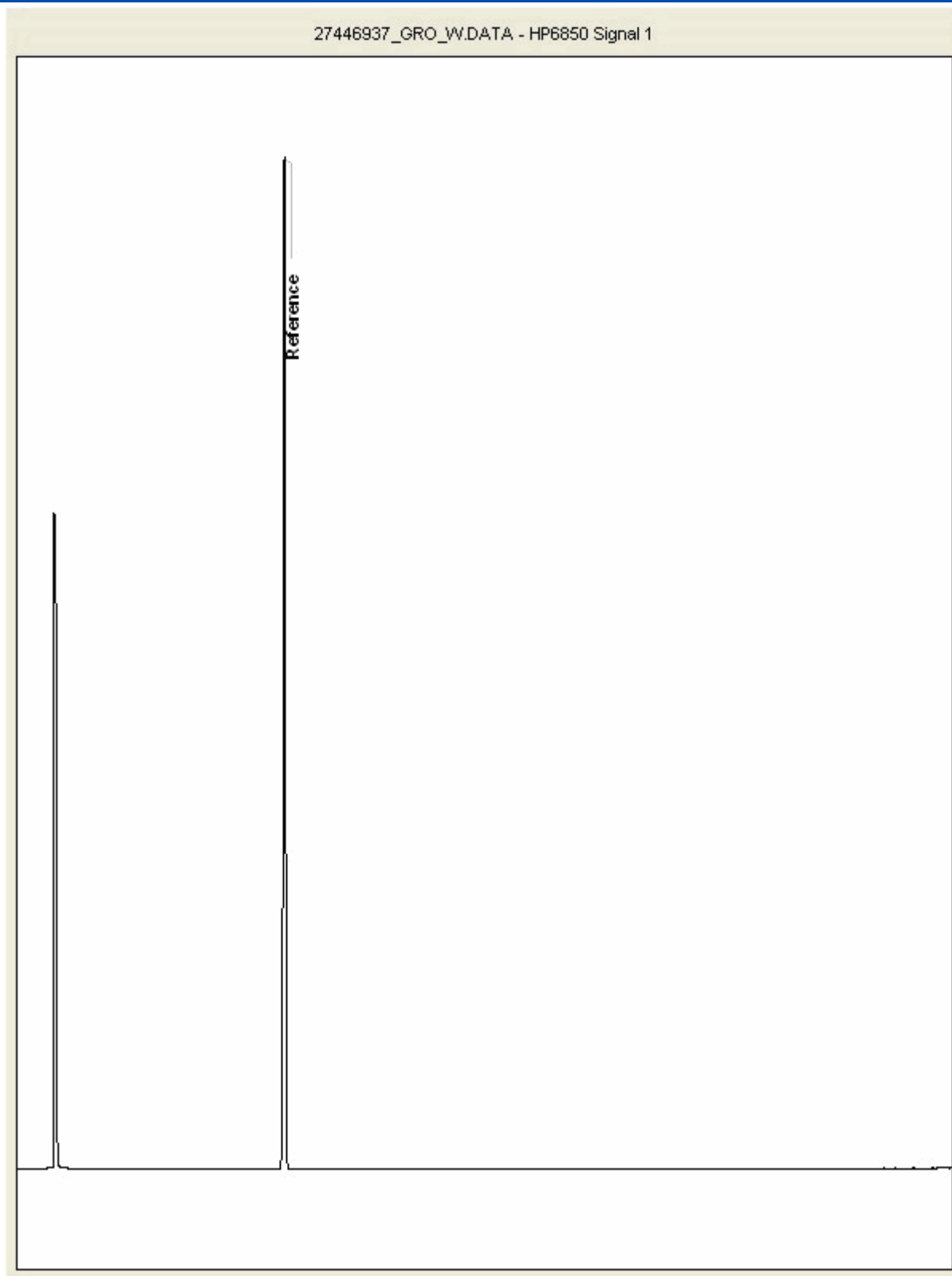
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27446937
Sample ID : NACW 205

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

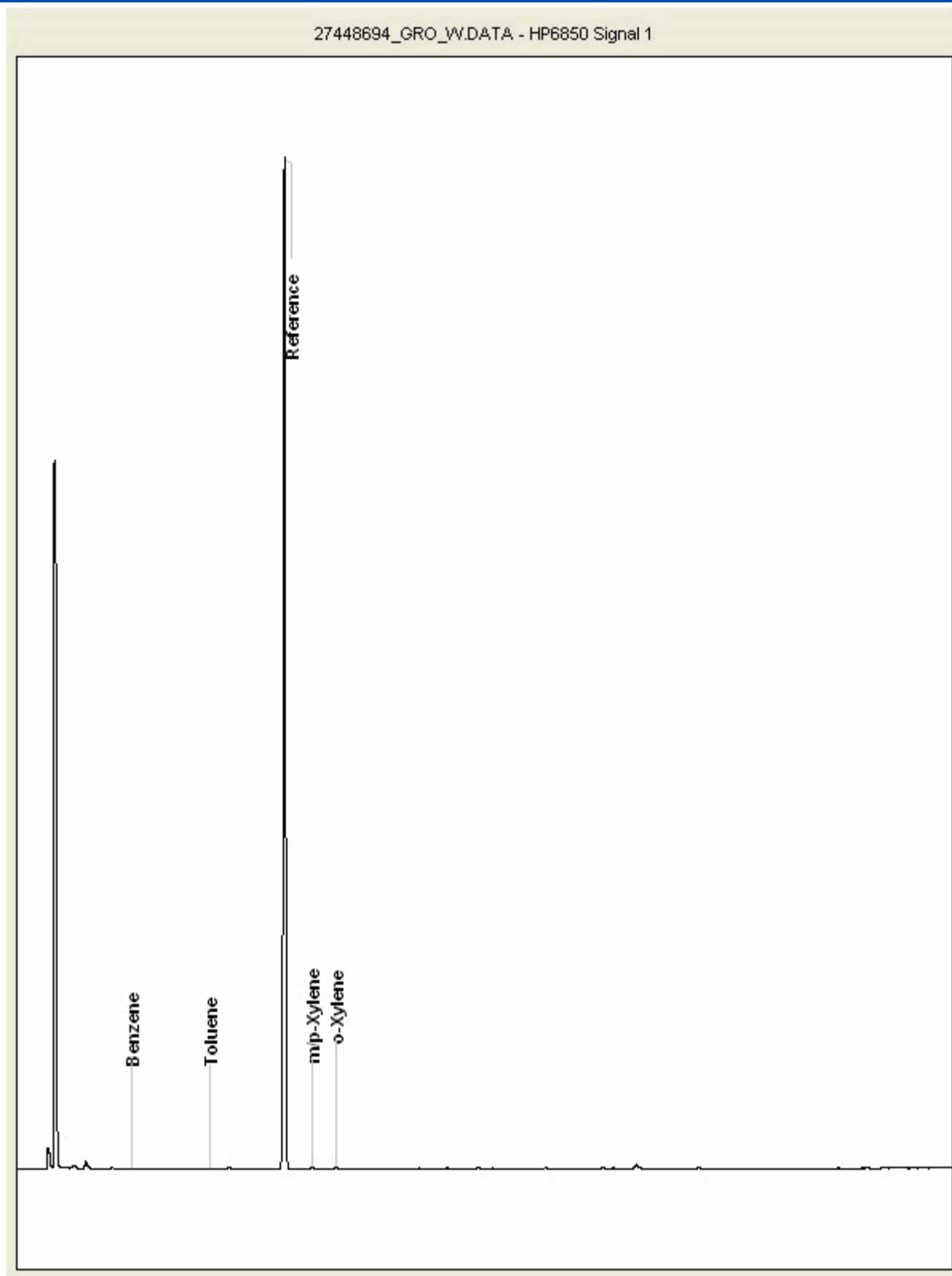
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448694
Sample ID : CELL 7 SUMP

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

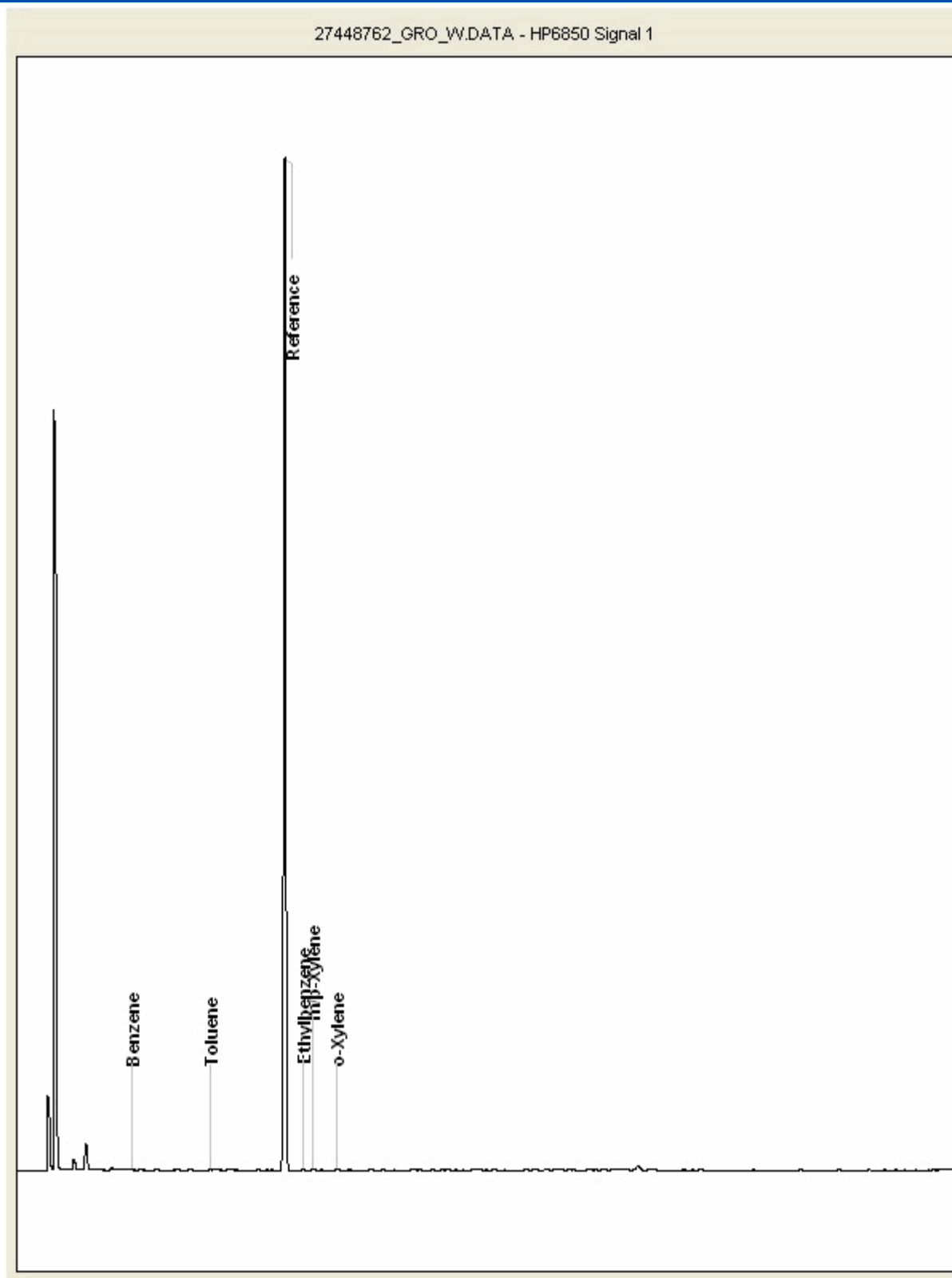
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448762
Sample ID : LEACHATE HOLDING LAC

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

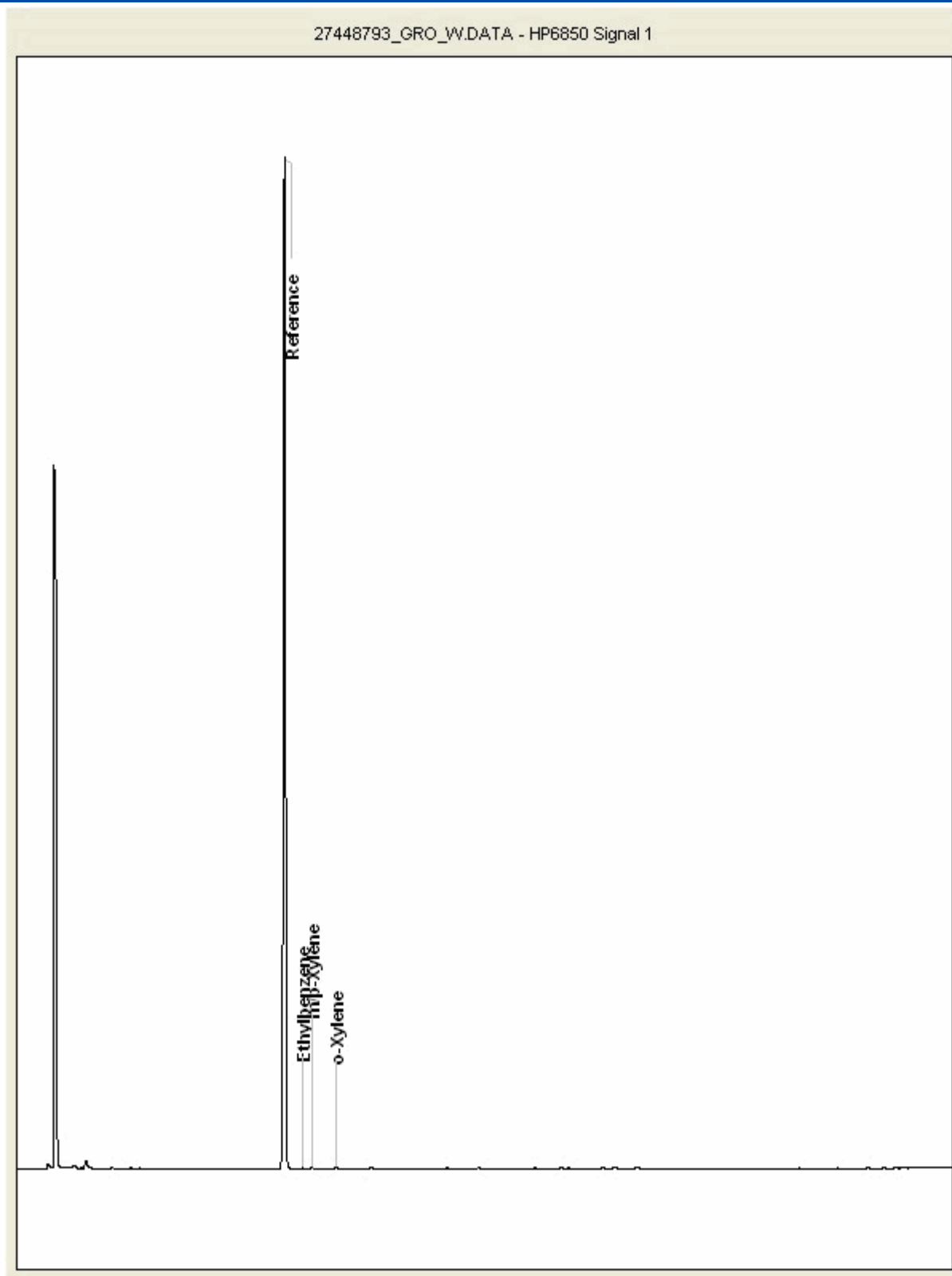
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448793
Sample ID : CELL 1-2 SUMP

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

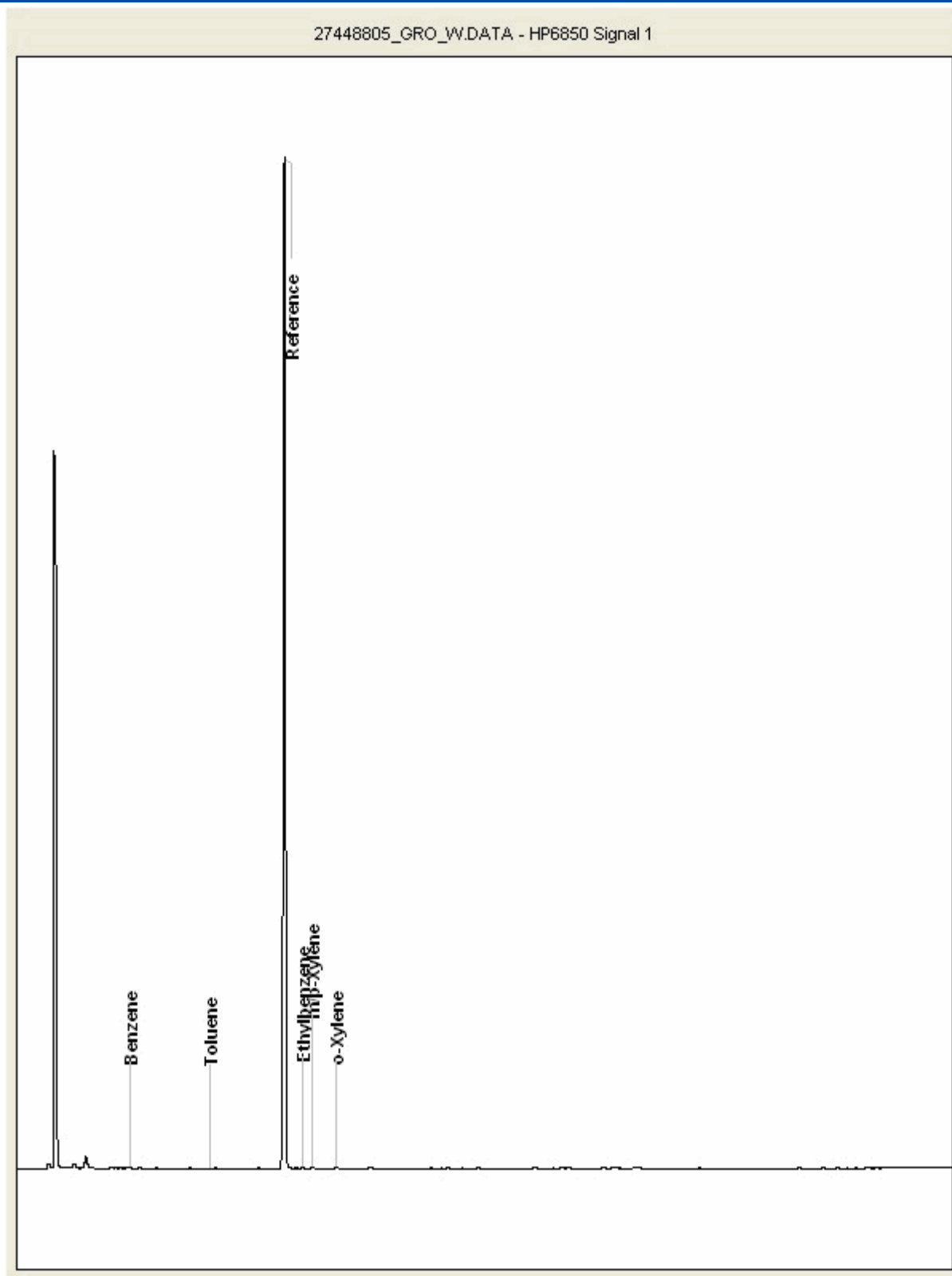
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448805
Sample ID : CELL 5 SUMP

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

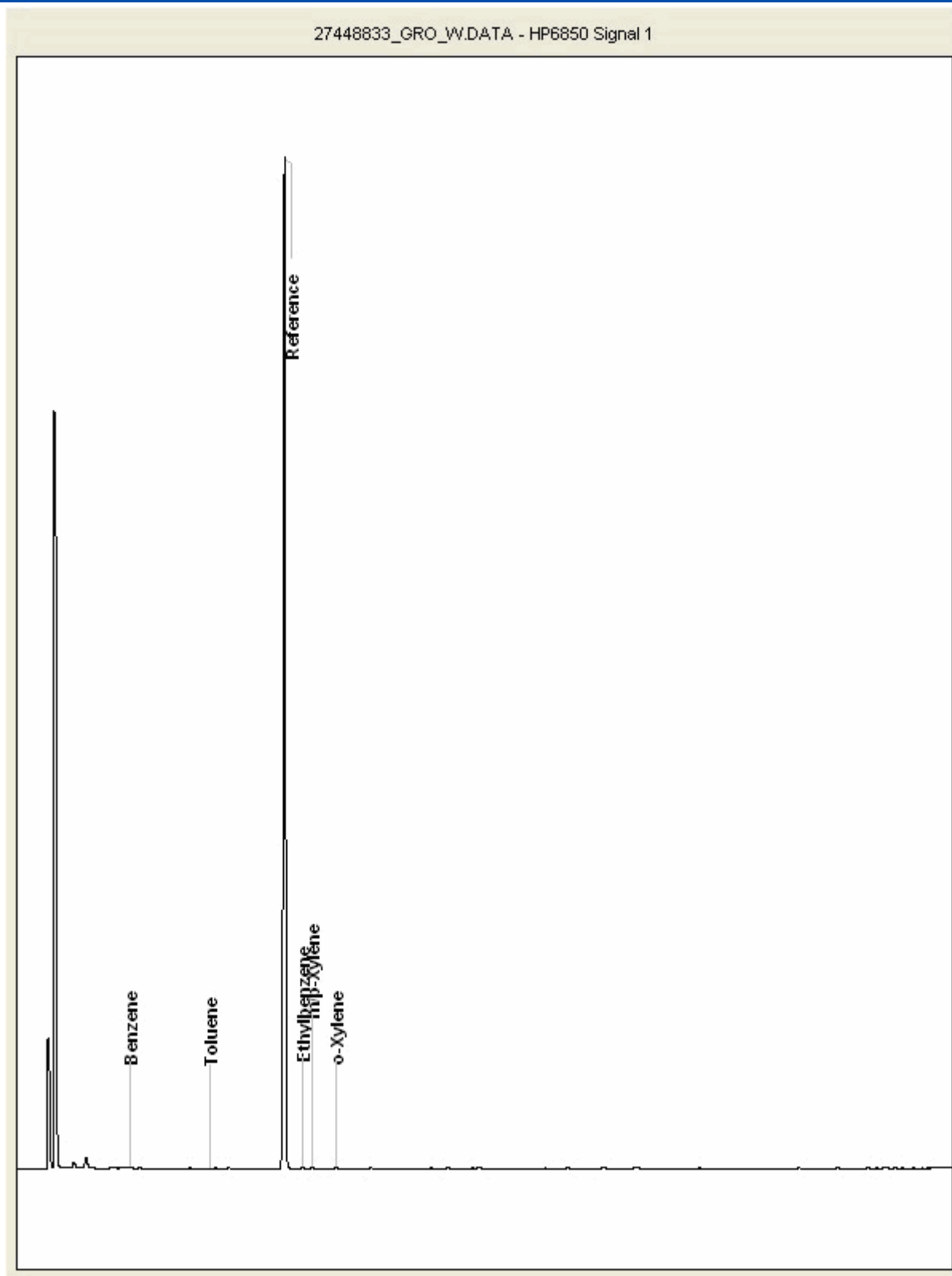
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448833
Sample ID : CELL 3-4 SUMP

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

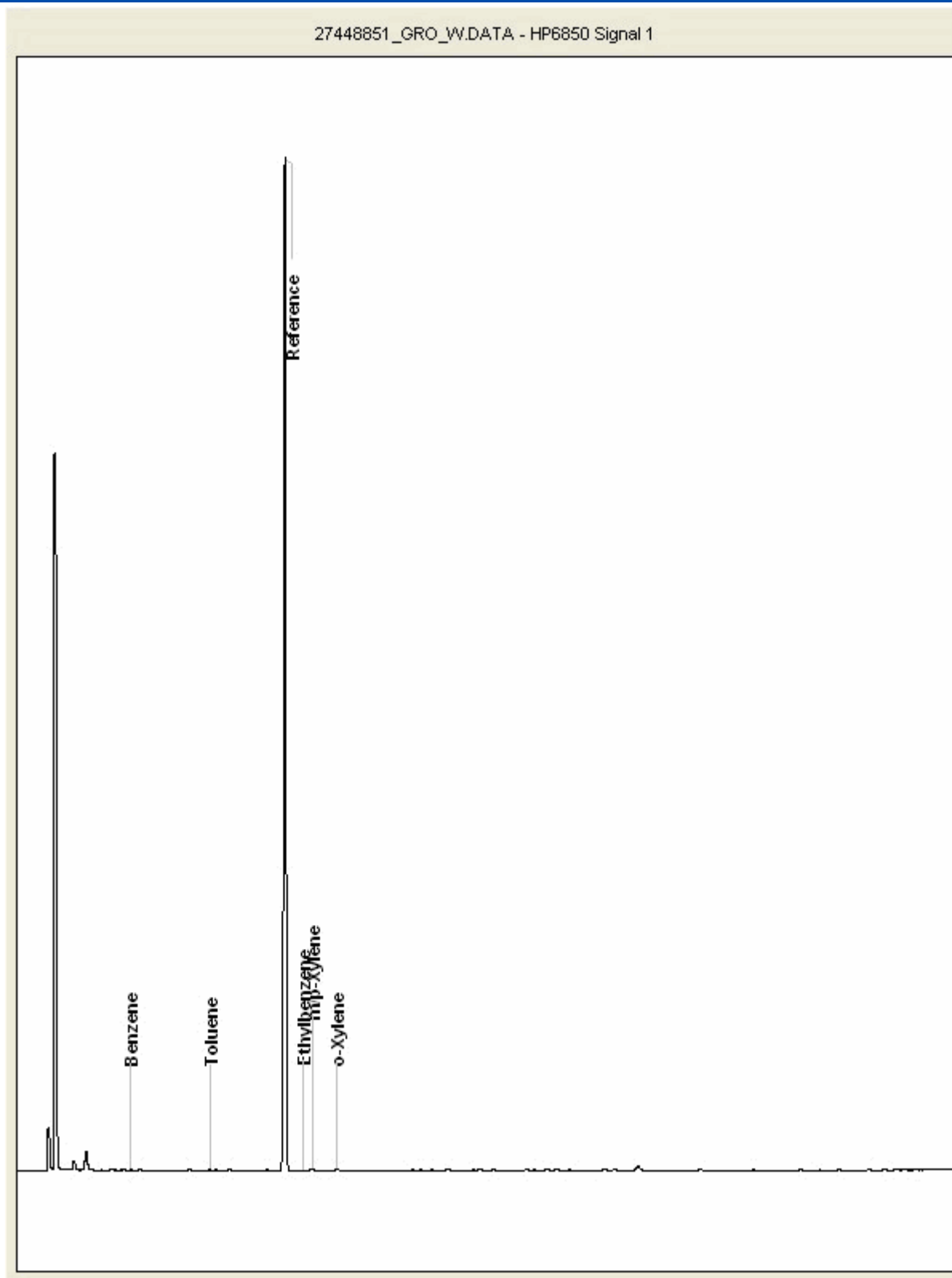
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448851
Sample ID : CELL 6 SUMP

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

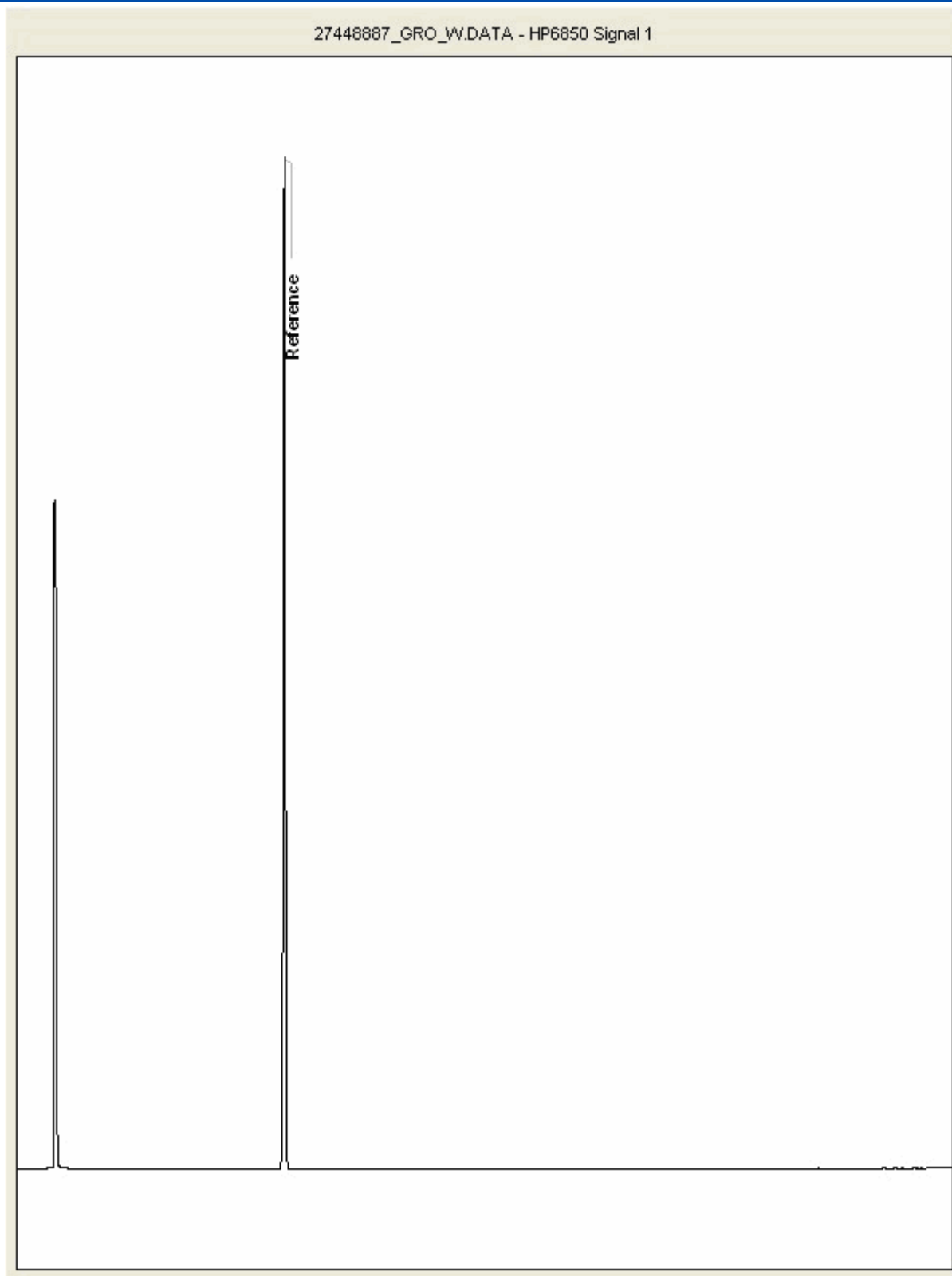
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448887
Sample ID : BH 314

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

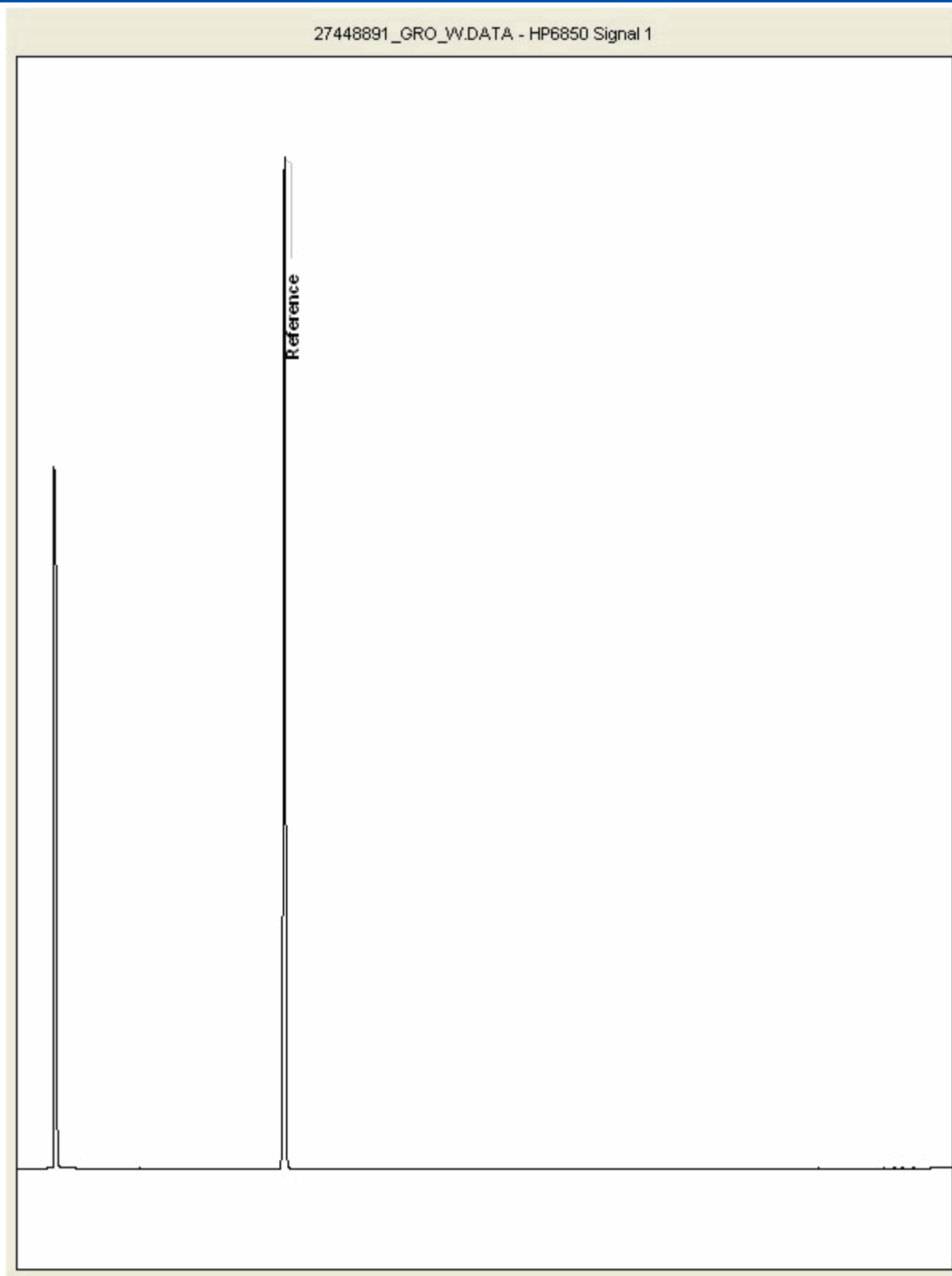
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448891
Sample ID : BH 316

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

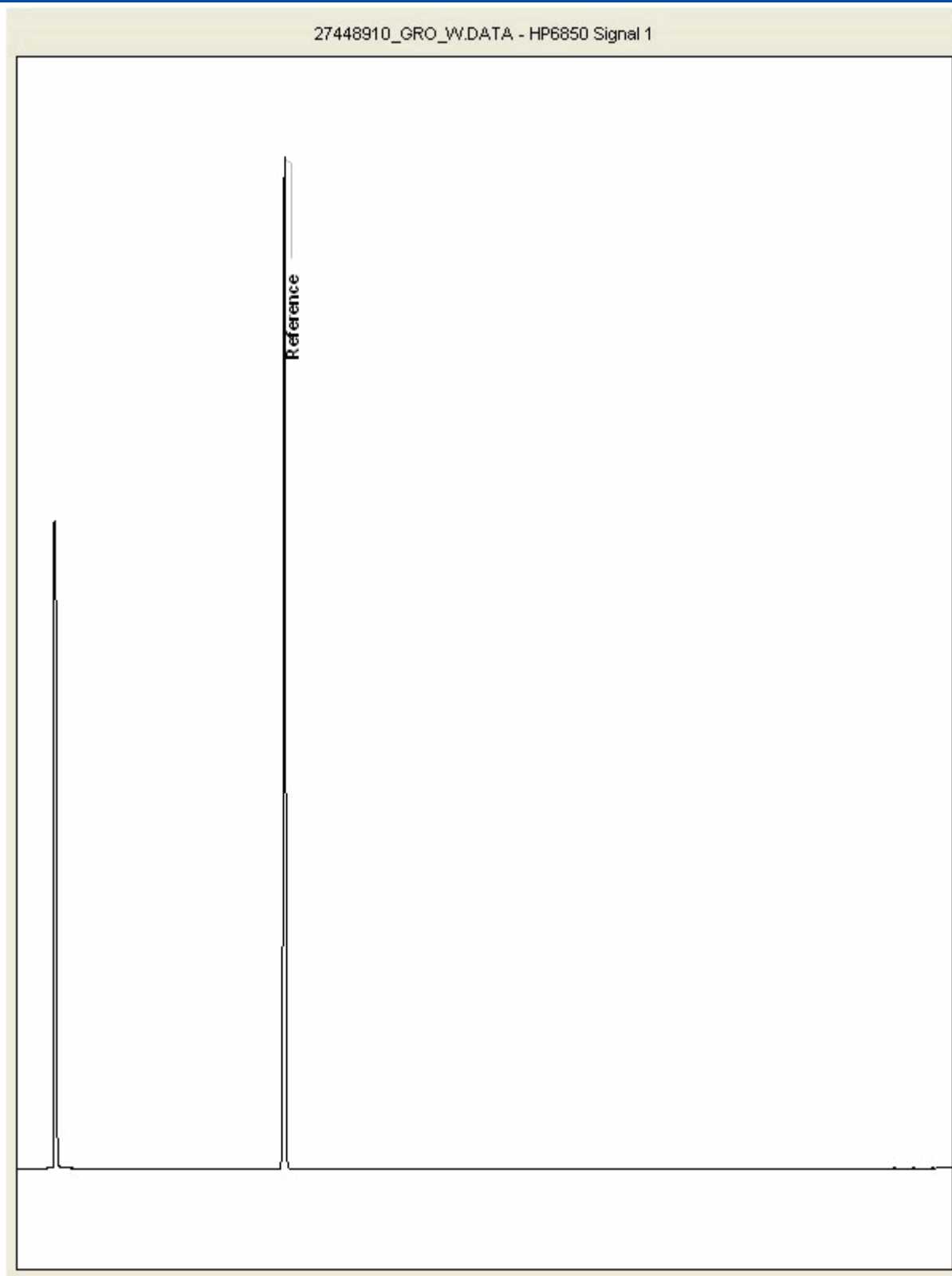
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448910
Sample ID : BH 318

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

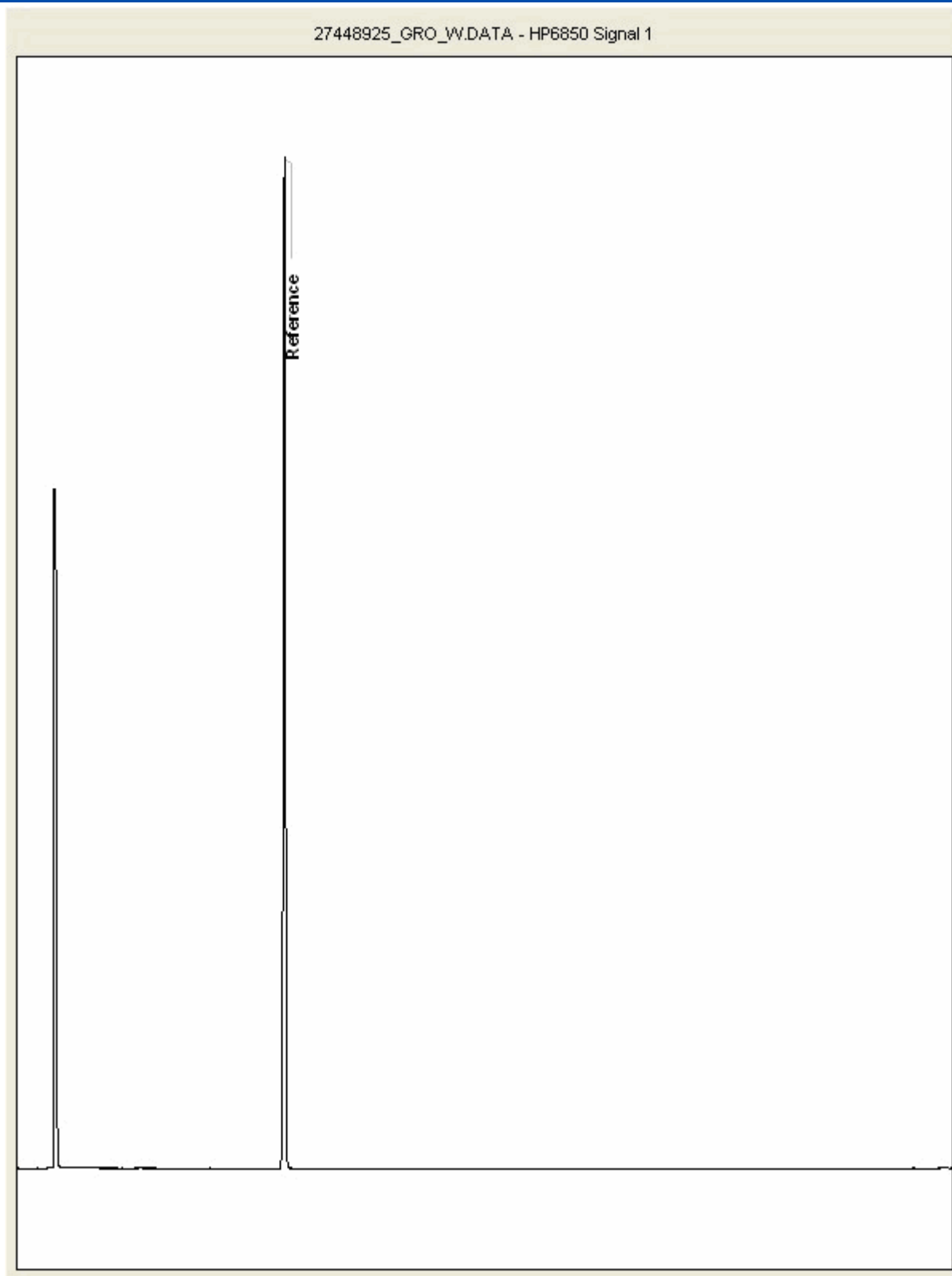
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448925
Sample ID : BH 208

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

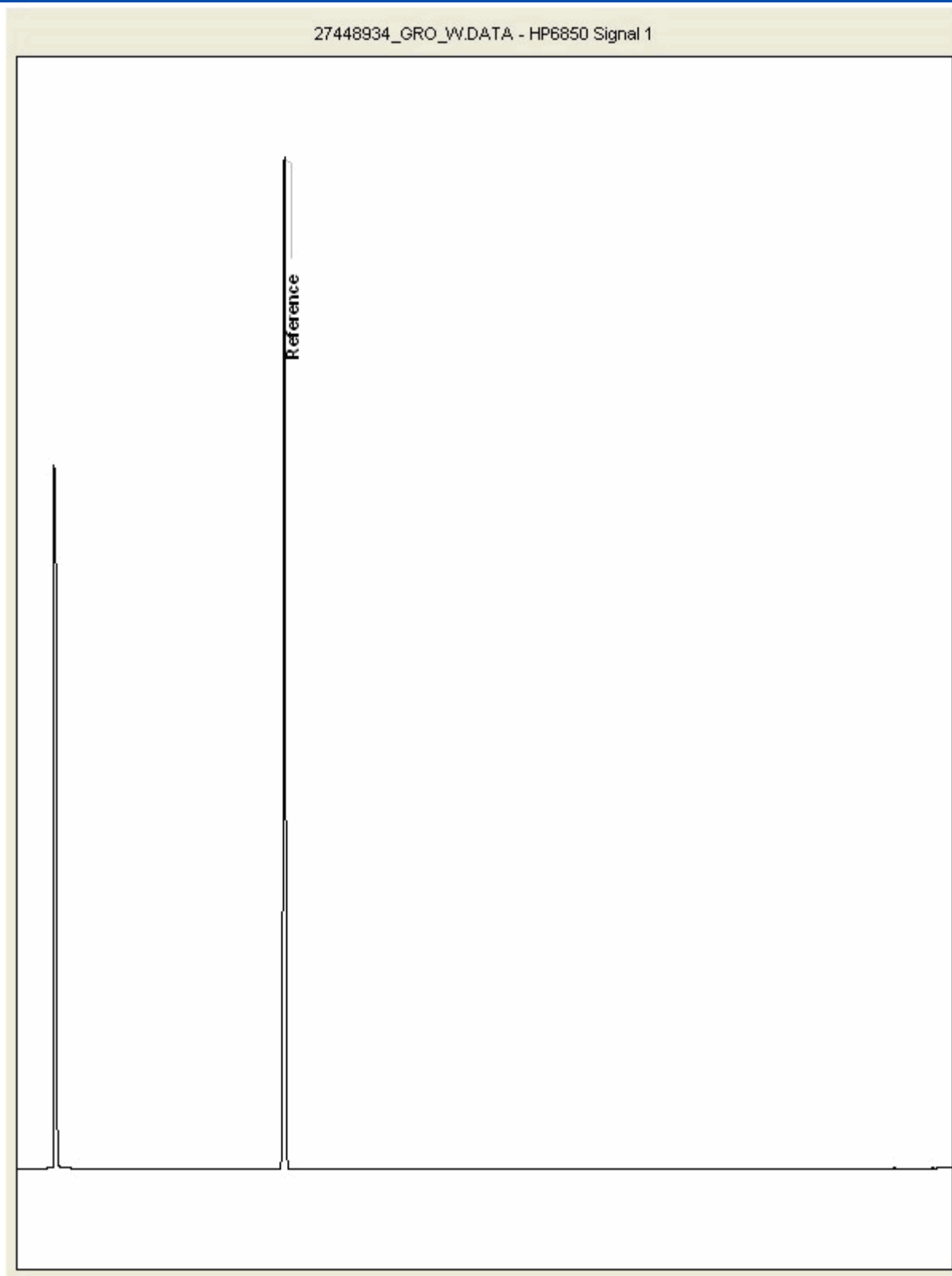
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448934
Sample ID : UD3

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

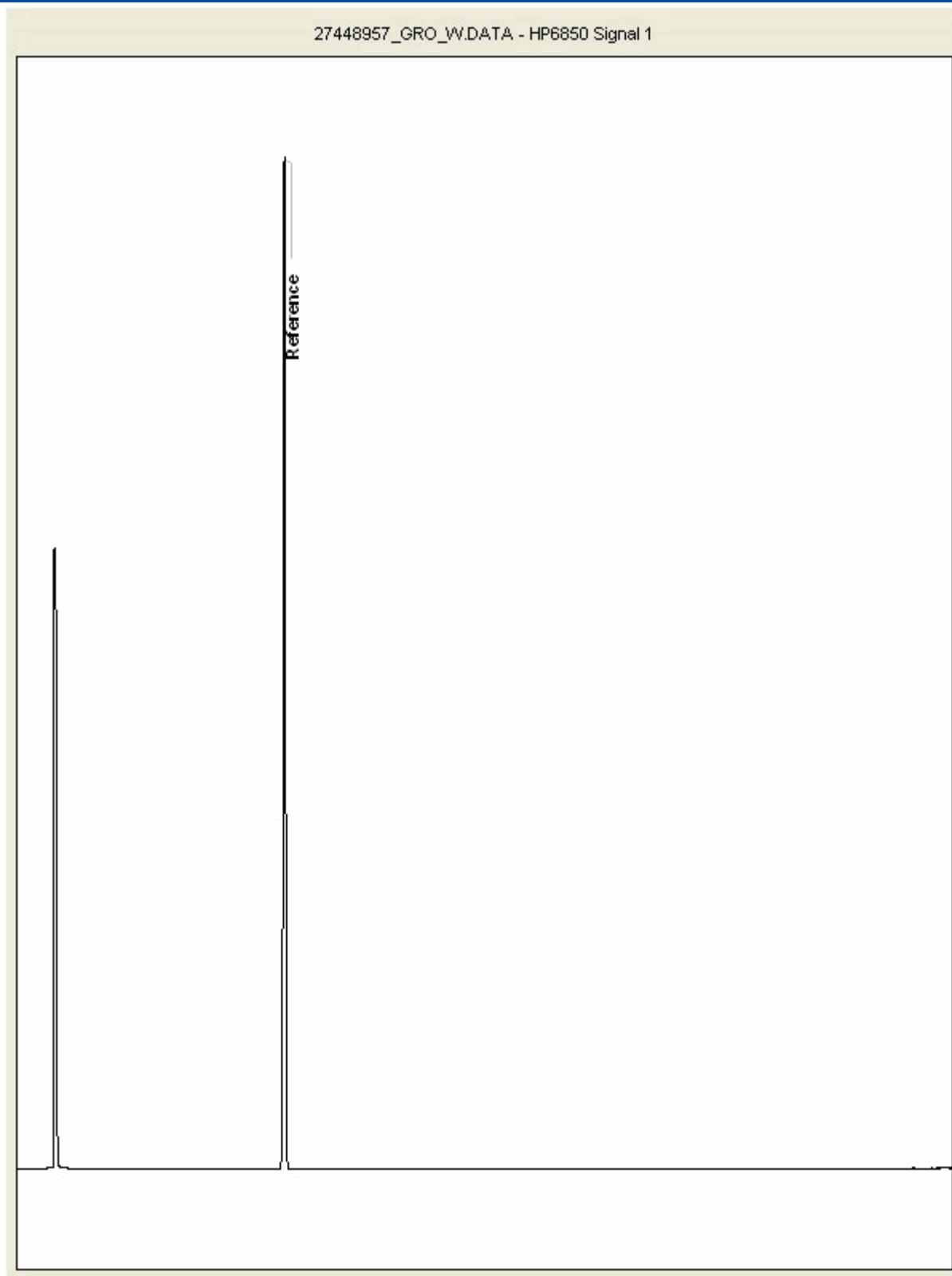
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27448957
Sample ID : UD4

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

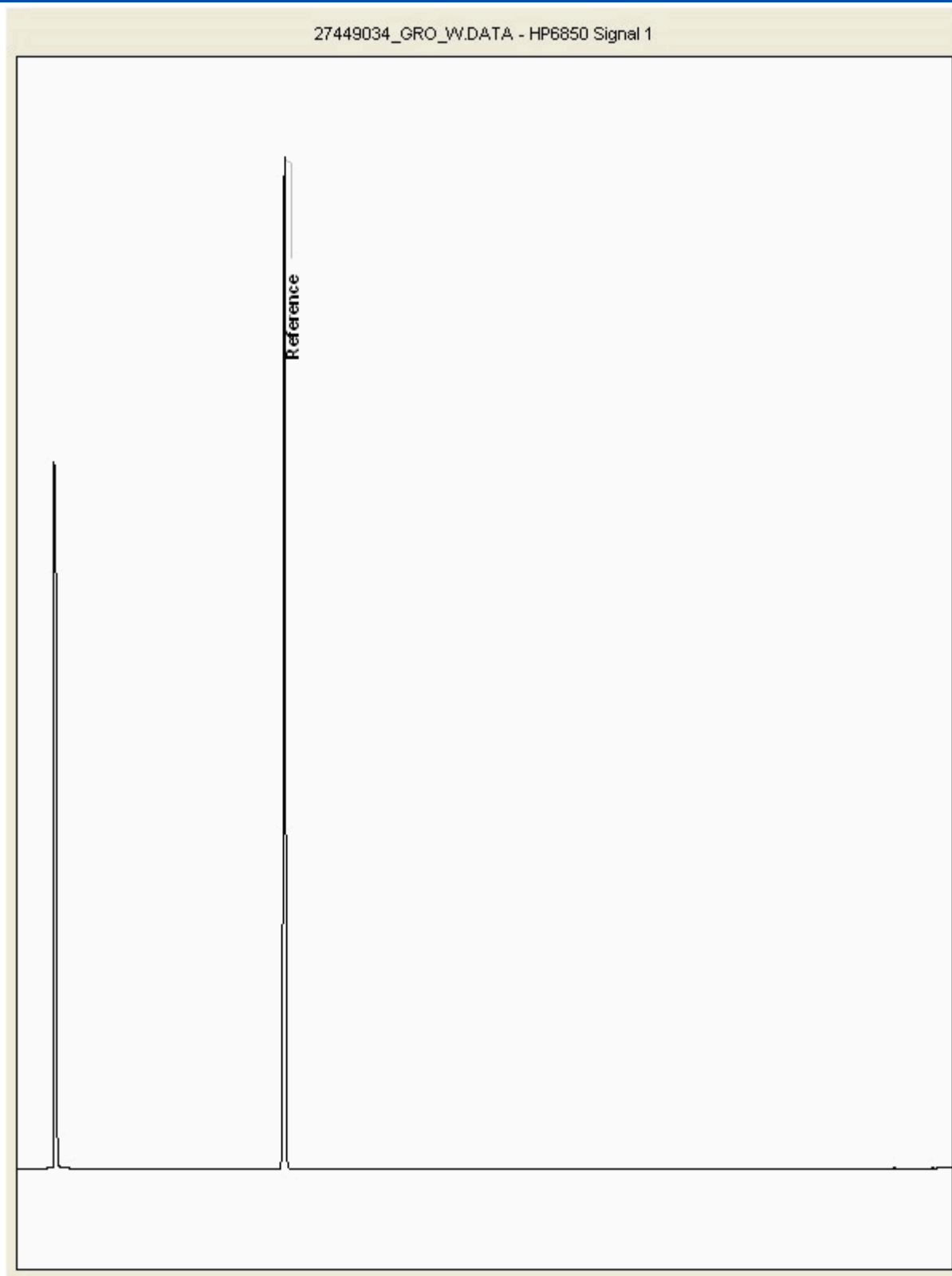
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27449034
Sample ID : UD1

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

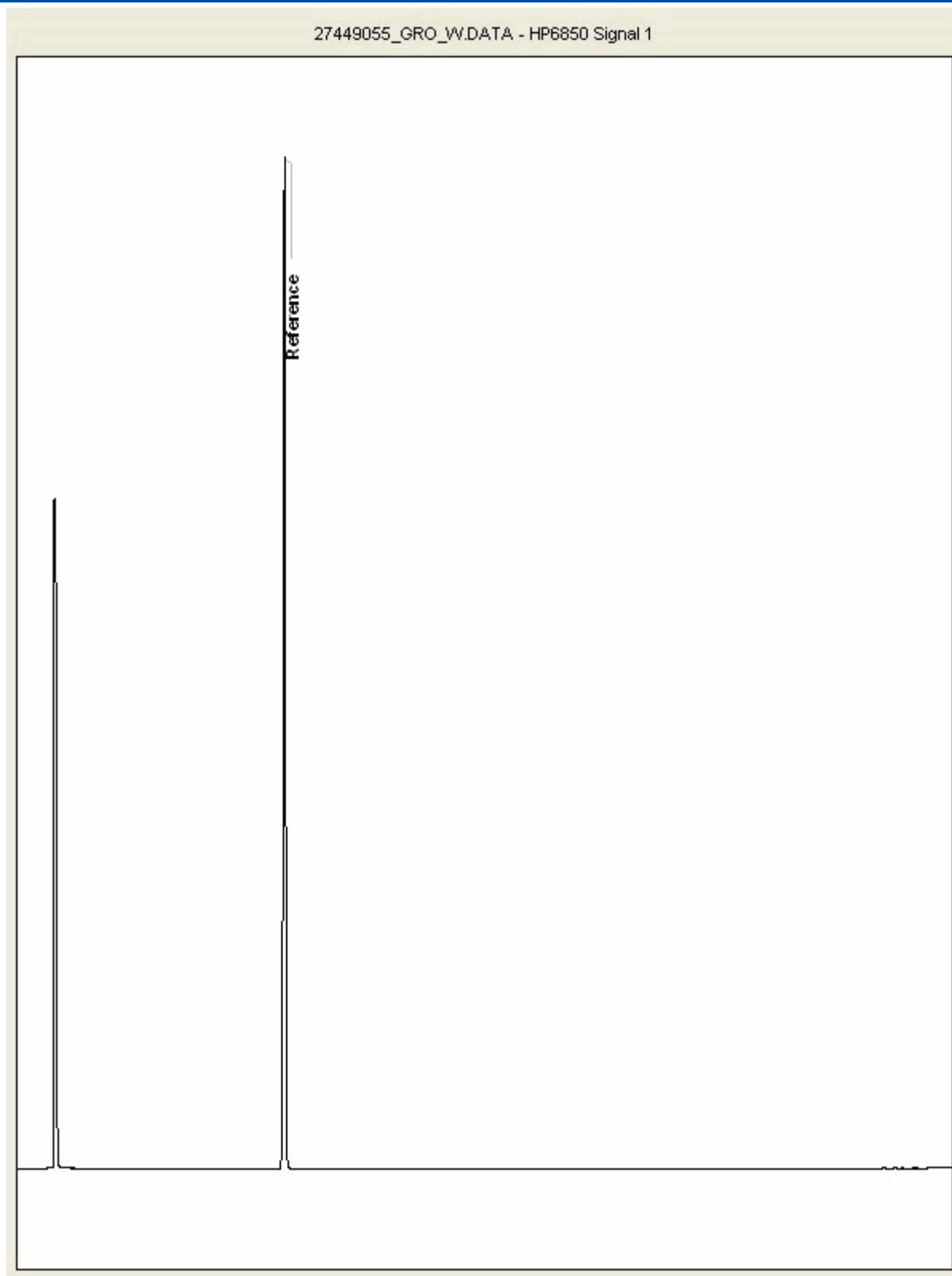
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27449055
Sample ID : BH 5102

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

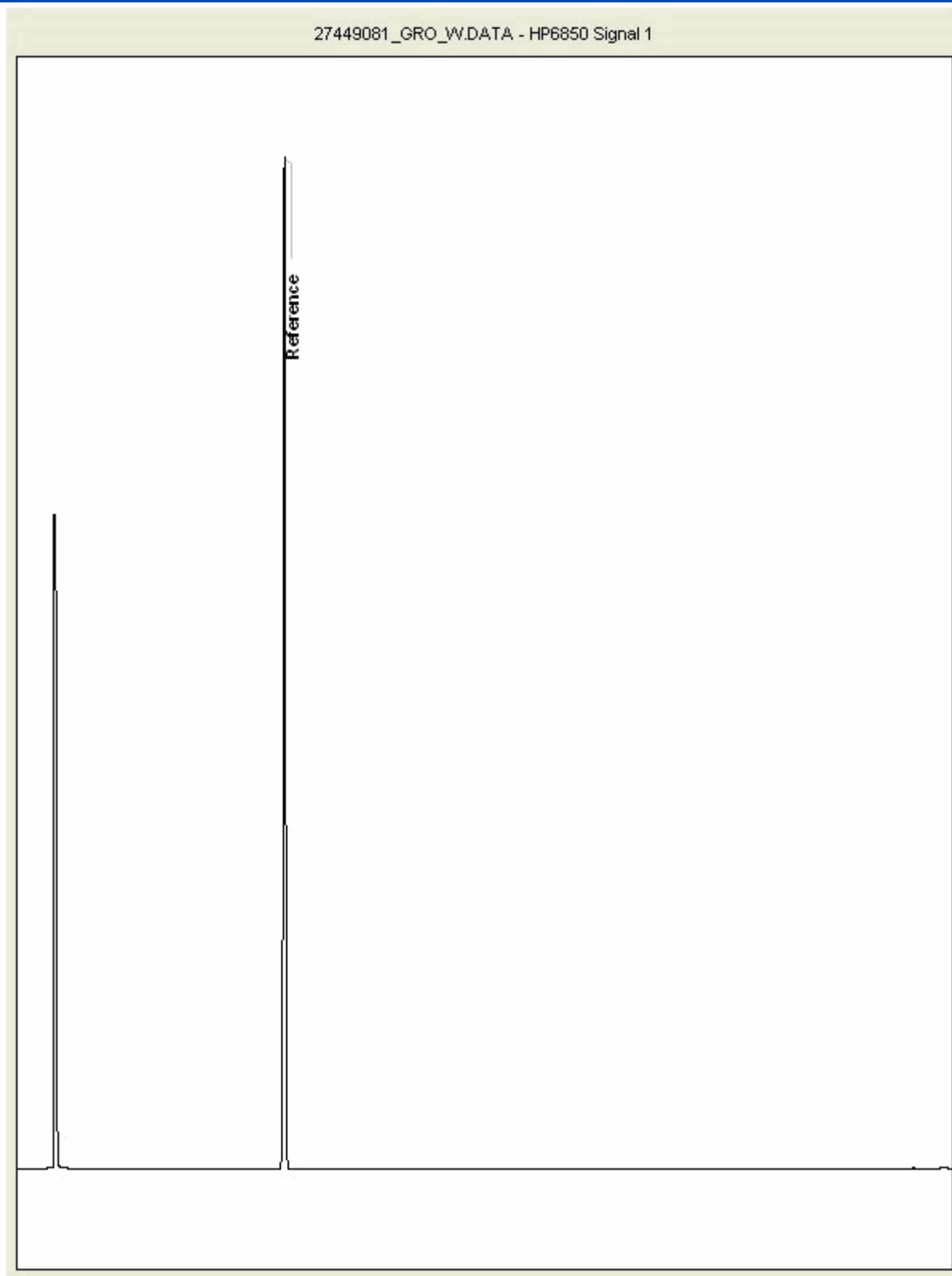
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27449081
Sample ID : BH 315

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

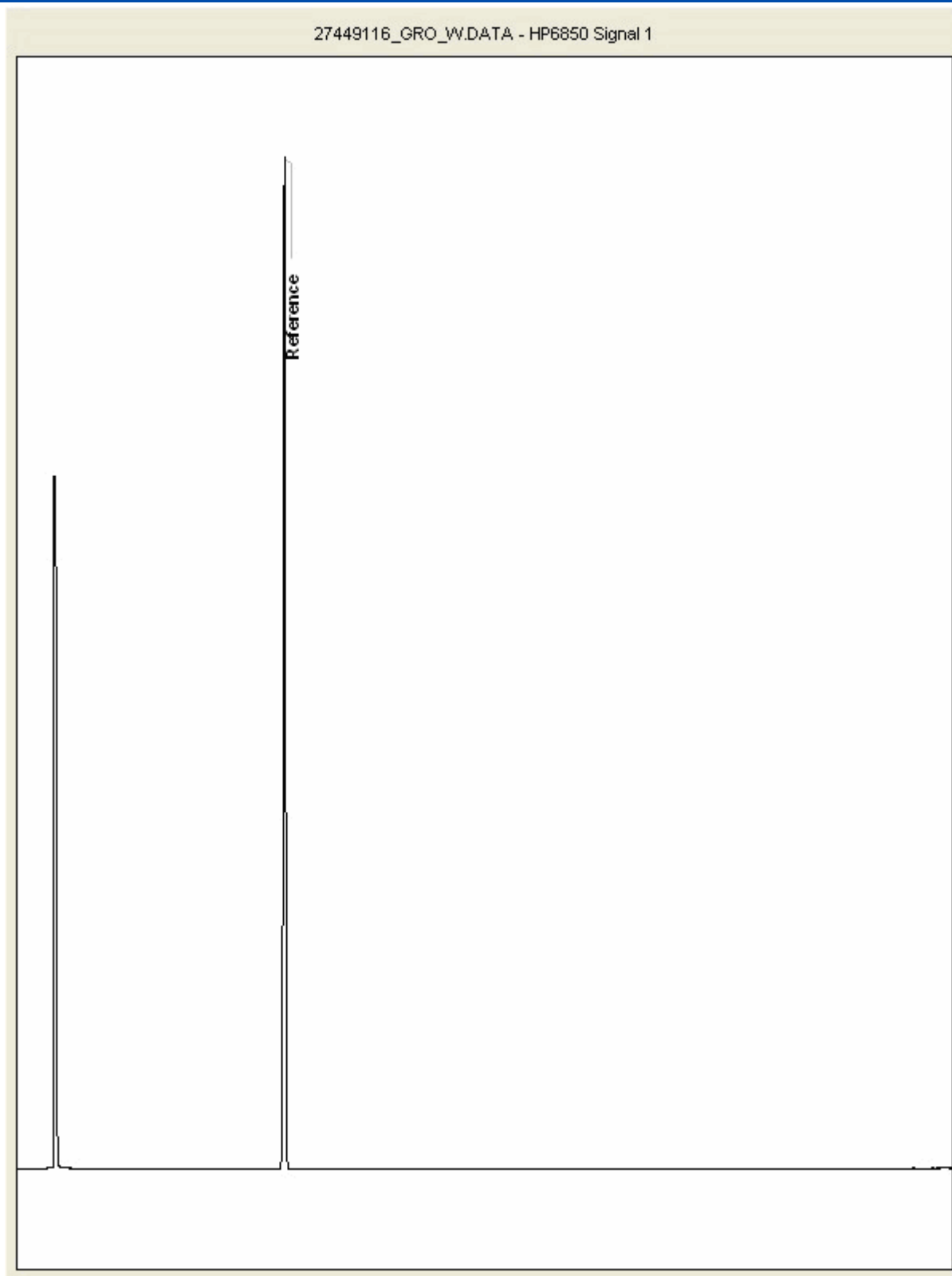
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27449116
Sample ID : NACW 229

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

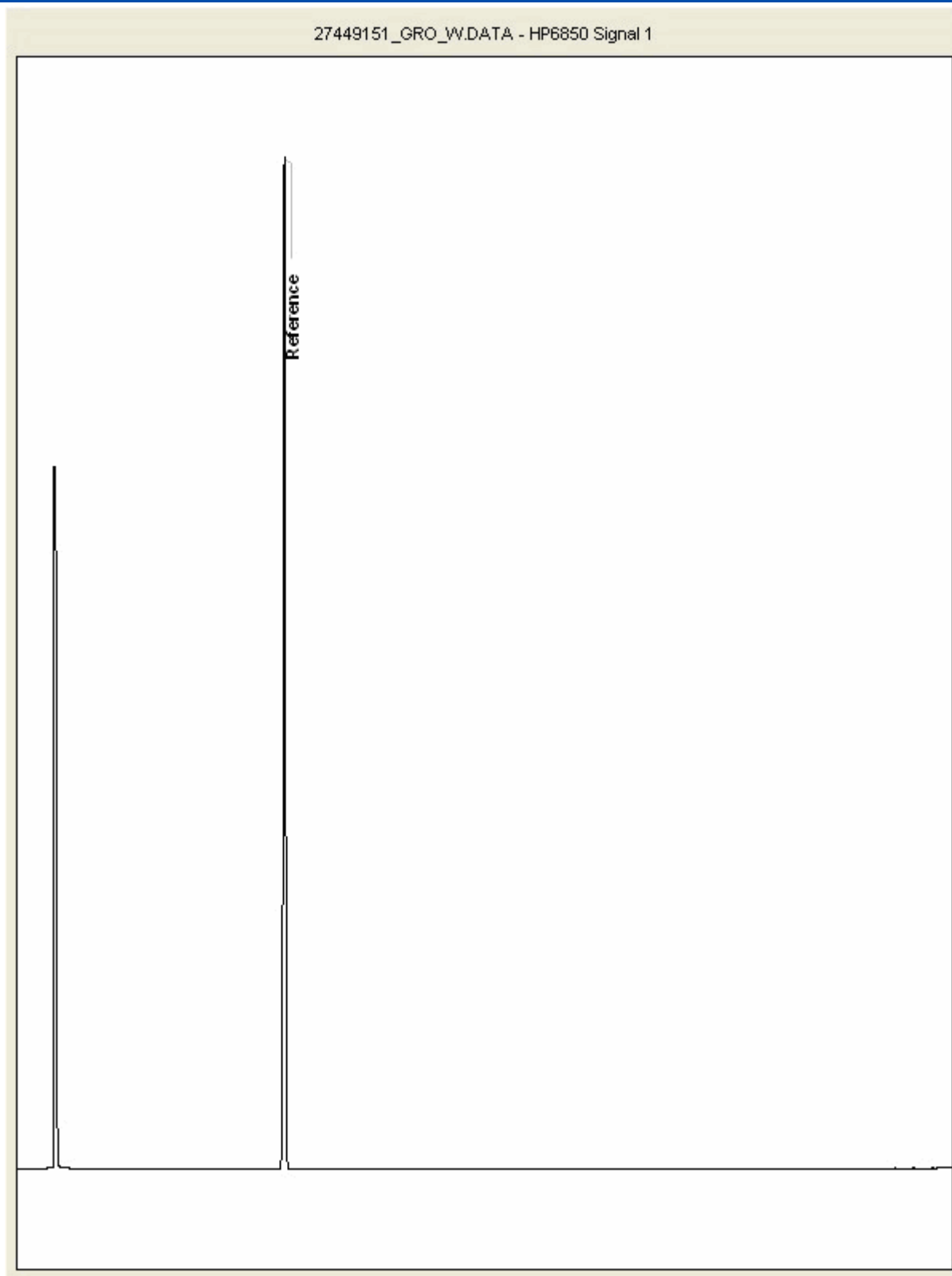
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27449151
Sample ID : NACW 212

Depth :





CERTIFICATE OF ANALYSIS

Validated

SDG: 230112-55
Client Ref.:

Report Number: 679393
Location: Nantycaws Landfill

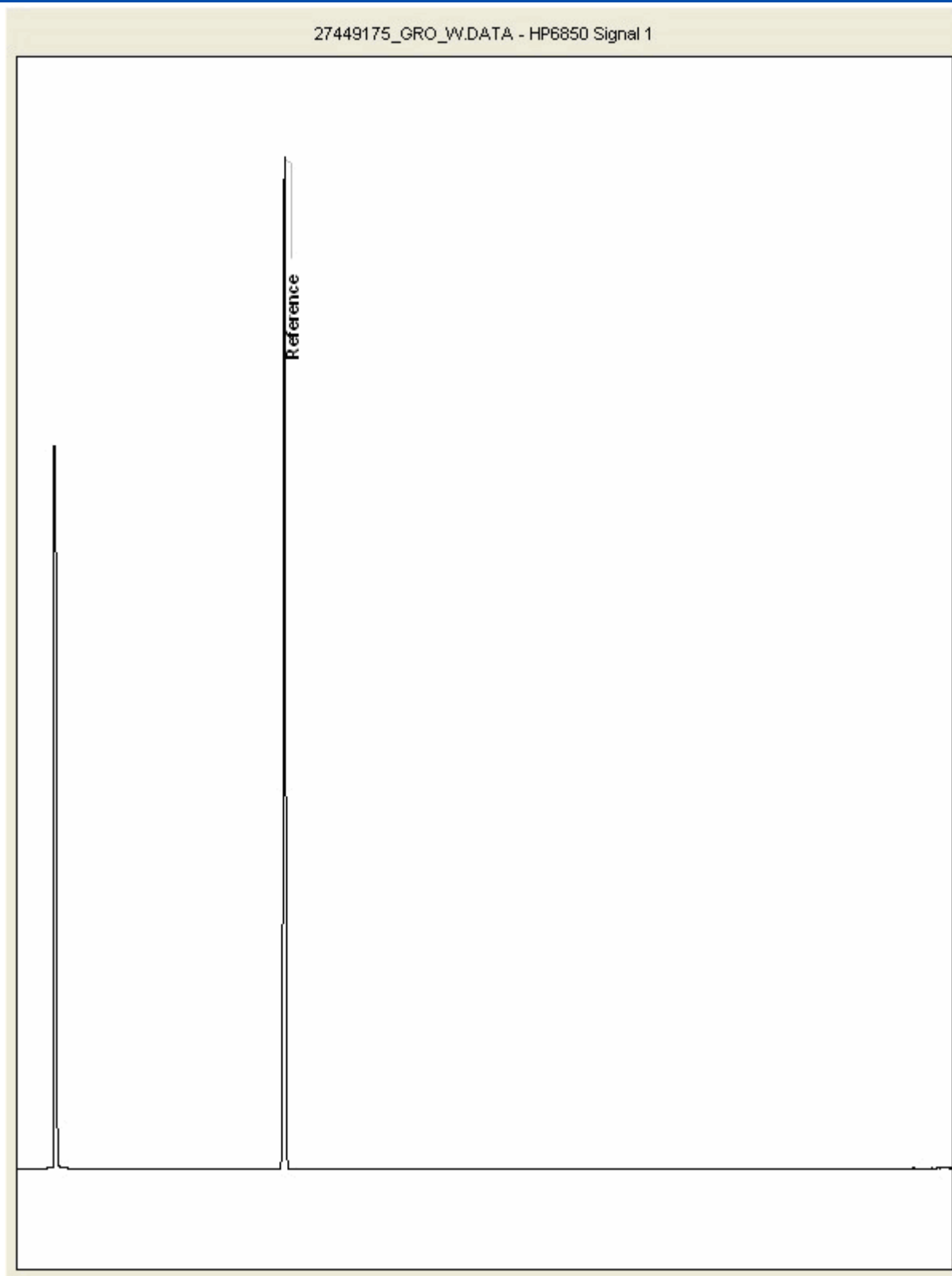
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 27449175
Sample ID : BH 319

Depth :



Certificate of Analysis

Report No.: 23-00823-1

Issue No.: 1

Date of Issue 20/02/2023

Customer Details: ALS Laboratories (UK) Ltd, Unit7-8, Hawarden Business Park, Manor Road, Hawarden, Deeside, Flintshire, CH5 3US,

Customer Contact: Results mailbox

Customer Order No.: 230112-55

Customer Reference: Not Supplied

Quotation Reference: Q23-00908 (Issue: 1)

Description: 6 liquid samples

Date Received: 01/02/2023

Date Started: 15/02/2023

Date Completed: 17/02/2023

Test Methods: Details available on request (refer to SOP code against relevant result/s)

Notes: None



Approved By: David Long, LIMS Manager

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service.

This certificate shall not be reproduced except in full without the prior written approval of the laboratory.

Observations and interpretations are outside of the scope of UKAS accreditation.

Results reported herein relate only to the items supplied to the laboratory for testing.

Results on an Interim Report are not dry-weight corrected.

Where the laboratory is not responsible for the sampling, results apply to the sample(s) as they were received.

The laboratory shall not be responsible for any information that is supplied by the customer that may affect the validity of results.

rpsgroup.com

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13 St Martins Way, Bedford, Bedfordshire, MK42 0LF. T +44 1462 480 400

A member of the RPS Group plc. Terms and conditions apply - copy on request

Results Summary

Report No.: 23-00823-1

Customer Reference: Not Supplied

Customer Order No: 230112-55

Customer Sample No	27481136 CELL 1-2	27481139 CELL 3-4	27481127 CELL 5	27481091 CELL 6	27481089 CELL 7	27481087 LEACHATE HOLDING LAGOON
RPS Sample No	13447	13448	13449	13450	13451	13452
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Sample Matrix	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE	LEACHATE
Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Determinand	CAS No	Codes	SOP	RL	Units	
chloroxuron	1982-47-4	N	L005	0.05	µg/L	< 0.50 (TXH)
chlorotoluron	15545-48-9	N	L005	0.05	µg/L	< 0.50 (TXH)
diflufenzuron	35367-38-5	N	L005	0.05	µg/L	< 0.50 (TXH)
dimefuron	34205-21-5	N	L005	0.05	µg/L	< 0.50 (TXH)
diuron	330-54-1	N	L005	0.05	µg/L	< 0.50 (TXH)
isoproturon	34123-59-6	N	L005	0.05	µg/L	< 0.50 (TXH)
linuron	330-55-2	N	L005	0.05	µg/L	< 0.50 (TXH)
methabenzthiazuron	18691-97-9	N	L005	0.05	µg/L	< 0.50 (TXH)
metoxuron	19937-59-8	N	L005	0.05	µg/L	< 0.50 (TXH)
monolinuron	1746-81-2	N	L005	0.05	µg/L	< 0.50 (TXH)
monuron	150-68-5	N	L005	0.05	µg/L	< 0.50 (TXH)
pencycuron	66063-05-6	N	L005	0.05	µg/L	< 0.50 (TXH)

Comments

Report No.: 23-00823-1

Customer Reference: Not Supplied

Customer Order No: 230112-55

RPS Sample Number	Customer Number	Sample Comments
13447	27481136 CELL 1-2	Reporting limits have been raised where necessary due to matrix interference
13448	27481139 CELL 3-4	Reporting limits have been raised where necessary due to matrix interference
13449	27481127 CELL 5	Reporting limits have been raised where necessary due to matrix interference
13450	27481091 CELL 6	Reporting limits have been raised where necessary due to matrix interference
13451	27481089 CELL 7	Reporting limits have been raised where necessary due to matrix interference
13452	27481087 LEACHATE HOLDING LAGOON	Reporting limits have been raised where necessary due to matrix interference

Deviating Samples

Report No.: 23-00823-1

Customer Reference: Not Supplied

Customer Order No: 230112-55

Our policy on Deviating Samples has been implemented in accordance with UKAS Policy on Deviating Samples (TPS63).

RPS is not responsible for the integrity of samples as received, unless RPS personnel performed the sampling. Samples submitted may be declared to be deviating.

Where applicable the analysis method remains UKAS accredited, however results reported for a deviating sample may be compromised.

Where no sampling date was supplied, samples have been declared to be deviating. If the date can be supplied, results may be reissued if assessed not deviating.

Where the sample container used was unsuitable or broken, the sample is flagged as deviating and re-sampling/re-submission may be required.

RPS No.	Customer No.	Customer ID	Date Sampled	Containers Received	Deviating	Reason for Deviation
13447	27481136 CELL 1- 2		26/01/2023	GGB500 500 mL green glass bottle	Yes	No sampling time provided. Holding time exceeded (sampling to extraction). Holding time exceeded (sampling to receipt).
13448	27481139 CELL 3- 4		26/01/2023	GGB500 500 mL green glass bottle	Yes	No sampling time provided. Holding time exceeded (sampling to extraction). Holding time exceeded (sampling to receipt).
13449	27481127 CELL 5		26/01/2023	GGB500 500 mL green glass bottle	Yes	No sampling time provided. Holding time exceeded (sampling to extraction). Holding time exceeded (sampling to receipt).
13450	27481091 CELL 6		26/01/2023	GGB500 500 mL green glass bottle	Yes	No sampling time provided. Holding time exceeded (sampling to extraction). Holding time exceeded (sampling to receipt).
13451	27481089 CELL 7		26/01/2023	GGB500 500 mL green glass bottle	Yes	No sampling time provided. Holding time exceeded (sampling to extraction). Holding time exceeded (sampling to receipt).
13452	27481087 LEACHATE HOLDING LAGOON		26/01/2023	GGB500 500 mL green glass bottle	Yes	No sampling time provided. Holding time exceeded (sampling to extraction). Holding time exceeded (sampling to receipt).

Report No.: 23-00823-1

Key Code	Description
N	Not Accredited Test
U	UKAS Accredited Test - UKAS accreditation is only implied if the report carries the UKAS logo
UF	UKAS Flexible Scope Test
M	MCERTS Accredited Test - MCERTS accreditation is only implied if the report carries the MCERTS logo
O	Marine Management Organisation (MMO) Validated
SN	Subcontracted to approved laboratory not accredited for the test
SU	Subcontracted to approved laboratory UKAS Accredited for the test
SM	Subcontracted to approved laboratory MCERTS/UKAS Accredited for the test
SIN	Subcontracted to internal RPS Group laboratory not accredited for the test
SIU	Subcontracted to internal RPS Group laboratory UKAS Accredited for the test
SIM	Subcontracted to internal RPS Group laboratory MCERTS/UKAS Accredited for the test
I/S (in results)	Insufficient Sample
U/S (in results)	Unsuitable Sample
S/C (in results)	See Comments
ND (in results)	Not Detected
L (in results)	Result is outside normal limits
DW (in units)	Results are expressed on a dry weight basis

Sample Type	Sample Retention and Disposal Period
Foodstuff	1 month (if frozen) from the issue date of this report
Waters	2 weeks from the issue date of this report
Other Liquids	1 month from the issue date of this report
Solids / Soils	1 month from the issue date of this report
Sediments	1 month from the issue date of this report

Note: Sample retention may be subject to agreement with the customer for particular projects

Dev code	Description
D	No sampling date provided.
T	No sampling time provided.
Z	Temperature of samples exceeded in transit/storage.
V	Excessive headspace for volatile determinands.
P	Sample submitted without required preservative(s).
C	Incorrect container.
H	Holding time exceeded (sampling to extraction).
X	Holding time exceeded (sampling to receipt).

Note: Where the following information is included in this certificate, it has usually been supplied by the customer: Customer Sample ID, Sample Location, Sample Depth, Sampling Date and Sampling Time. The laboratory shall not be responsible for any information that is supplied by the customer that may affect the validity of results.



CERTIFICATE OF ANALYSIS

SDG: 230112-55
Client Ref:

Report Number: 679393
Location: Nantycaws Landfill

Superseded Report:

Appendix

General

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

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

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

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

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

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

7. Results relate only to the items tested.

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

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

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

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

12. 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.

19. Sample Deviations

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

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

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

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

Visual Estimation Of Fibre Content

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

Respirable Fibres

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

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

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



APPENDIX B – NOTES ON HAZARDOUS LIST 1 SUBSTANCES

NANTYCAWS LANDFILL SITE
NOTE ON ANNUAL MONITORING SUITES AND PROPOSED 'LIST 1 SCREEN'

Introduction

The following note has been prepared by WSP on behalf of CWM Environmental (CWM). It proposes which parameters should be included within the Hazardous 'List 1' Substances screen required to be undertaken at the monitoring locations at Nantycaws Landfill Site (the site) on an annual frequency. The recommendations made are based on review of the results of previous List 1 screens, undertaken annually between 2010 and 2022.

It should be noted that not all the analysis listed below was completed in 2022 due to a misunderstanding and change in management at the laboratory. This is discussed in the annual report¹ submitted to NRW. The monitoring samples for all monitoring locations submitted in January 2023 have undergone a full Hazardous List 1 Screen suite and the results provided to the regulator as an addendum to the annual report.

List I Screen

The existing Environmental Permit for the site (Ref CP3735PB v.004, 23 September 2009) states that a 'Hazardous List 1 screen' is to be undertaken on an annual basis at all leachates, groundwater and surface water monitoring locations included within the permit. It further states that the analysis to be included within the Hazardous List 1 Substances screen is to be defined through liaison with NRW.

In 2022 the following parameter groupings were included within the Hazardous List 1 Substances screen as detailed below. These are based on the suites analysed by ALS, the existing certified laboratory:

Leachate and Underdrainage

- Metals (including cadmium);
- Petroleum hydrocarbons, comprising:
 - speciated total petroleum hydrocarbons (TPH); and
 - benzene, ethylbenzene, toluene and xylenes (BTEX);
- Semi-volatile organic compounds (SVOCs), including 4-methylphenol and speciated polycyclic aromatic hydrocarbons (PAH);
- Phenylurea herbicides;
- Phenoxyacid herbicides;
- Polychlorinated biphenyls (PCBs);
- Phenols (including 4-methylphenol);
- Volatile organic hydrocarbons (VOCs), including BTEX;
- Cyanides; and
- Organochlorine pesticides (OCPS).

Groundwater

- Metals (including cadmium);
- Petroleum hydrocarbons, comprising:
 - banded total petroleum hydrocarbons (TPH); and (if detected)
 - benzene, ethylbenzene, toluene and xylenes (BTEX);
- Speciated polycyclic aromatic hydrocarbons (PAH);
- Phenoxyacid herbicides;
- Phenols (including 4-methylphenol);
- BTEX(as a screen for VOCs) *

NANTYCAWS LANDFILL SITE
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Surface water

- Metals (including cadmium);
- Benzene, ethylbenzene, toluene and xylenes (BTEX);
- Speciated polycyclic aromatic hydrocarbons (PAH);
- Phenoxyacid herbicides;
- Phenols (including 4-methylphenol);
- BTEX (as a screen for VOCs)*

* Should detections of any of the excluded suites in groundwater be recorded in any of the underdrainage samples, confirmatory analysis will be undertaken.

Proposed List 1 Screen

The following analytical suites are proposed for inclusion in the Hazardous List 1 Substances screen for October 2023, based on review of the analytical results undertaken between 2010 and 2022. The results are summarised in Table 1 below.

This is identical to that undertaken in 2021.

NANTYCAWS LANDFILL SITE
NOTE ON ANNUAL MONITORING SUITES AND PROPOSED 'LIST 1 SCREEN'

Table 1 October 2022 and January 2023 monitoring suite

Suites	Leachate	Under drainage	Ground water / Surface water	Comment
Cyanides	Y	Y	N	Occasionally detected in source but not detected in underdrainage, groundwater or surface water since 2009.
Physiochemical Parameters	Y	Y	Y	Most physiochemical parameters to be kept with the exception of TOC and COD
Major ions / Nutrients	Y	Y	Y	Major ions to be kept as per current annual suite
Metals	Y	Y	Y	All metals to be kept as per current annual suite
Alkaline and alkali earth metals plus iron	Y	Y	Y	
Phenols	Y	Y	Y	Including 4-methylphenol, a COC. Included as List I screen for all media
Phenoxyacid herbicides	Y	Y	Y	Includes mecoprop, a COC. Included as List I screen for all media
Phenylurea herbicides	Y	Y	N	Substances commonly detected in leachate, however not detected as principal risk drivers. No detections of these substances in underdrainage, groundwater or surface water since 2009
PCBs	Y	Y	N	PCBs were detected in the leachate in 2011 and in 2013. PCBs are included in the revised HRA with PCB congener 28 as an indicator / surrogate No detections in 2014 but some detections in leachate in 2013.
SVOCs (inc PAH)	Y	Y	N*	SVOC suite TM176 to be included for leachates and underdrainage samples. *Groundwater samples to be run for PAHs (TM178) only. 4-methylphenol to be covered by phenol suite (TM205)
TPH	Y	Y	N*	Speciated TPH to be retained within List I suite for leachate provided no evidence of free phase is recorded. *Banded TPH to be used for groundwater, followed by BTEX analysis if detected.
VOC (Target List)	Y	Y	N*	Leachate and underdrainage to be analysed for full VOC suite (TM208). *Groundwater boreholes only to be analysed for BTEX (TM208) where TPH detections confirmed by banded TPH screen