Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
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Newport City Council
Civic Centre
Newport
NP20 4UR

Attention: Luke Embrey

CERTIFICATE OF ANALYSIS

Date of report Generation:	09 July 2021
Customer:	Newport City Council
Sample Delivery Group (SDG):	210625-103
Your Reference:	June GW 2021 P2
Location:	Newport landfill
Report No:	605020

This report has been revised and directly supersedes 604774 in its entirety.

We received 5 samples on Friday June 25, 2021 and 5 of these samples were scheduled for analysis which was completed on Friday July 09, 2021. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

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

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

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.
Incorrect sampling dates and/or sample information will affect the validity of results.

Approved By:

Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
24513258	GW06_13		0.00 - 0.00	23/06/2021
24513146	GW06_34		0.00 - 0.00	23/06/2021
24513209	GW06_36		0.00 - 0.00	23/06/2021
24513236	GW06_37		0.00 - 0.00	23/06/2021
24513175	GW09_35		0.00 - 0.00	23/06/2021

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

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

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)			24513258								24513146								24513209				
Customer Sample Reference			GW06_13								GW06_34								GW06_36				
AGS Reference																							
Depth (m)			0.00 - 0.00								0.00 - 0.00								0.00 - 0.00				
Container			0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 5			X								X								X		
Alkalinity Filtered as CaCO3	All	NDPs: 0 Tests: 5			X								X								X		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 5				X								X								X	
Anions by Kone (w)	All	NDPs: 0 Tests: 5			X								X								X		
BOD True Total	All	NDPs: 0 Tests: 5		X								X								X			
COD Unfiltered	All	NDPs: 0 Tests: 5		X								X								X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 5			X								X								X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 5						X								X							
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5					X								X								X
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 5	X								X								X				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 5							X								X						
Ionic Balance	All	NDPs: 0 Tests: 5			X								X								X		
Nitrite by Kone (w)	All	NDPs: 0 Tests: 5						X								X							
pH Value	All	NDPs: 0 Tests: 5			X								X								X		
Phosphate by Kone (w)	All	NDPs: 0 Tests: 5			X								X								X		

24513175	GW09_35		0.00 - 0.00	ZnAc (ALE246)	GW	
				Vial (ALE297)	GW	
				NaOH (ALE245)	GW	
				HNO3 Filtered (ALE204)	GW	
				H2SO4 (ALE244)	GW	
				500ml Plastic (ALE208)	GW	X
				250ml BOD (ALE212)	GW	
				0.5l glass bottle (ALE227)	GW	
24513236	GW06_37		0.00 - 0.00	ZnAc (ALE246)	GW	
				Vial (ALE297)	GW	
				NaOH (ALE245)	GW	
				HNO3 Filtered (ALE204)	GW	
				H2SO4 (ALE244)	GW	
				500ml Plastic (ALE208)	GW	X
				250ml BOD (ALE212)	GW	
				0.5l glass bottle (ALE227)	GW	
24513209	GW06_36		0.00 - 0.00	ZnAc (ALE246)	GW	
				Vial (ALE297)	GW	
				NaOH (ALE245)	GW	

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

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)										24513258								24513146								24513209
Customer Sample Reference										GW06_13								GW06_34								GW06_36
AGS Reference																										
Depth (m)										0.00 - 0.00								0.00 - 0.00								0.00 - 0.00
Container										0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)
Sample Type										GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Sulphide	All	NDPs: 0 Tests: 5															X								X					
TOC (Filtered)*	All	NDPs: 0 Tests: 5								X								X								X				
Total EPH (aq)	All	NDPs: 0 Tests: 5								X								X								X				
VOC MS (W)	All	NDPs: 0 Tests: 5														X								X						

24513175	GW09_35		0.00 - 0.00	ZnAc (ALE246)	GW		x						
				Vial (ALE297)	GW								x
				NaOH (ALE245)	GW								
				HNO3 Filtered (ALE204)	GW								
				H2SO4 (ALE244)	GW								
				500ml Plastic (ALE208)	GW								
				250ml BOD (ALE212)	GW								
				0.5l glass bottle (ALE227)	GW				x		x		
24513236	GW06_37		0.00 - 0.00	ZnAc (ALE246)	GW		x						
				Vial (ALE297)	GW								x
				NaOH (ALE245)	GW								
				HNO3 Filtered (ALE204)	GW								
				H2SO4 (ALE244)	GW								
				500ml Plastic (ALE208)	GW								
				250ml BOD (ALE212)	GW								
				0.5l glass bottle (ALE227)	GW				x		x		
24513209	GW06_36		0.00 - 0.00	ZnAc (ALE246)	GW		x						
				Vial (ALE297)	GW								x
				NaOH (ALE245)	GW								

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW06_13	GW06_34	GW06_36	GW06_37	GW09_35
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	23/06/2021	23/06/2021	23/06/2021	23/06/2021	23/06/2021
			Sampled Time	.	.	.	.	.
			Date Received	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021
			SDG Ref	210625-103	210625-103	210625-103	210625-103	210625-103
			Lab Sample No.(s)	24513258	24513146	24513209	24513236	24513175
			AGS Reference					
Ionic balance	% Diff	Calulation		-11.1	-6.81	-11.9	-1.73	-4.41
Dissolved Organic Carbon, as C*	<0.7 mg/l	SUB		13.2	11.1	11.3	14.2	10
Alkalinity, Total as CaCO3	<2 mg/l	TM043		1050 #	595 #	945 #	900 #	932 #
Alkalinity,Total as CaCO3 (diss.filt)	<2 mg/l	TM043		1040	610	950	890	950
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043		1040	580	950	890	950
BOD, unfiltered	<1 mg/l	TM045		<1 #	<3 #	<1 #	<1 #	<1 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		18.4 #	8.86 #	11.1 #	20.2 #	14.8 #
Sulphide	<0.01 mg/l	TM101		1.19 #	1.73 #	0.179 #	0.541 #	0.0524 #
COD, unfiltered	<7 mg/l	TM107		117 #	144 #	129 #	113 #	147 #
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		8.58 #	7.74 #	8.55 #	8.43 #	12.8 #
Arsenic (diss.filt)	<0.5 µg/l	TM152		0.96 #	1.13 #	3.24 #	15 #	0.658 #
Boron (diss.filt)	<10 µg/l	TM152		1500 #	967 #	1170 #	1740 #	1350 #
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		<0.3 #	<0.3 #	<0.3 #	<0.3 #	<0.3 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #
Manganese (diss.filt)	<3 µg/l	TM152		731 #	1940 #	268 #	465 #	291 #
Nickel (diss.filt)	<0.4 µg/l	TM152		0.518 #	0.595 #	1.23 #	0.831 #	<0.4 #
Selenium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #
Zinc (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		1240 #	1160 #	1290 #	1690 #	2280 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		234 #	209 #	196 #	181 #	319 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		64.9 #	49.3 #	59.6 #	54.5 #	72.8 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		114 #	232 #	128 #	55.5 #	240 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.153 #	0.966 #	1.88 #	1.35 #	5.03 #
Hardness, Total as CaCO3	<0.65 mg/l	TM152		1250	1440	1130		
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172		295 #	335 #	312 #	264 #	288 #
Total EPH (C6-C40) (aq)	<100 µg/l	TM172		295	335	312	264	288
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		8.3 #	1.18 #	6.6 #	4.31 #	10.2 #
Sulphate	<2 mg/l	TM184		65.5 #	221 #	47.8 #	75.2 #	107 #
Chloride	<2 mg/l	TM184		2830 #	2710 #	2930 #	2770 #	4680 #

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW06_13	GW06_34	GW06_36	GW06_37	GW09_35
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	23/06/2021	23/06/2021	23/06/2021	23/06/2021	23/06/2021
			Sampled Time	.	.	.	.	.
			Date Received	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021
			SDG Ref	210625-103	210625-103	210625-103	210625-103	210625-103
			Lab Sample No.(s)	24513258	24513146	24513209	24513236	24513175
			AGS Reference					
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	<0.3	<0.3	<0.3	<0.3
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Cyanide, Total	<0.05 mg/l	TM227		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
pH	<1 pH Units	TM256		7.92 #	7.58 #	8.04 #	7.91 #	7.66 #

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

GRO by GC-FID (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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@	Sample deviation (see appendix)

Customer Sample Ref.	GW06_13	GW06_34	GW06_36	GW06_37	GW09_35
Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled	23/06/2021	23/06/2021	23/06/2021	23/06/2021	23/06/2021
Sampled Time	.	.	.	.	.
Date Received	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021
SDG Ref	210625-103	210625-103	210625-103	210625-103	210625-103
Lab Sample No.(s)	24513258	24513146	24513209	24513236	24513175
AGS Reference					

Component	LOD/Units	Method					
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<7 µg/l	TM245	<7 #	<7 #	<7 #	<7 #	<7 #
Toluene	<4 µg/l	TM245	<4 #	<4 #	<4 #	9 #	<4 #
Ethylbenzene	<5 µg/l	TM245	<5 #	<5 #	<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245	<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245	<3 #	<3 #	<3 #	<3 #	<3 #
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28
GRO >C5-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10
EPH (C6-C10)	<100 µg/l	TM245	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

VOC MS (W)

Results Legend

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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@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW06_13	GW06_34	GW06_36	GW06_37	GW09_35
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	23/06/2021	23/06/2021	23/06/2021	23/06/2021	23/06/2021
			Sampled Time	.	.	.	.	.
			Date Received	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021
			SDG Ref	210625-103	210625-103	210625-103	210625-103	210625-103
			Lab Sample No.(s)	24513258	24513146	24513209	24513236	24513175
			AGS Reference					
Dibromofluoromethane**	%	TM208		108	113	112	109	114
Toluene-d8**	%	TM208		101	101	101	98.7	101
4-Bromofluorobenzene**	%	TM208		92.2	94.7	95.4	92.8	96.7
Dichlorodifluoromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Chloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Vinyl chloride	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Bromomethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Chloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Trichlorofluoromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Carbon disulphide	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Dichloromethane	<3 µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1
Bromochloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Chloroform	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1-Trichloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Carbontetrachloride	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Benzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Trichloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Dibromomethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Bromodichloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	10 #	<1 #
trans-1,3-Dichloropropene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted - refer to subcontractor report for accreditation status.
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery
(F)	Trigger breach confirmed
1-4+$@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW06_13	GW06_34	GW06_36	GW06_37	GW09_35
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	23/06/2021	23/06/2021	23/06/2021	23/06/2021	23/06/2021
			Sampled Time	.	.	.	.	.
			Date Received	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021
			SDG Ref	210625-103	210625-103	210625-103	210625-103	210625-103
			Lab Sample No.(s)	24513258	24513146	24513209	24513236	24513175
			AGS Reference					
1,3-Dichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Styrene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Bromoform	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	GW06_13	GW06_34	GW06_36	GW06_37	GW09_35
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	23/06/2021	23/06/2021	23/06/2021	23/06/2021	23/06/2021
			Sampled Time	.	.	.	.	.
			Date Received	25/06/2021	25/06/2021	25/06/2021	25/06/2021	25/06/2021
			SDG Ref	210625-103	210625-103	210625-103	210625-103	210625-103
			Lab Sample No.(s)	24513258	24513146	24513209	24513236	24513175
			AGS Reference					
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1

Table of Results - Appendix

Method No	Reference	Description
Calulation		
SUB		Subcontracted Test
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

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

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Test Completion Dates

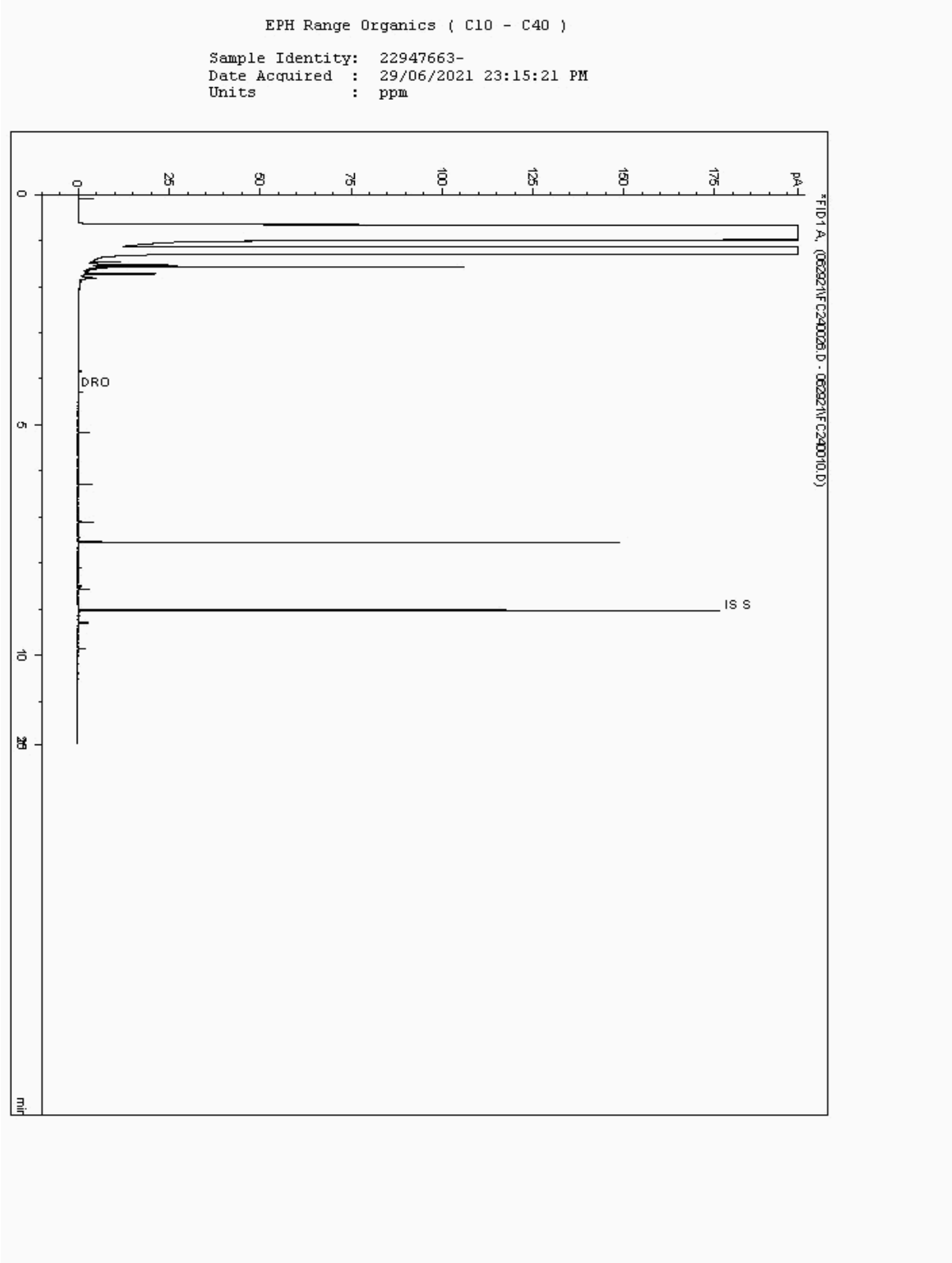
Lab Sample No(s)	24513258	24513146	24513209	24513236	24513175
Customer Sample Ref.	GW06_13	GW06_34	GW06_36	GW06_37	GW09_35
AGS Ref.					
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	02-Jul-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021	02-Jul-2021
Alkalinity Filtered as CaCO3	01-Jul-2021	01-Jul-2021	01-Jul-2021	01-Jul-2021	01-Jul-2021
Ammoniacal Nitrogen	01-Jul-2021	01-Jul-2021	01-Jul-2021	01-Jul-2021	01-Jul-2021
Anions by Kone (w)	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021
BOD True Total	01-Jul-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021
COD Unfiltered	28-Jun-2021	28-Jun-2021	28-Jun-2021	28-Jun-2021	28-Jun-2021
Conductivity (at 20 deg.C)	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021
Cyanide Comp/Free/Total/Thiocyanate	01-Jul-2021	01-Jul-2021	01-Jul-2021	01-Jul-2021	01-Jul-2021
Dissolved Metals by ICP-MS	28-Jun-2021	28-Jun-2021	28-Jun-2021	06-Jul-2021	06-Jul-2021
EPH (DRO) (C10-C40) Aqueous (W)	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021
GRO by GC-FID (W)	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021
Ionic Balance	02-Jul-2021	02-Jul-2021	02-Jul-2021	07-Jul-2021	07-Jul-2021
Nitrite by Kone (w)	28-Jun-2021	28-Jun-2021	28-Jun-2021	28-Jun-2021	28-Jun-2021
pH Value	29-Jun-2021	29-Jun-2021	29-Jun-2021	29-Jun-2021	29-Jun-2021
Phosphate by Kone (w)	28-Jun-2021	28-Jun-2021	28-Jun-2021	28-Jun-2021	28-Jun-2021
Sulphide	29-Jun-2021	29-Jun-2021	29-Jun-2021	29-Jun-2021	29-Jun-2021
TOC (Filtered)*	09-Jul-2021	09-Jul-2021	09-Jul-2021	09-Jul-2021	09-Jul-2021
Total EPH (aq)	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021
VOC MS (W)	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021	30-Jun-2021

CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 24517303 **Sample ID :** GW06_13 **Depth :** 0.00 - 0.00

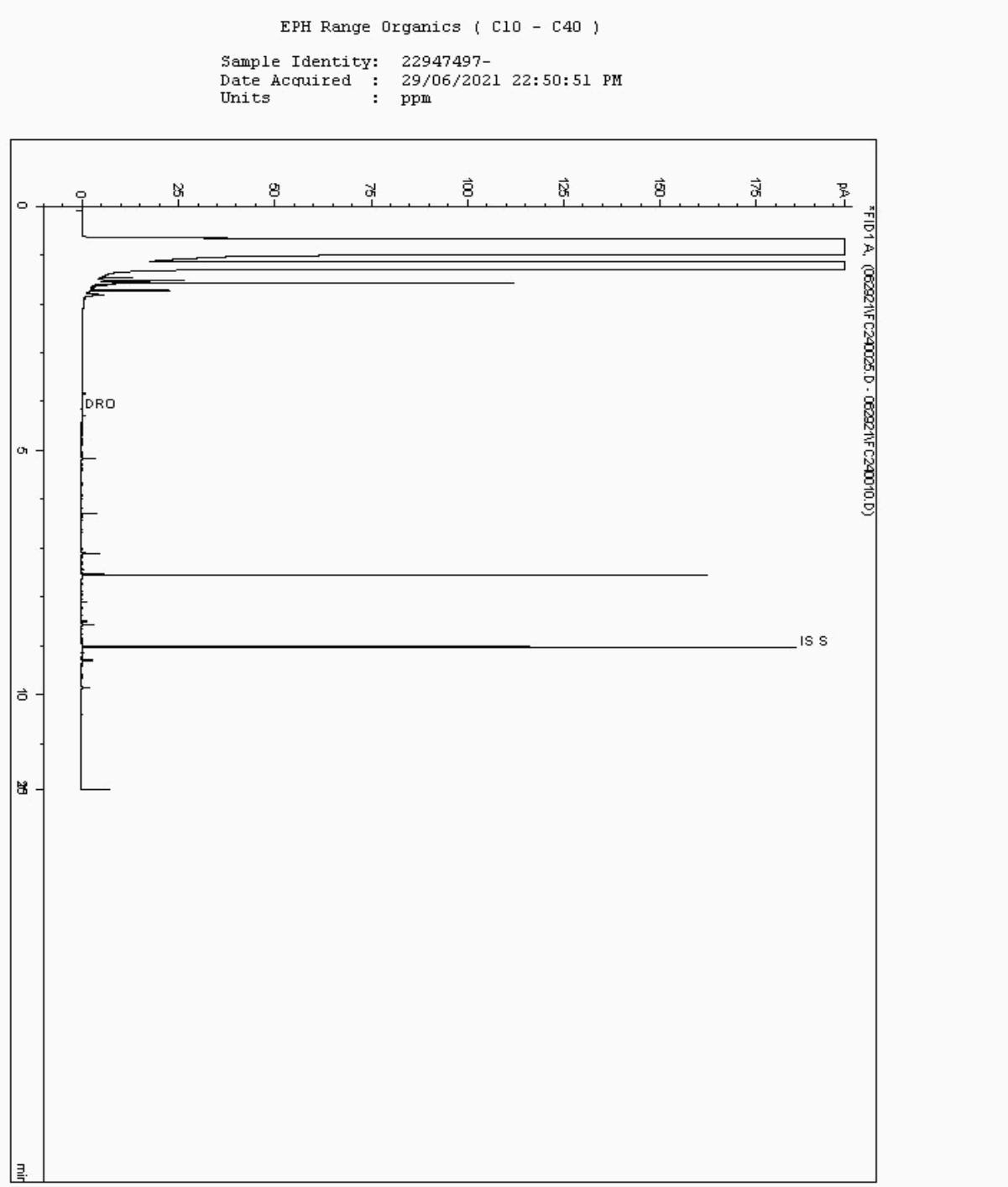


CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 24517317 **Sample ID :** GW09_35 **Depth :** 0.00 - 0.00

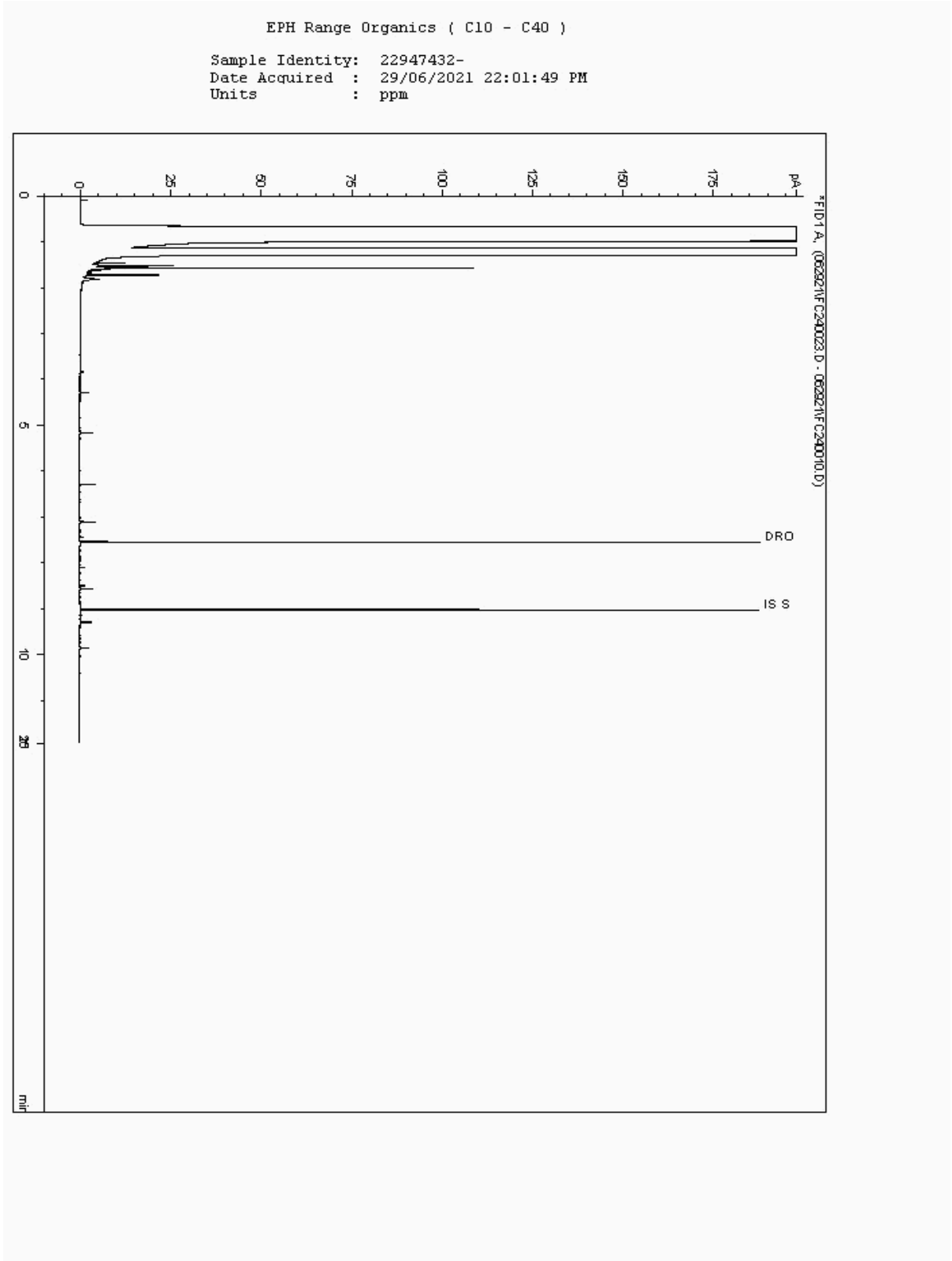


CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 24517329 **Sample ID :** GW06_34 **Depth :** 0.00 - 0.00

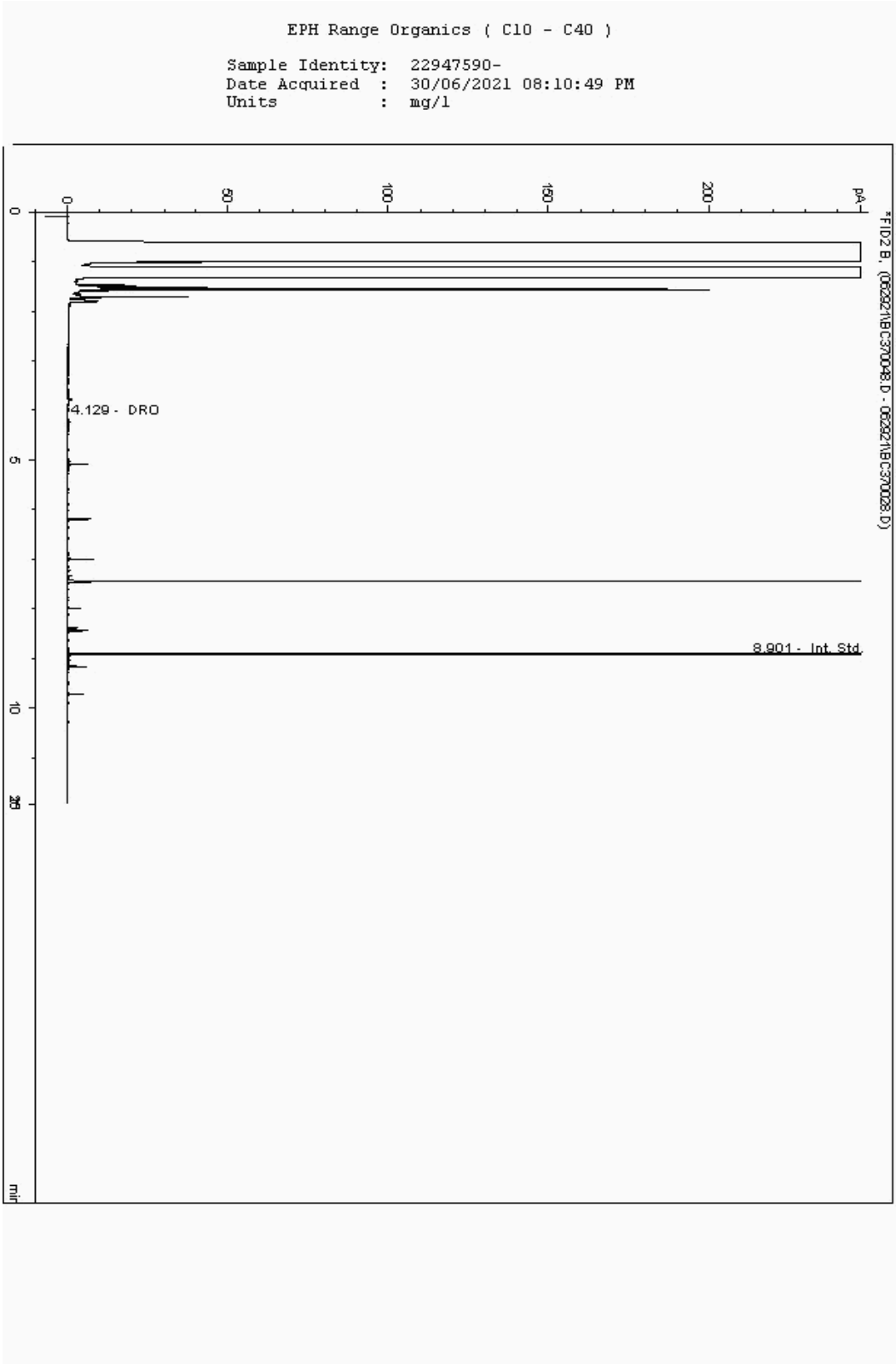


CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 24517340 **Sample ID :** GW06_37 **Depth :** 0.00 - 0.00

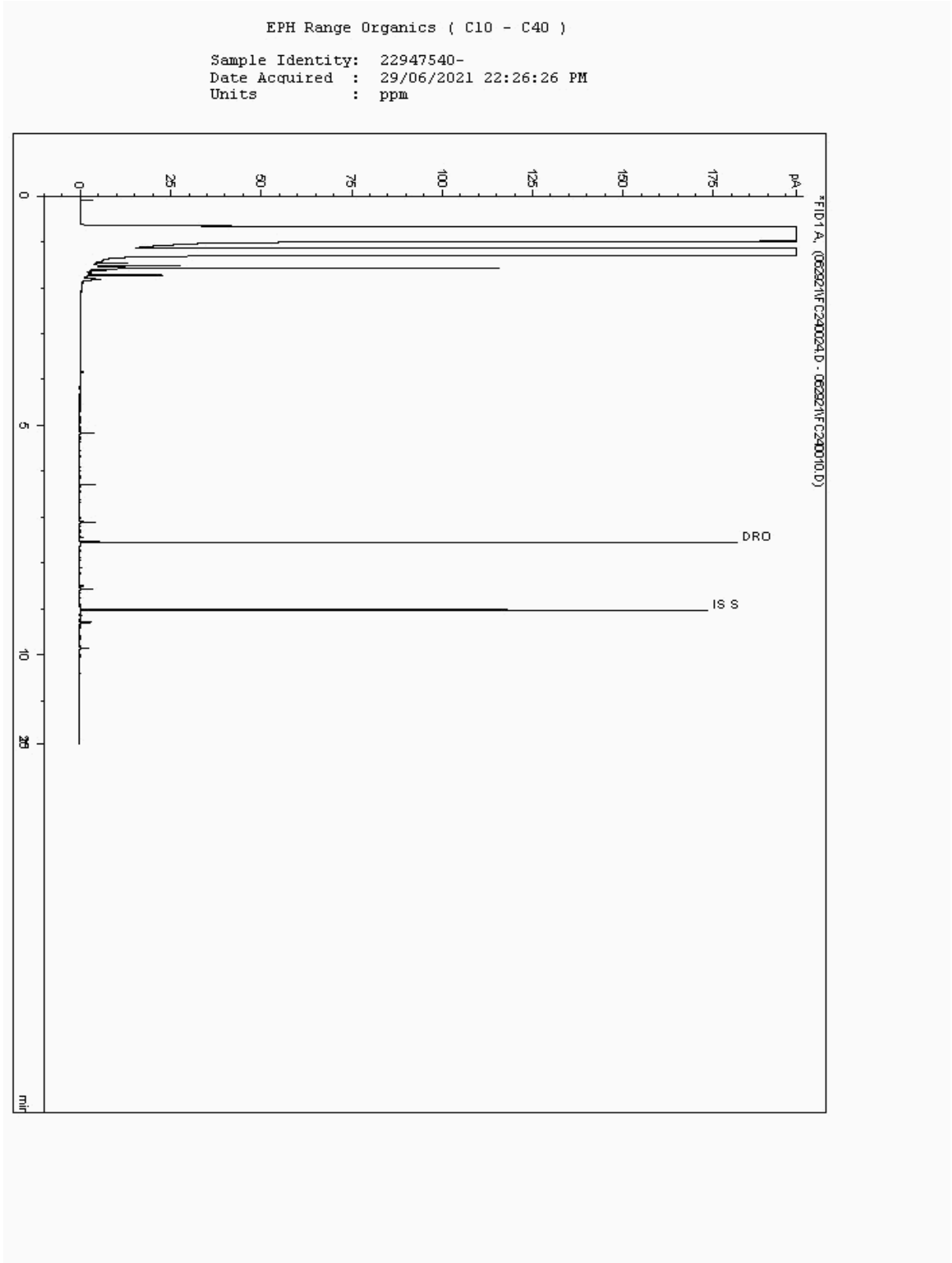


CERTIFICATE OF ANALYSIS

SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 24517349 **Sample ID :** GW06_36 **Depth :** 0.00 - 0.00



CERTIFICATE OF ANALYSIS

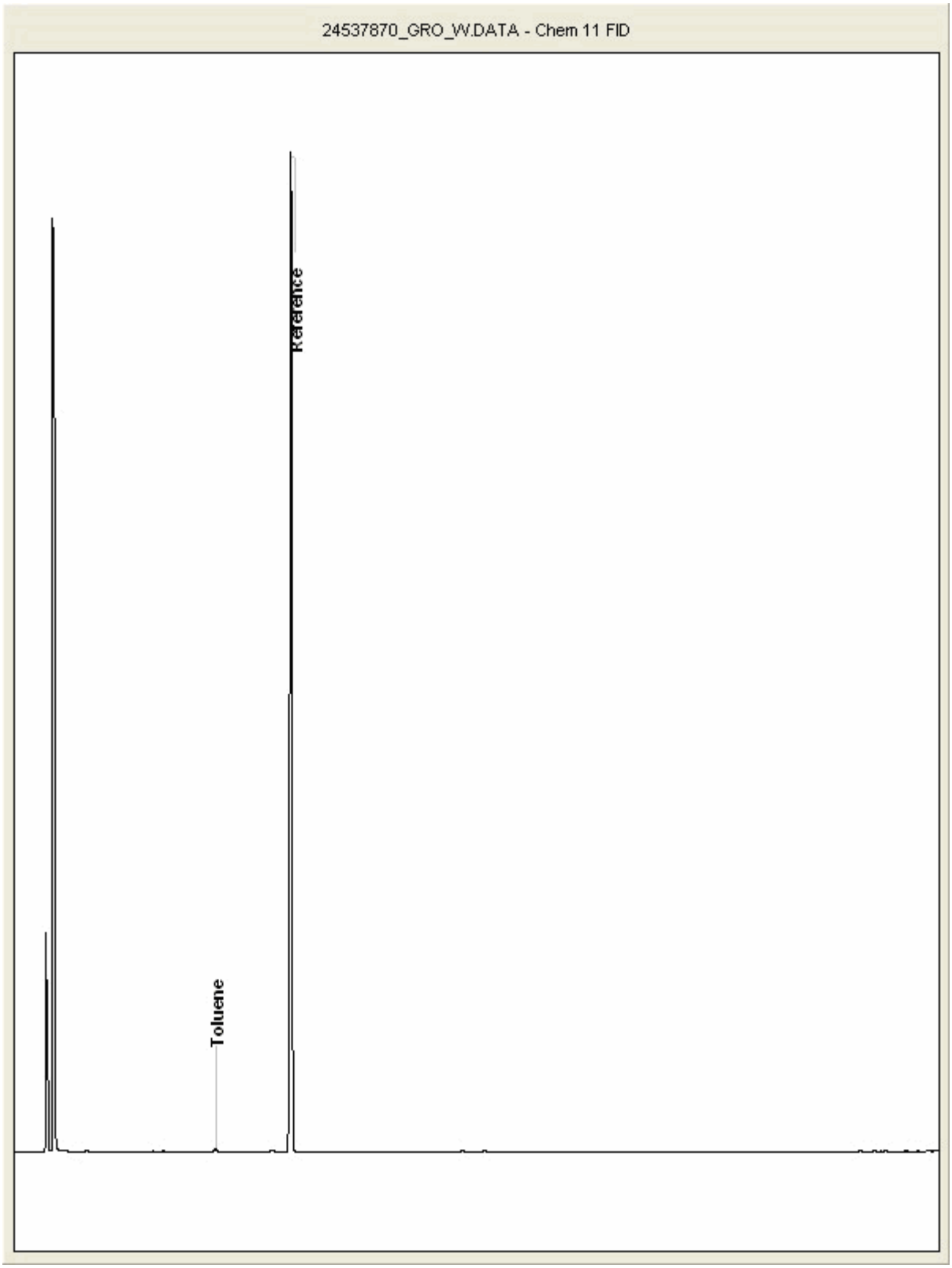
SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 24537870
Sample ID : GW06_37

Depth : 0.00 - 0.00



CERTIFICATE OF ANALYSIS

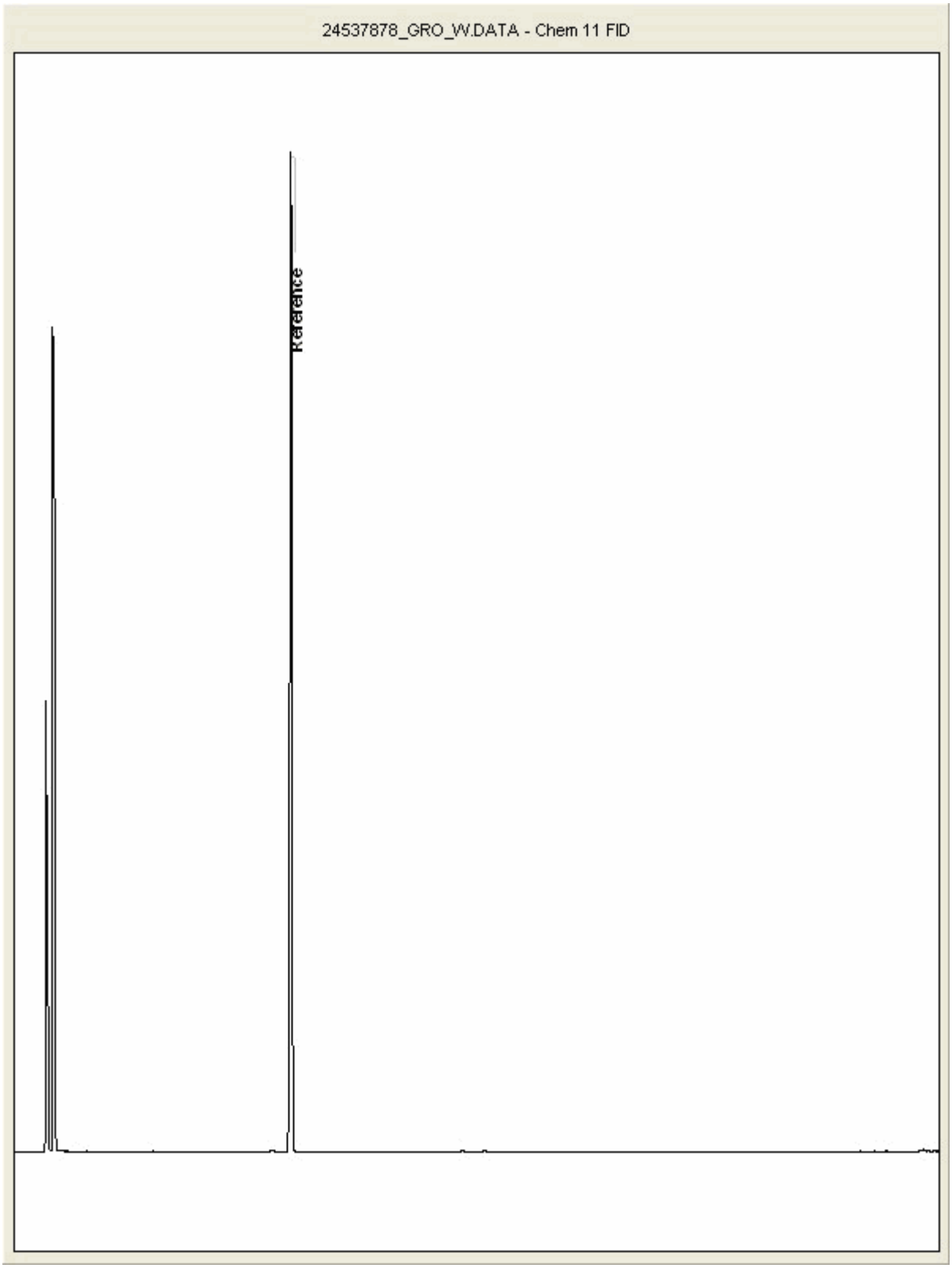
SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 24537878
Sample ID : GW06_13

Depth : 0.00 - 0.00



CERTIFICATE OF ANALYSIS

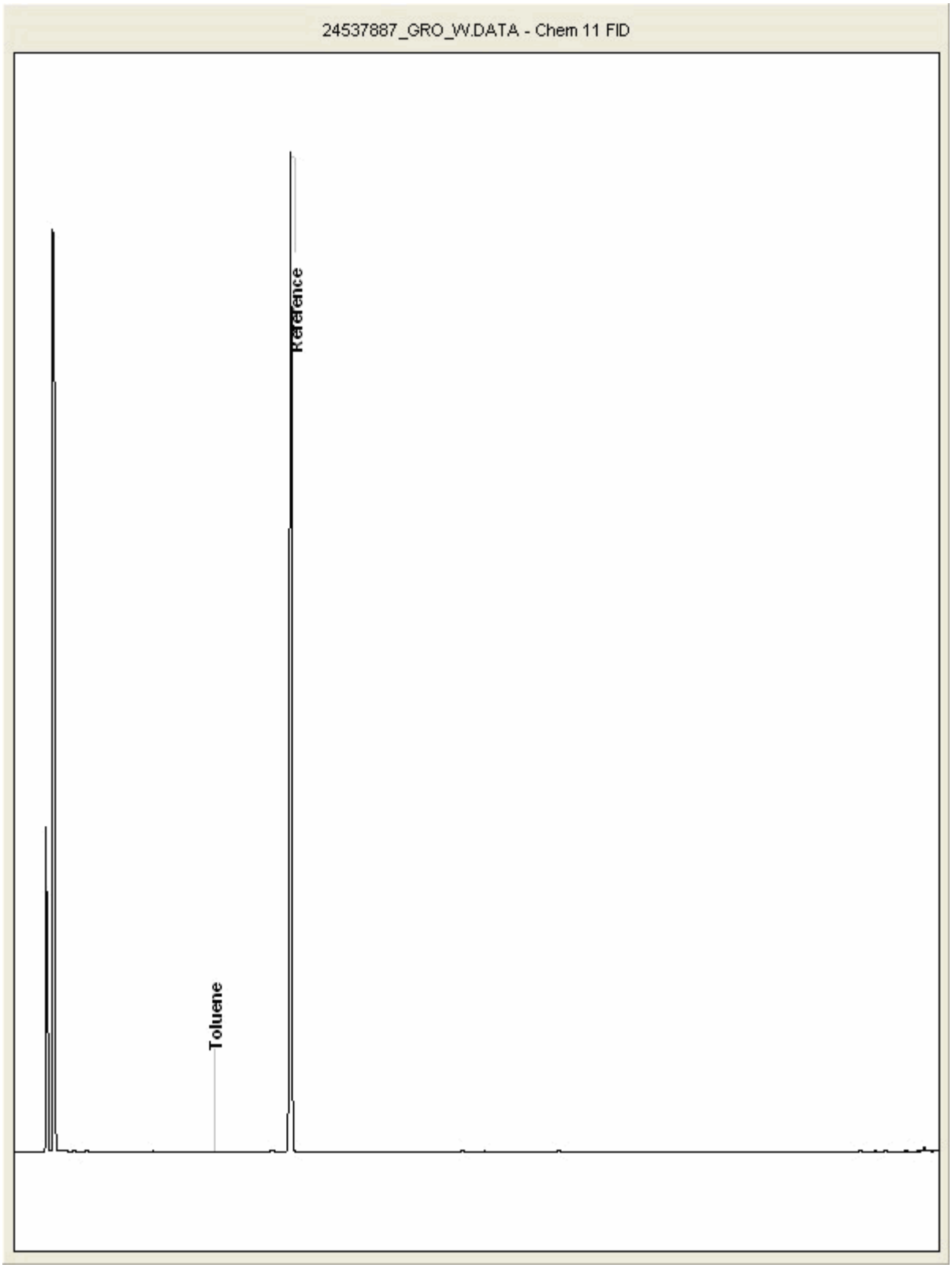
SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 24537887
Sample ID : GW06_36

Depth : 0.00 - 0.00



CERTIFICATE OF ANALYSIS

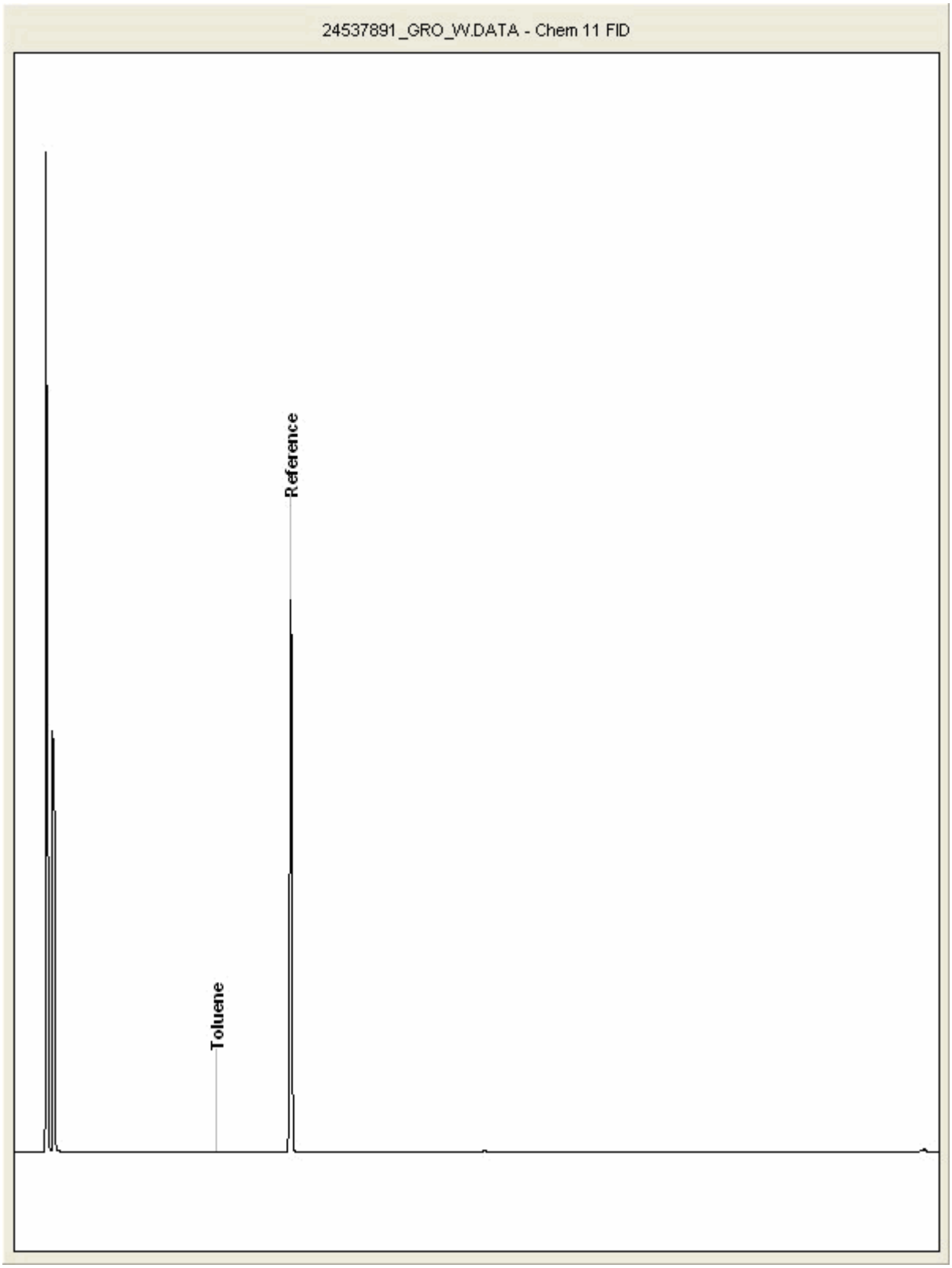
SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 24537891
Sample ID : GW06_34

Depth : 0.00 - 0.00



CERTIFICATE OF ANALYSIS

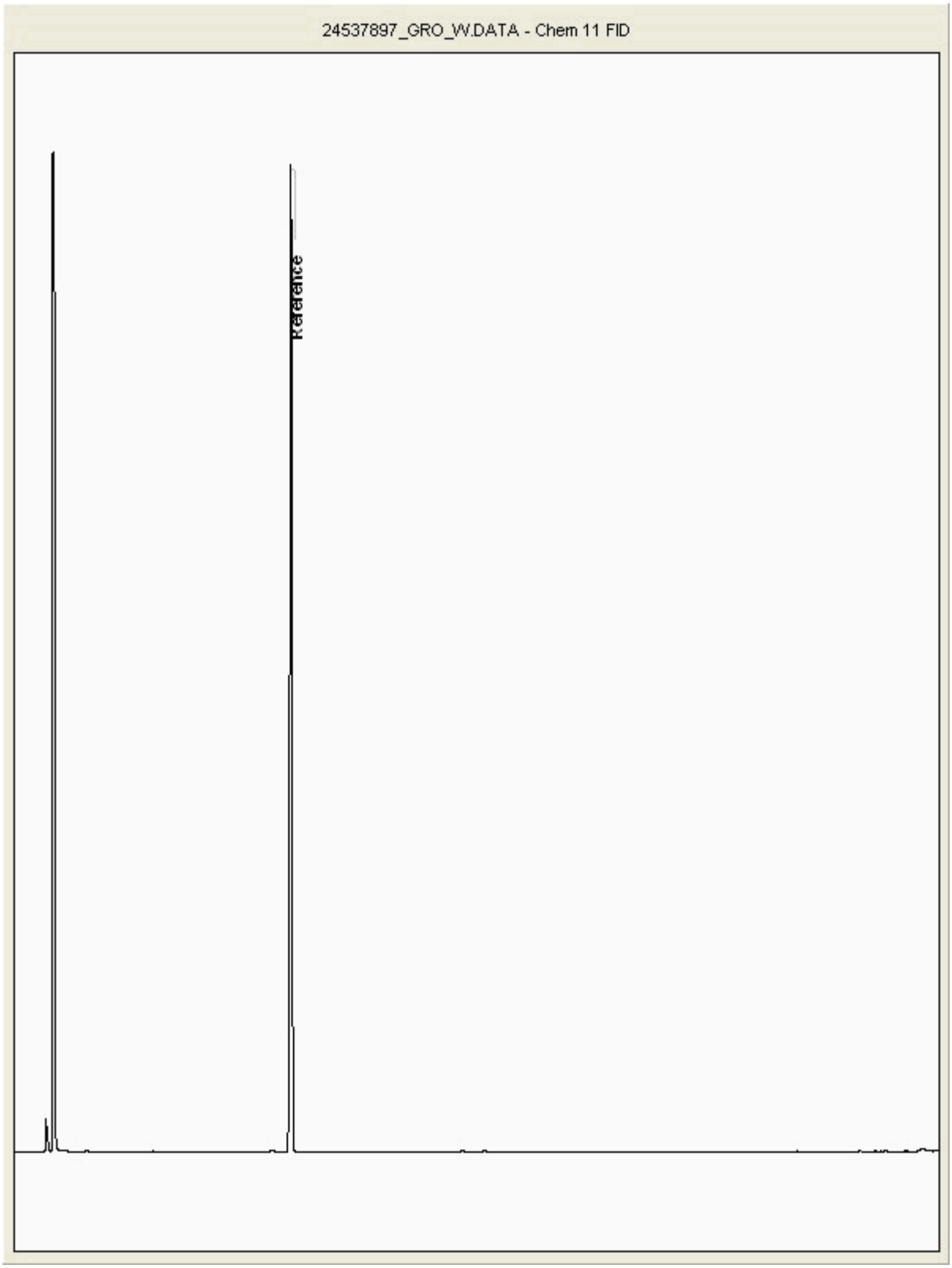
SDG:	210625-103	**Client Reference:**	June GW 2021 P2	**Report Number:**	605020
Location:	Newport landfill	**Order Number:**	700163632	**Superseded Report:**	604774

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 24537897
Sample ID : GW09_35

Depth : 0.00 - 0.00



ALS Environmental Ltd
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www.alsenvironmental.co.uk

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

09 July 2021

Test Report: COV/2161834/2021

Dear Subcon Results

Analysis of your sample(s) received on 07 July 2021 is now complete and we have pleasure in enclosing the appropriate test report(s).

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

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

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

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

Yours Sincerely,

Signed:

Name: R. Stocks

Title: Inorganic Team Leader

Report Summary

ANALYSED BY

UKAS TESTING 1314

ALS

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

Date of Issue: **09 July 2021**

Report Number: **COV/2161834/2021** Issue **1**

This issue replaces all previous issues

Job Description: 2020 Analysis

Job Location: 210625-103

Number of Samples included in this report **5**

Job Received: **07 July 2021**

Number of Test Results included in this report **5**

Analysis Commenced: **08 July 2021**

Signed:

Name: **R. Stocks** Date: **09 July 2021**

Title: **Inorganic Team Leader**

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

Information on the methods of analysis and performance characteristics are available on request.
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation. The results relate only to the items tested and where relevant sampled.
Tests marked 'Not UKAS Accredited' in this Report/Certificate are not included in the UKAS Accreditation Schedule for our laboratory.
This test report is not a statement of conformity to any specification or standard.

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/2161834/2021**	Issue	**1**
Laboratory Number:	**20615753**	Sample	**1** of **5**

Sample Source:	**ALS Life Sciences Limited**
Sample Point Description:	
Sample Description:	**24583532 GW06_13**
Sample Matrix:	**Ground Water**
Sample Date/Time:	**23 June 2021**
Sample Received:	**07 July 2021**
Analysis Complete:	**09 July 2021**

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC (Filtered)	13.2	mg/l	08/07/2021	Y Cov	WAS005

Analyst Comments for 20615753: This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **R. Stocks** Date: **09 July 2021**

Title: **Inorganic Team Leader**

ALS Environmental Ltd
Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/2161834/2021**	Issue	**1**
Laboratory Number:	**20615754**	Sample	**2** of **5**

Sample Source:	**ALS Life Sciences Limited**
Sample Point Description:	
Sample Description:	**24583494 GW06_34**
Sample Matrix:	**Ground Water**
Sample Date/Time:	**23 June 2021**
Sample Received:	**07 July 2021**
Analysis Complete:	**09 July 2021**

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC (Filtered)	11.1	mg/l	08/07/2021	Y Cov	WAS005

Analyst Comments for 20615754: This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **R. Stocks** Date: **09 July 2021**

Title: **Inorganic Team Leader**

ALS Environmental Ltd
Torrington Avenue, Coventry, CV4 9GU
Tel:+44 (0)24 7642 1213 Fax:+44 (0)24 7685 6575

Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/2161834/2021**	Issue	**1**
Laboratory Number:	**20615755**	Sample	**3** of **5**

Sample Source:	**ALS Life Sciences Limited**
Sample Point Description:	
Sample Description:	**24583502 GW06_36**
Sample Matrix:	**Ground Water**
Sample Date/Time:	**23 June 2021**
Sample Received:	**07 July 2021**
Analysis Complete:	**09 July 2021**

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC (Filtered)	11.3	mg/l	08/07/2021	Y Cov	WAS005

Analyst Comments for 20615755: This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **R. Stocks** Date: **09 July 2021**

Title: **Inorganic Team Leader**

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Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/2161834/2021**	Issue	**1**
Laboratory Number:	**20615756**	Sample	**4** of **5**

Sample Source:	**ALS Life Sciences Limited**
Sample Point Description:	
Sample Description:	**24583514 GW06_37**
Sample Matrix:	**Ground Water**
Sample Date/Time:	**23 June 2021**
Sample Received:	**07 July 2021**
Analysis Complete:	**09 July 2021**

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC (Filtered)	14.2	mg/l	08/07/2021	Y Cov	WAS005

Analyst Comments for 20615756: This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **R. Stocks** Date: **09 July 2021**

Title: **Inorganic Team Leader**

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Certificate of Analysis

ANALYSED BY

UKAS TESTING 1314

ALS

Report Number:	**COV/2161834/2021**	Issue	**1**
Laboratory Number:	**20615757**	Sample	**5** of **5**

Sample Source:	**ALS Life Sciences Limited**
Sample Point Description:	
Sample Description:	**24583544 GW09_35**
Sample Matrix:	**Ground Water**
Sample Date/Time:	**23 June 2021**
Sample Received:	**07 July 2021**
Analysis Complete:	**09 July 2021**

Test Description	Result	Units	Analysis Date	Accreditation	Method
TOC (Filtered)	10.0	mg/l	08/07/2021	Y Cov	WAS005

Analyst Comments for 20615757: This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

This issue replaces all previous issues
Accreditation Codes: Y = UKAS / ISO17025 Accredited, N = Not UKAS / ISO17025 Accredited, M = MCERTS.
Analysed at: CHE = Chester(CH5 3US), COV = Coventry(CV4 9GU), OTT = Otterbourne(SO21 2RU), S = Subcontracted, TRB = Subcontracted to Trowbridge(BA14 0XD), WAK = Wakefield(WF5 9TG), F = Data supplied by customer.
For Microbiological determinands 0 or ND=Not Detected, For Legionella ND=Not Detected in volume of sample filtered.
I/S=Insufficient sample For soil/sludge samples: AR=As received, DW=Dry weight.

Signed:

Name: **R. Stocks** Date: **09 July 2021**

Title: **Inorganic Team Leader**

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ANALYST COMMENTS FOR REPORT COV/2161834/2021 Issue 1

This issue replaces all previous issues

Date of Issue: **09 July 2021**

Sample No	Analysis Comments
20615753	This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
20615754	This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
20615755	This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
20615756	This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.
20615757	This sample has been analysed for TOC (Filtered) outside recommended stability times. It is therefore possible that the results provided may be compromised.

Signed:

Name: **R. Stocks** Date: **09 July 2021**

Title: **Inorganic Team Leader**

DETERMINAND COMMENTS FOR REPORT COV/2161834/2021

ISSUE 1

This issue replaces all previous issues

Date of Issue: 09 July 2021

Sample No	Description	Determinand	Comments

Signed:

Name: **R. Stocks** Date: **09 July 2021**

Title: **Inorganic Team Leader**

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Appendix General

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

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

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

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

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

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

7. Results relate only to the items tested.

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

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

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

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

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

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

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

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

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

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

18. **Sample Deviations**

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

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

19. **Asbestos**

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

Identification of Asbestos in Bulk Materials & Soils

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

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

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

Visual Estimation Of Fibre Content

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

Respirable Fibres

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

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

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