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Newport City Council
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Newport
NP20 4UR

Attention: Luke Embrey

CERTIFICATE OF ANALYSIS

Date of report Generation: 03 July 2020
Customer: Newport City Council
Sample Delivery Group (SDG): 200624-10
Your Reference: June GW 2020 Part 1
Location: Newport Landfill Site
Report No: 557606

This report has been revised and directly supersedes 557204 in its entirety.

We received 10 samples on Wednesday June 24, 2020 and 9 of these samples were scheduled for analysis which was completed on Friday July 03, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

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

Chemical testing (unless subcontracted) performed at ALS 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.

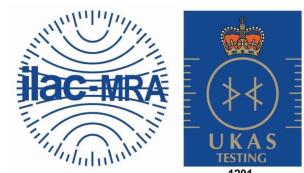
Incorrect sampling dates and/or sample information will affect the validity of results.

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

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG:	200624-10	Client Reference:	June GW 2020 Part 1	Report Number:	557606
Location:	Newport Landfill Site	Order Number:	700152585	Superseded Report:	557204

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22362132	GW03_09		0.00 - 0.00	22/06/2020
22362171	GW06_34		0.00 - 0.00	22/06/2020
22362182	GW06_39		0.00 - 0.00	22/06/2020
22362193	GW07_40		0.00 - 0.00	22/06/2020
22362215	GW09_31		0.00 - 0.00	22/06/2020
22362160	GW09_32		0.00 - 0.00	22/06/2020
22362121	GW09_35		0.00 - 0.00	22/06/2020
22362204	GW12_30		0.00 - 0.00	22/06/2020
22362149	GW12_33		0.00 - 0.00	22/06/2020
22362113	NO ID			22/06/2020

Maximum Sample/Coolbox Temperature (°C) : 18.2

ISO5667-3 Water quality - Sampling - Part3 -

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

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

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



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SDG:	200624-10	Client Reference:	June GW 2020 Part 1	Report Number:	557606
Location:	Newport Landfill Site	Order Number:	700152585	Superseded Report:	557204

Results Legend <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;"> Test</div> <div style="display: flex; align-items: center;"> No Determination Possible</div> </div> Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type	
		22362132	GW03_09		0.00 - 0.00	H2SO4 (ALE244)	GW
						500ml Plastic (ALE208)	GW
						250ml BOD (ALE212)	GW
						0.5l glass bottle (ALE227)	GW
						ZnAc (ALE246)	GW
						Vial (ALE297)	GW
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					H2SO4 (ALE244)	GW	
					HNO3 Filtered (ALE204)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
					250ml BOD (ALE212)	GW	
					0.5l glass bottle (ALE227)	GW	
					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	

2236215	GW09_31	0.00 - 0.00	ZnAc (ALE246)	GW	
			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	
			ZnAc (ALE246)	GW	
			Vial (ALE297)	GW	X
			NaOH (ALE245)	GW	
			HNO3 Filtered (ALE204)	GW	
			H2SO4 (ALE244)	GW	
22362193	GW07_40	0.00 - 0.00	ZnAc (ALE246)	GW	
			Vial (ALE297)	GW	X
			NaOH (ALE245)	GW	
			HNO3 Filtered (ALE204)	GW	
			H2SO4 (ALE244)	GW	
			500ml Plastic (ALE208)	GW	
			250ml BOD (ALE212)	GW	
22362182	GW06_39	0.00 - 0.00	ZnAc (ALE246)	GW	
			Vial (ALE297)	GW	X
			NaOH (ALE245)	GW	
			HNO3 Filtered (ALE204)	GW	
			HNO3 Filtered (ALE204)	GW	

22362149	GW12_33	0.00 - 0.00	ZnAc (ALE246)	GW		
			Vial (ALE297)	GW		X
			NaOH (ALE245)	GW		
			HNO3 Filtered (ALE204)	GW		
			H2SO4 (ALE244)	GW		
			500ml Plastic (ALE208)	GW		
			250ml BOD (ALE112)	GW		
			0.5l glass bottle (ALE227)	GW		
			ZnAc (ALE246)	GW		
			Vial (ALE297)	GW		X
			NaOH (ALE245)	GW		
HNO3 Filtered (ALE204)	GW					
22362204	GW12_30	0.00 - 0.00				



CERTIFICATE OF ANALYSIS

Validated

SDG:	200624-10	Client Reference:	June GW 2020 Part 1	Report Number:	557606
Location:	Newport Landfill Site	Order Number:	700152585	Superseded Report:	557204

Results Legend			Customer Sample Ref.	GW03_09	GW06_34	GW06_39	GW07_40	GW09_31	GW09_32
# ISO17025 accredited.				0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M mCERTS accredited.				Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq Aqueous / settled sample.				22/06/2020	22/06/2020	22/06/2020	22/06/2020	22/06/2020	22/06/2020
diss.filt Dissolved / filtered sample.				24/06/2020	24/06/2020	24/06/2020	24/06/2020	24/06/2020	24/06/2020
tot.unfilt Total / unfiltered sample.				200624-10	200624-10	200624-10	200624-10	200624-10	200624-10
* Subcontracted - refer to subcontractor report for accreditation status.				22362132	22362171	22362182	22362193	22362215	22362160
** % 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									
1-345@ Sample deviation (see appendix)									
Component	LOD/Units	Method							
Ionic balance	% Diff	Calulation	2.01	1.36	-2.21	-3.13	-0.636	5.86	
Alkalinity, Total as CaCO3	<2 mg/l	TM043	261	540	918	681	387	455	
BOD, unfiltered	<1 mg/l	TM045	<1	>36.2	<1	2.32	2.89	<30	
Carbon, Organic (diss.filt)	<3 mg/l	TM090	5.87	14.3	18.8	16.9	16.1	31.6	
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2	1.17	5.24	9.62	7.34	6.65	
Sulphide	<0.01 mg/l	TM101	<0.01	3.64	0.0372	0.122	0.27	<0.01	
COD, unfiltered	<7 mg/l	TM107	20.2	247	88.4	62.8	51.9	309	
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	1.35	1.11	3.95	2.01	1.72	1.85	
Arsenic (diss.filt)	<0.5 µg/l	TM152	0.563	16.5	9.37	17.7	1.86	4.4	
Boron (diss.filt)	<10 µg/l	TM152	226	724	1060	1200	557	870	
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	1.23	2.5	
Copper (diss.filt)	<0.3 µg/l	TM152	2.35	0.798	0.5	<0.3	0.384	0.801	
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	<0.2	<0.2	<0.2	<0.2	3.84	
Manganese (diss.filt)	<3 µg/l	TM152	11.5	1930	3390	198	1360	1410	
Nickel (diss.filt)	<0.4 µg/l	TM152	1.4	1.45	5.09	1.64	3.98	9.65	
Selenium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1	
Zinc (diss.filt)	<1 µg/l	TM152	7.59	1.81	15.2	2.09	<1	17.8	
Sodium (Dis.Filt)	<0.076 mg/l	TM152	82	48.7	551	316	167	263	
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	37.2	43.8	122	55.1	45.7	56.5	
Potassium (Dis.Filt)	<0.2 mg/l	TM152	18.9	17.7	54.4	28.5	21.1	29.4	
Calcium (Dis.Filt)	<0.2 mg/l	TM152	222	173	233	56.2	169	174	
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0201	2.2	5.5	0.352	1.26	0.0796	
Hardness, Total as CaCO3	<0.65 mg/l	TM152	707	614	1090	368	610	669	
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172	<100	1160	<100	166	140	408	
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	<0.05	<0.05	<0.05	0.061	0.076	
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	0.081	2.73	0.053	5.35	<0.05	<0.05	
Sulphate	<2 mg/l	TM184	498	124	388	22.6	223	388	
Chloride	<2 mg/l	TM184	65	40	822	350	212	205	
Nitrate as NO3	<0.3 mg/l	TM184	3.11	<0.3	0.353	<0.3	1.61	<0.3	
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.706	<0.1	<0.1	<0.1	0.382	<0.1	
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	



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SDG: 200624-10 **Client Reference:** June GW 2020 Part 1 **Report Number:** 557606
Location: Newport Landfill Site **Order Number:** 700152585 **Superseded Report:** 557204

Results Legend			Customer Sample Ref.	GW03_09	GW06_34	GW06_39	GW07_40	GW09_31	GW09_32
#	ISO17025 accredited.		Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
M	mCERTS accredited.		Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.		Date Sampled	22/06/2020	22/06/2020	22/06/2020	22/06/2020	22/06/2020	22/06/2020
dis.filt	Dissolved / filtered sample.		Sampled Time
tot.unfilt	Total / unfiltered sample.		Date Received	24/06/2020	24/06/2020	24/06/2020	24/06/2020	24/06/2020	24/06/2020
*	Subcontracted - refer to subcontractor report for accreditation status.		SDG Ref	200624-10	200624-10	200624-10	200624-10	200624-10	200624-10
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery		Lab Sample No.(s)	22362132	22362171	22362182	22362193	22362215	22362160
(F)	Trigger breach confirmed		AGS Reference						
1-3*5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
pH	<1 pH Units	TM256	7.68	7.3	7.33	8.02	7.5	7.49	
			#	#	#	#	#	#	#



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SDG:	200624-10	Client Reference:	June GW 2020 Part 1	Report Number:	557606
Location:	Newport Landfill Site	Order Number:	700152585	Superseded Report:	557204

Results Legend			Customer Sample Ref.	GW09_35	GW12_30	GW12_33			
#	ISO17025 accredited.								
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-345@	Sample deviation (see appendix)								
Component	LOD/Units	Method	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Ground Water (GW) 22/06/2020	0.00 - 0.00 Ground Water (GW) 22/06/2020	0.00 - 0.00 Ground Water (GW) 22/06/2020			
Ionic balance	% Diff	Calulation		-4.54	-1.92	0.0569			
Alkalinity, Total as CaCO3	<2 mg/l	TM043		756 #	749 #	356 #			
BOD, unfiltered	<1 mg/l	TM045		2.78 #	6.24 #	4.89 #			
Carbon, Organic (diss.filt)	<3 mg/l	TM090		12.5	27.4	7.24			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		7.11 #	0.772 #	3.76 #			
Sulphide	<0.01 mg/l	TM101		0.0107 #	<0.01 #	3.9 #			
COD, unfiltered	<7 mg/l	TM107		189 #	168 #	43.1 #			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		9.75 #	1.96 #	1.23 #			
Arsenic (diss.filt)	<0.5 µg/l	TM152		1.1 #	17.6 #	28.9 #			
Boron (diss.filt)	<10 µg/l	TM152		1080 #	503 #	498 #			
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #			
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #			
Copper (diss.filt)	<0.3 µg/l	TM152		<0.3 #	0.397 #	<0.3 #			
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	<0.2 #	<0.2 #			
Manganese (diss.filt)	<3 µg/l	TM152		99.8 #	5000 #	458 #			
Nickel (diss.filt)	<0.4 µg/l	TM152		0.49 #	6.98 #	0.587 #			
Selenium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #			
Zinc (diss.filt)	<1 µg/l	TM152		2.38 #	2.96 #	<1 #			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		1740 #	243 #	89.9 #			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		255 #	65.7 #	47.2 #			
Potassium (Dis.Filt)	<0.2 mg/l	TM152		54.5 #	11 #	18.8 #			
Calcium (Dis.Filt)	<0.2 mg/l	TM152		200 #	135 #	132 #			
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.103 #	13.6 #	0.28 #			
Hardness, Total as CaCO3	<0.65 mg/l	TM152		1550 #	609 #	525 #			
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172		132 #	176 #	201 #			
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #			
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		6.75 #	<0.05 #	0.357 #			
Sulphate	<2 mg/l	TM184		117 #	107 #	215 #			
Chloride	<2 mg/l	TM184		3580 #	259 #	119 #			
Nitrate as NO3	<0.3 mg/l	TM184		2.33 #	<0.3 #	<0.3 #			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		0.535 #	<0.1 #	<0.1 #			
Cyanide, Total	<0.05 mg/l	TM227		<0.05 #	<0.05 #	<0.05 #			



CERTIFICATE OF ANALYSIS

Validated

SDG:	200624-10	Client Reference:	June GW 2020 Part 1	Report Number:	557606
Location:	Newport Landfill Site	Order Number:	700152585	Superseded Report:	557204

Table of Results - Appendix

Method No	Reference	Description
Calculation		
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
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
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
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

Validated

SDG:	200624-10	Client Reference:	June GW 2020 Part 1	Report Number:	557606
Location:	Newport Landfill Site	Order Number:	700152585	Superseded Report:	557204

Test Completion Dates

Lab Sample No(s)	22362132	22362171	22362182	22362193	22362215	22362160	22362121	22362204	22362149
Customer Sample Ref.	GW03_09	GW06_34	GW06_39	GW07_40	GW09_31	GW09_32	GW09_35	GW12_30	GW12_33
AGS Ref.									
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	01-Jul-2020	30-Jun-2020	01-Jul-2020	30-Jun-2020
Alkalinity Filtered as CaCO3	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020
Ammoniacal Nitrogen	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020
Anions by Kone (w)	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020
BOD True Total	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020	30-Jun-2020
COD Unfiltered	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020	28-Jun-2020
Conductivity (at 20 deg.C)	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020
Cyanide Comp/Free/Total/Thiocyanate	29-Jun-2020	01-Jul-2020	01-Jul-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020
Dissolved Metals by ICP-MS	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020
Dissolved Organic/Inorganic Carbon	02-Jul-2020	03-Jul-2020	03-Jul-2020	02-Jul-2020	02-Jul-2020	02-Jul-2020	02-Jul-2020	02-Jul-2020	02-Jul-2020
EPH (DRO) (C10-C40) Aqueous (W)	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020
Ionic Balance	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020	01-Jul-2020
Nitrite by Kone (w)	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020
pH Value	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020	26-Jun-2020
Phosphate by Kone (w)	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020
Sulphide	25-Jun-2020	01-Jul-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	25-Jun-2020	01-Jul-2020
VOC MS (W)	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020	29-Jun-2020



CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

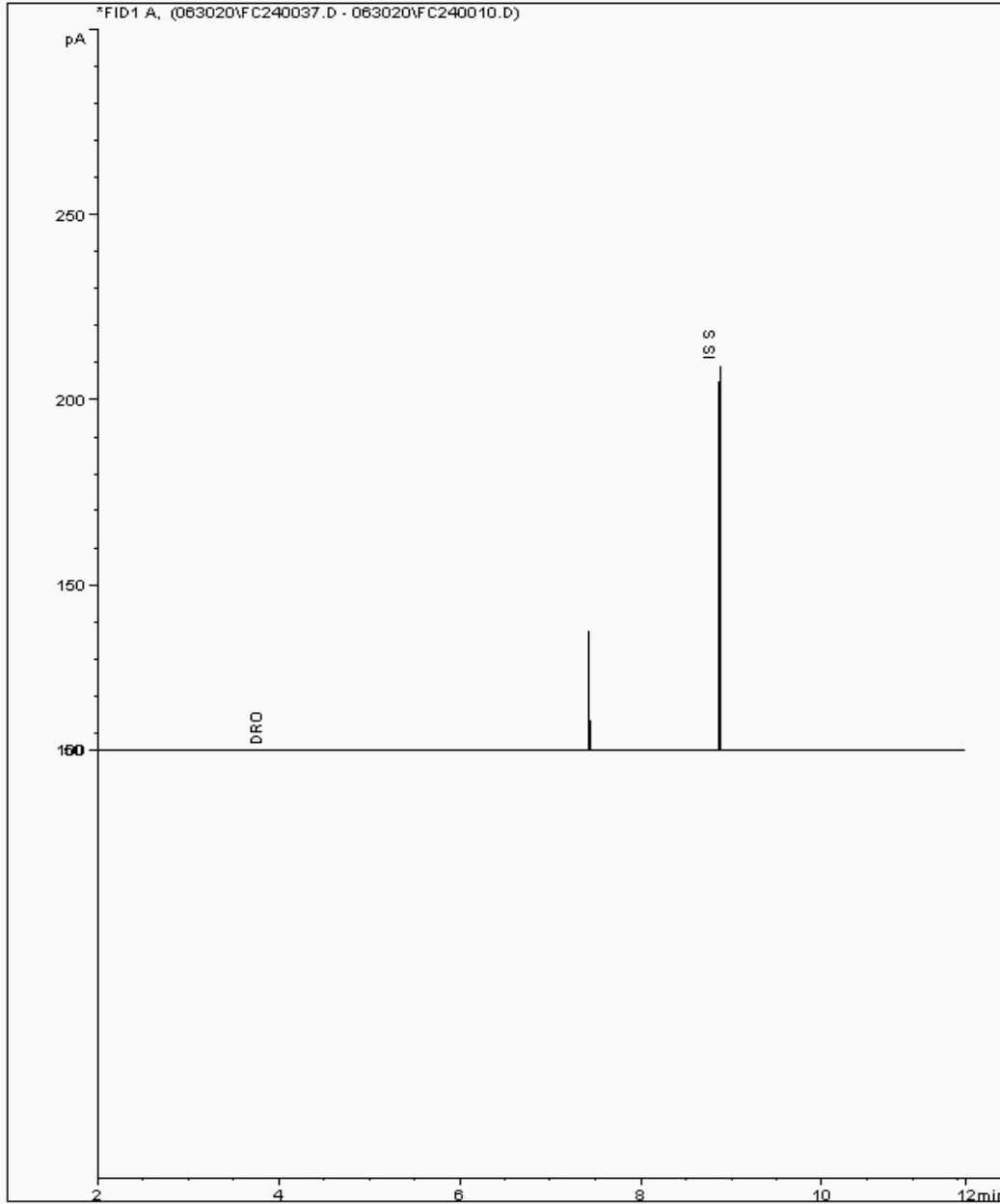
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22366916
Sample ID : GW06_34

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997590-
Date Acquired : 01/07/2020 05:17:39 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

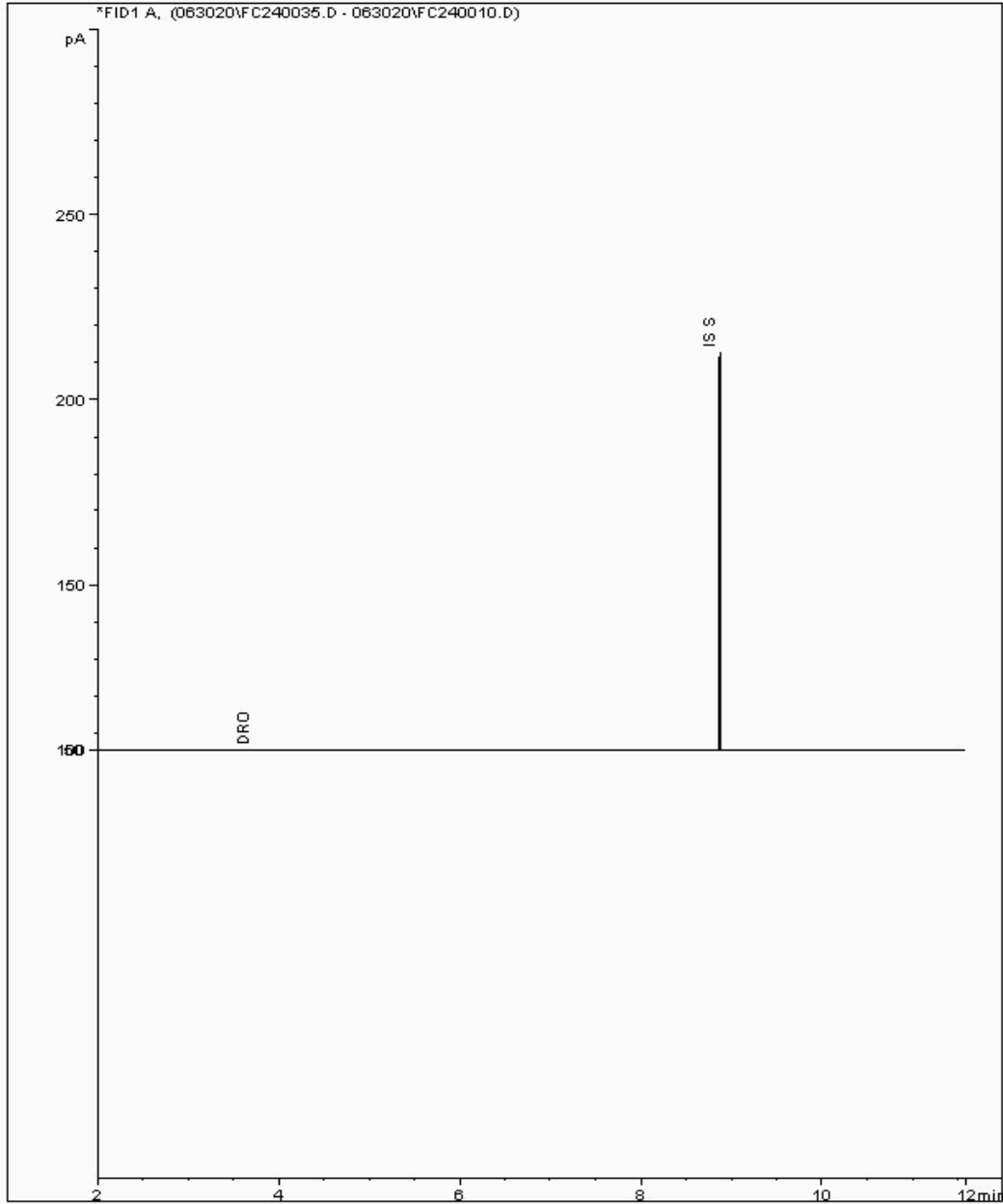
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22366942
Sample ID : GW09_32

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997560-
Date Acquired : 01/07/2020 04:28:53 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

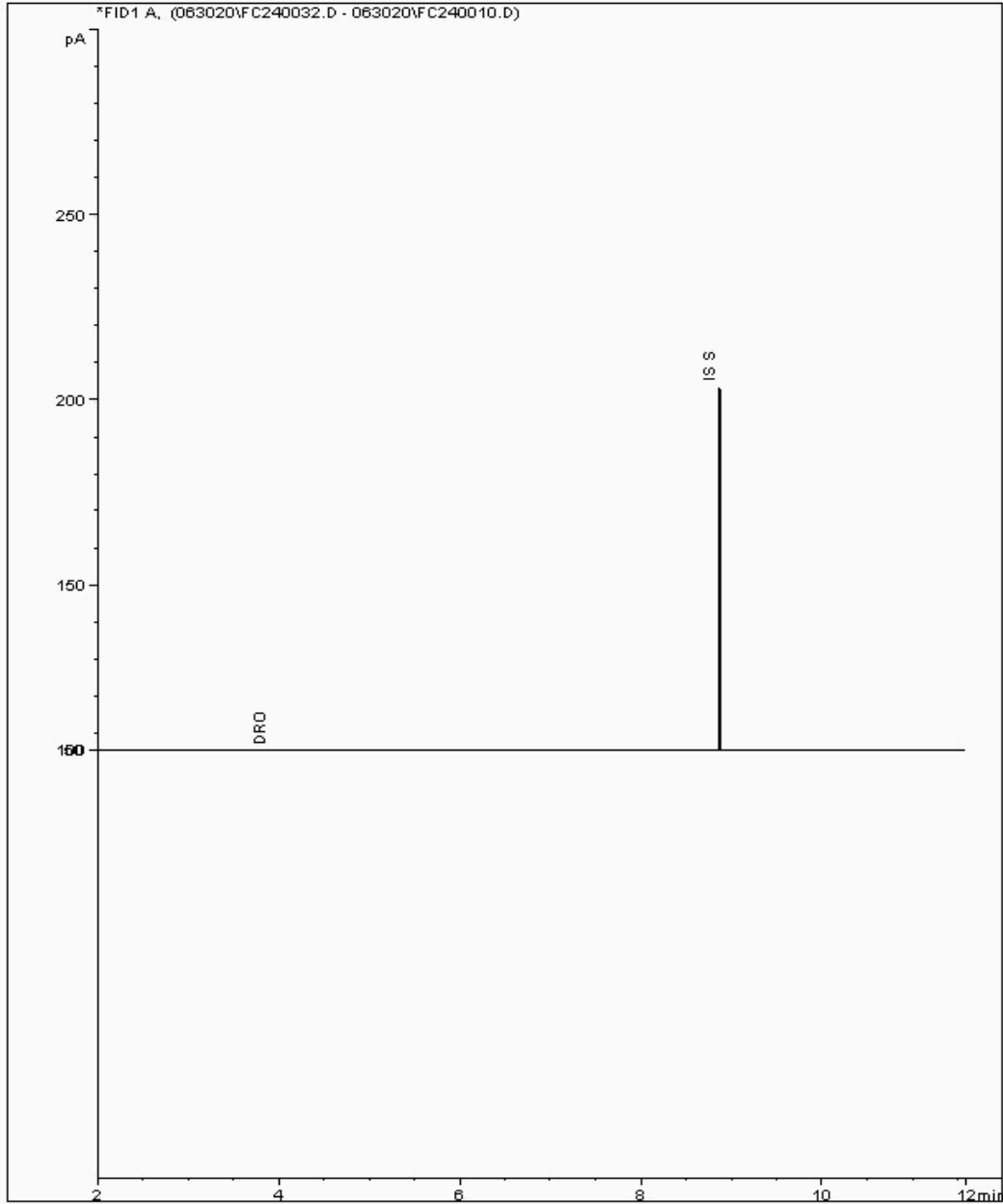
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22366947
Sample ID : GW03_09

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997500-
Date Acquired : 01/07/2020 03:15:24 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

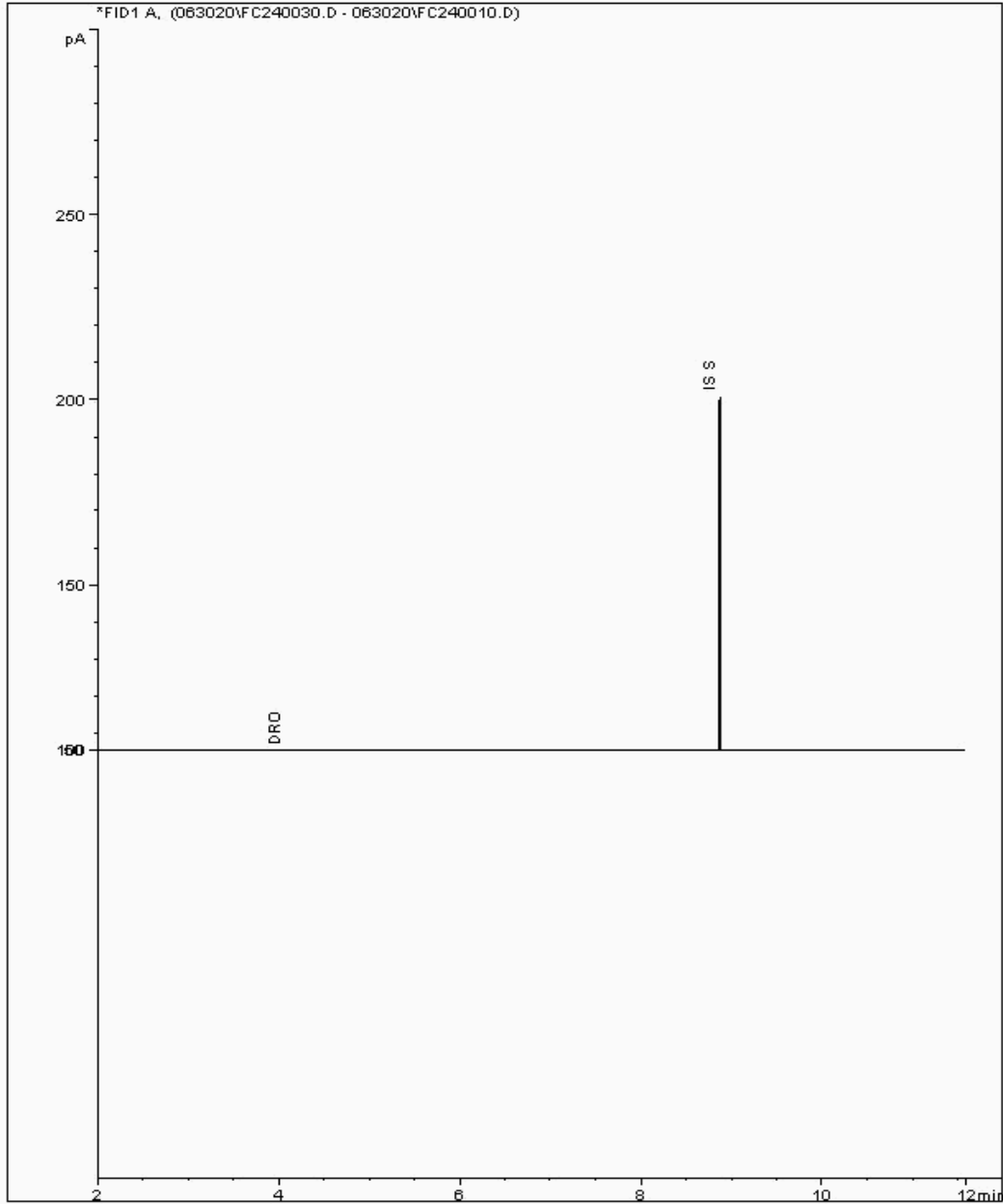
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22366962
Sample ID : GW06_39

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997621-
Date Acquired : 01/07/2020 02:26:34 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

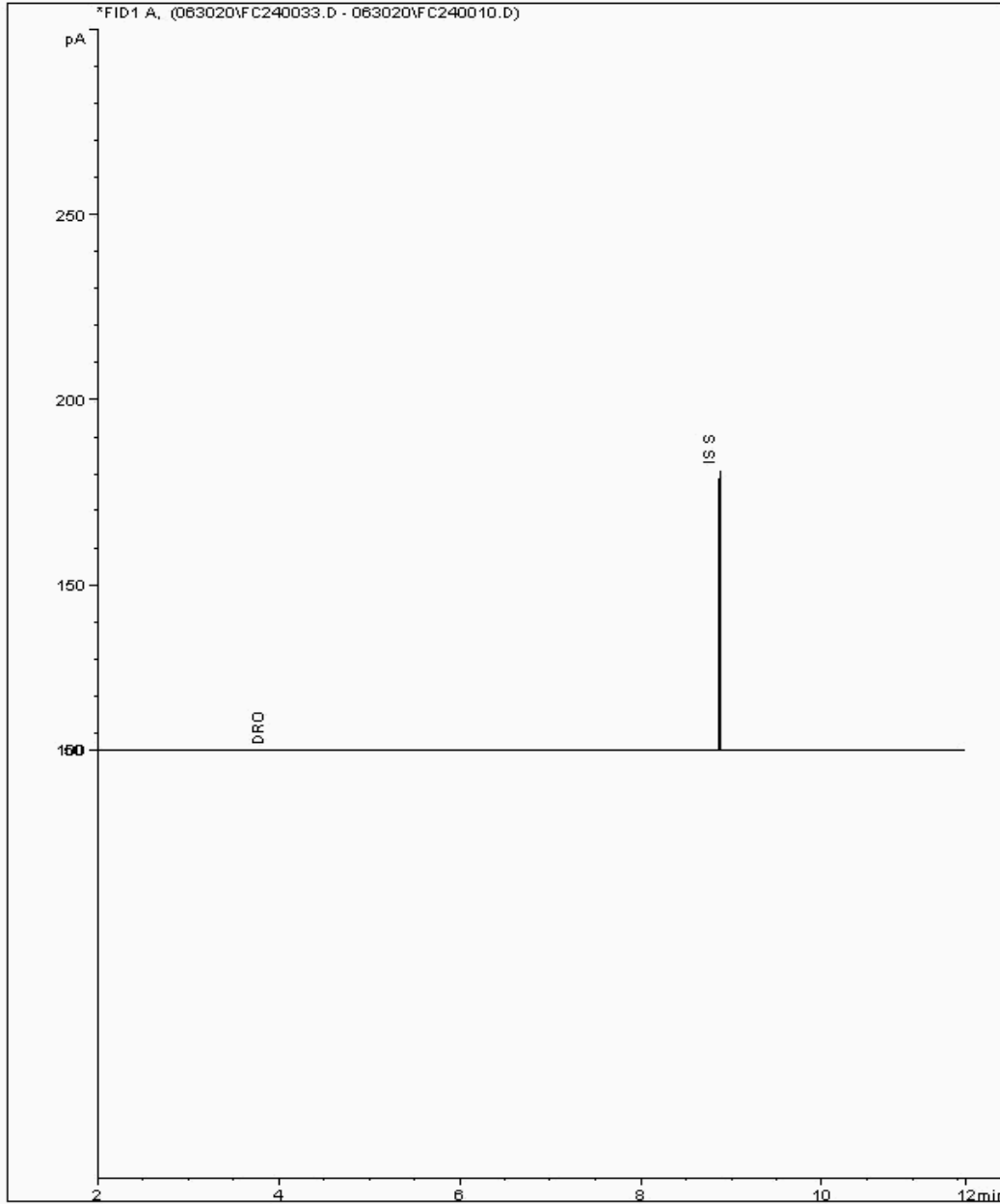
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22366970
Sample ID : GW12_33

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997530-
Date Acquired : 01/07/2020 03:40:01 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

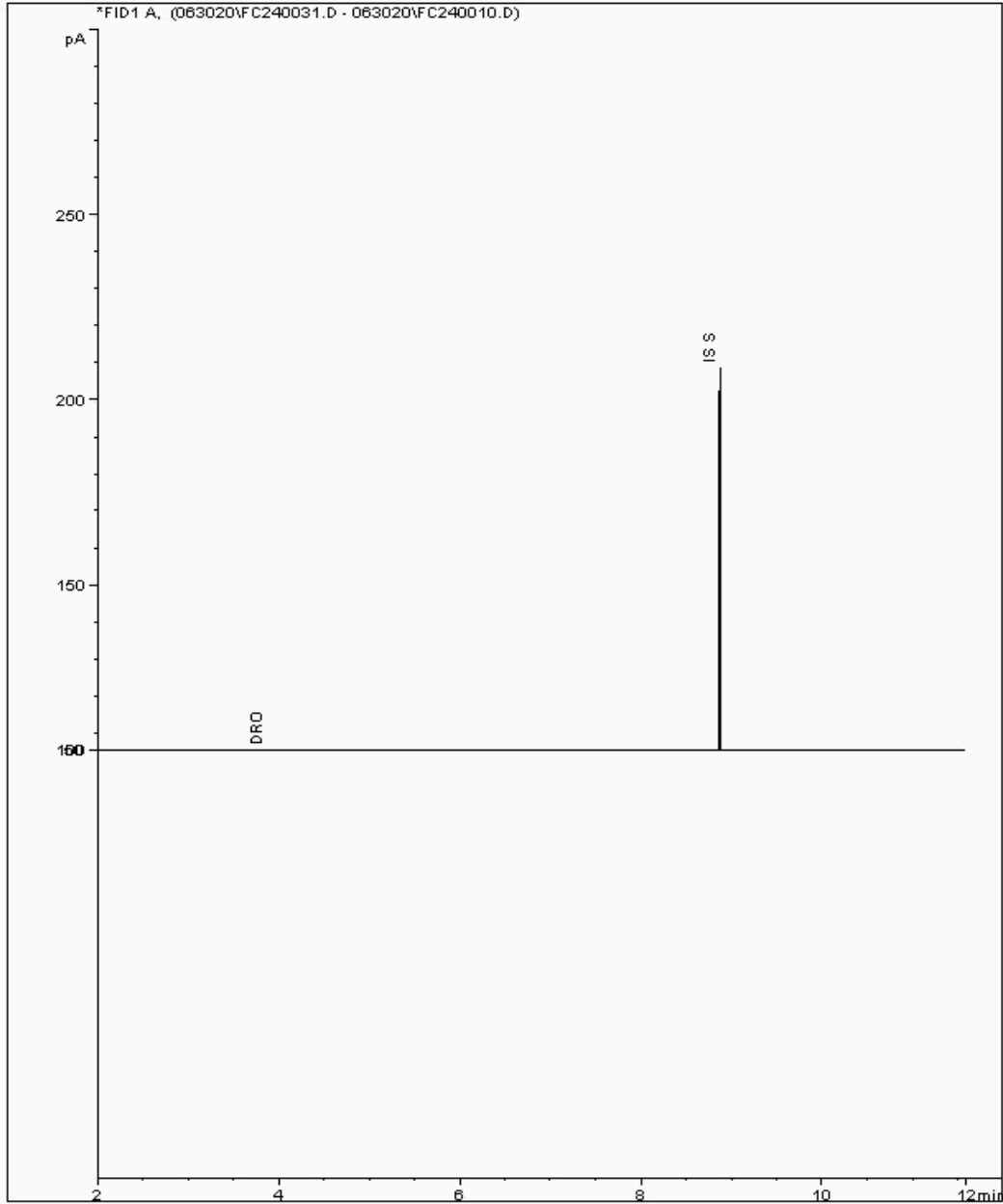
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22366983
Sample ID : GW09_35

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997444-
Date Acquired : 01/07/2020 02:50:58 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

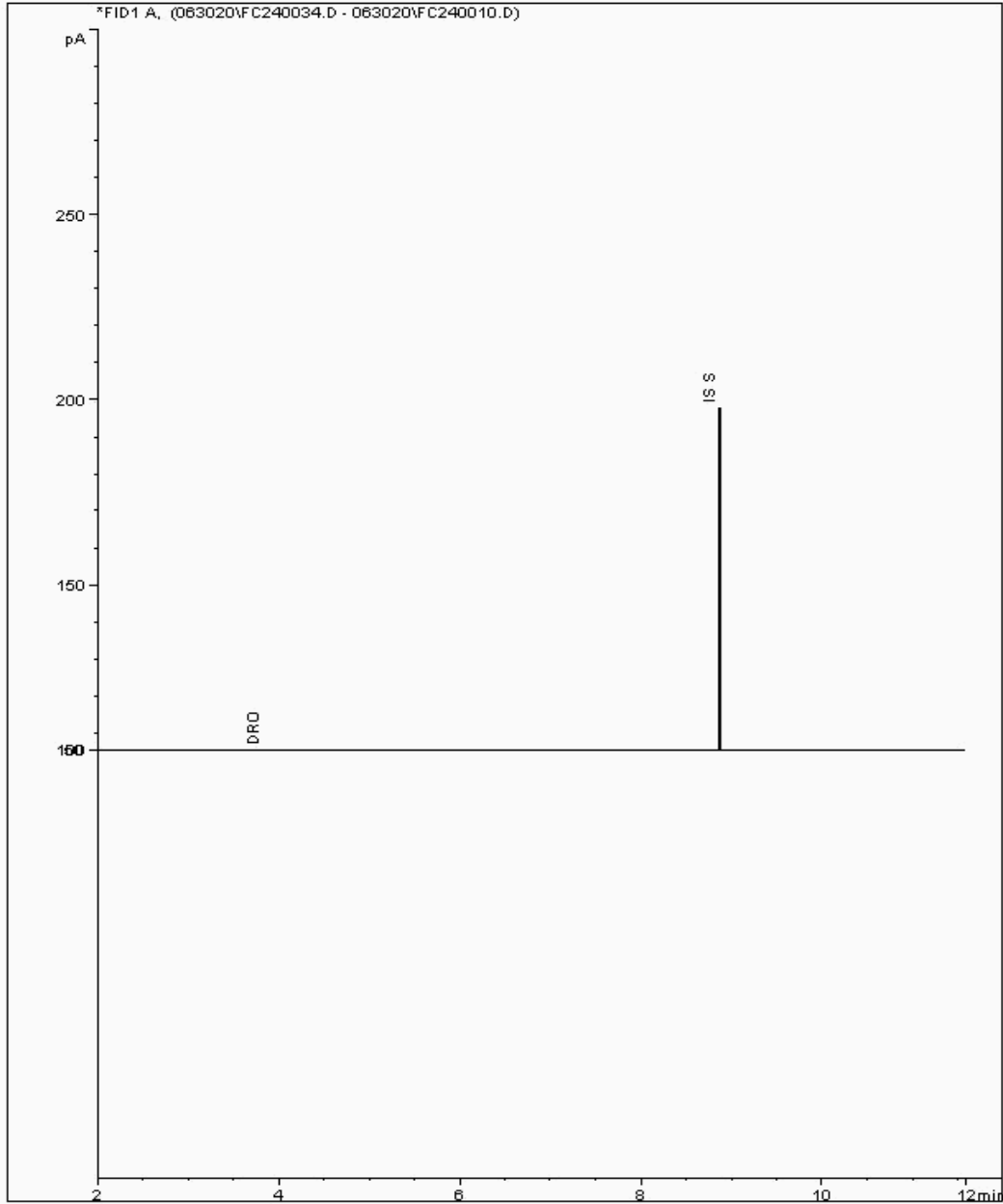
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22366988
Sample ID : GW09_31

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997744-
Date Acquired : 01/07/2020 04:04:25 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

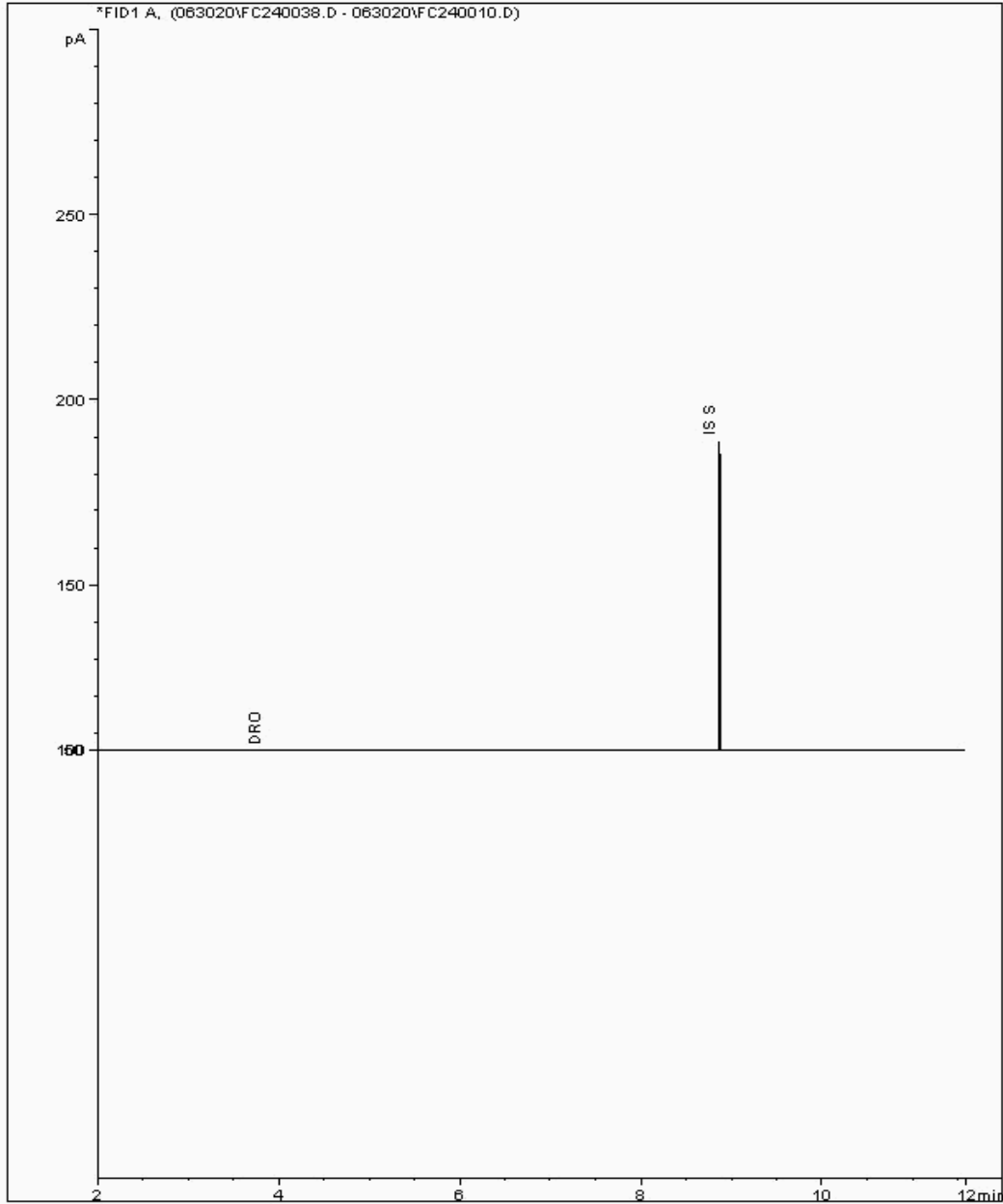
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22366997
Sample ID : GW12_30

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997689-
Date Acquired : 01/07/2020 05:41:34 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Chromatogram

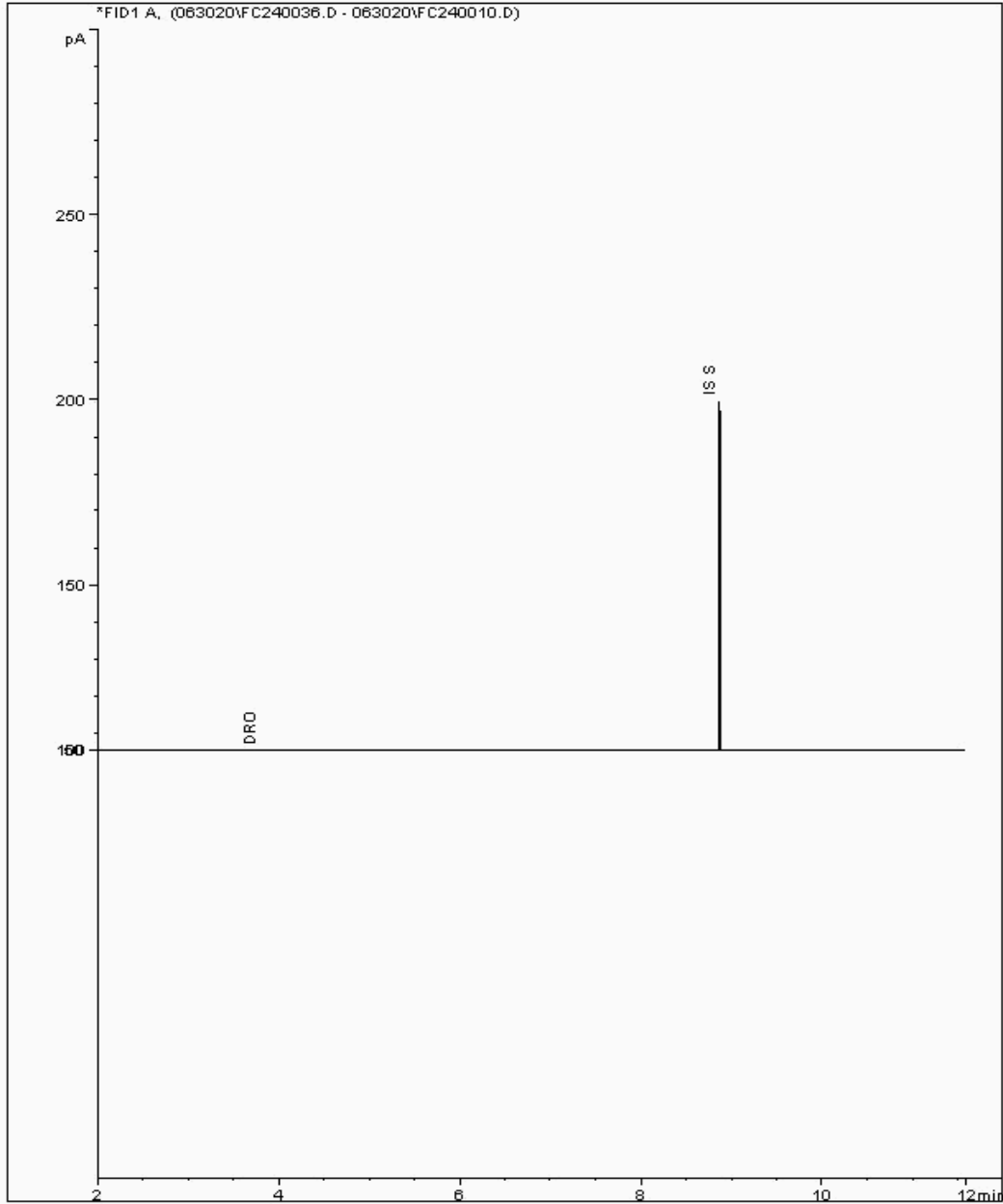
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 22367335
Sample ID : GW07_40

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 20997655-
Date Acquired : 01/07/2020 04:53:33 PM
Units : ppm





CERTIFICATE OF ANALYSIS

SDG: 200624-10	Client Reference: June GW 2020 Part 1	Report Number: 557606
Location: Newport Landfill Site	Order Number: 700152585	Superseded Report: 557204

Appendix

General

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

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

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

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

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

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

7. Results relate only to the items tested.

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

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

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

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

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

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

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

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

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

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

18. Sample Deviations

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

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

19. Asbestos

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

Identification of Asbestos in Bulk Materials & Soils

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

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

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

Visual Estimation Of Fibre Content

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

Respirable Fibres

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

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

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