



Your Ref: DP3733BK
Our Ref: 49428/3501/CBH/VKR/NC/AREA 2 GW & LEACHATE

22nd February 2021

PPC Team
Natural Resources Wales
Rivers House
Fortrain Road
St Mellons Business Park
Cardiff
CF3 0EY

Attn: Tyrone Ward

Dear Tyrone,

Re: DP3733BK – Docksway Disposal Site. Latest Area 2 Groundwater and Leachate Quality Monitoring Report, Round 202, December 2020.

Please find enclosed the results of the groundwater and leachate quality monitoring undertaken at Area 2 of Docksway Disposal Site. Groundwater and leachate monitoring is required quarterly at the site in order to comply with Conditions 3.6.1 and 3.6.2 of the Environmental Permit (DP3733BK). This report includes discussion of results obtained from monitoring during December 2020.

We enclose with this letter report, Figure 2, a plan showing the locations of the available monitoring points. We also enclose the laboratory analytical certificates.

Field Observations

Details of the field testing of the Area 2 groundwater and leachate samples during Round 202 are presented in Table 1, together with depths to groundwater and leachate.

Table 1 Field Testing Results and Observations - December 2020

Monitoring Point	Dates Monitored	Depth to Groundwater/Leachate (m)	pH	Electrical Conductivity ($\mu\text{S}/\text{cm}$)	Temperature ($^{\circ}\text{C}$)	Dissolved Oxygen (%)
GW06_39	07/12/2020	3.86	8.36	6590	12.09	42.6
GW07_40	07/12/2020	4.99	8.93	1546	11.04	36.7
GW12_30	07/12/2020	4.18	8.41	2818	11.03	43.5
GW09_31	07/12/2020	5.38	8.85	1974	11.44	65.5
GW03_09	07/12/2020	7.78	9.17	1852	11.39	62.1
GW09_32	07/12/2020	8.56	8.91	2787	8.72	77.1
GW12_33	07/12/2020	7.58	9.03	2162	10.16	83.3
GW06_34	08/12/2020	8.30	8.76	1370	10.01	36.6
GW09_35	08/12/2020	8.30	8.70	13096	12.3	61.8
GW06_36	08/12/2020	7.55	8.75	13220	12.85	41.3
GW06_37	08/12/2020	7.02	8.83	18290	12.18	46.2
GW06_13	08/12/2020	6.26	9.07	10376	11.48	43.6

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Registered in England No. 01188070

Monitoring Point	Date Monitored	Depth to Groundwater/ Leachate (m)	pH	Electrical Conductivity (µS/cm)	Temperature (°c)	Dissolved Oxygen (%)
GW12_38	08/12/2020	6.15	8.71	3175	44.43	65.2
GW06_14a	08/12/2020	4.27	8.90	18710	12.43	46.0
LF08_07 (leachate)	22/12/2020	15.12	Not sampled (dip level only)			
C1A (leachate)	22/12/2020	18.71				
C1B (leachate)	22/12/2020	20.46				
C1D (leachate)	17/12/2020	10.37	8.5	6868	13.30	51.4
C1E (leachate)	22/12/2020	23.71	Not sampled (dip level only)			
C2A (leachate)	22/12/2020	12.98				
C2B (leachate)	17/12/2020	23.63	8.8	17120	23	36.6
C2C (leachate)	22/12/2020	17.97	Not sampled (dip level only)			
C3B (leachate)	17/12/2020	13.20	8.8	26504	29.7	3.8
C4 (leachate)	17/12/2020	4.22	8.2	15430	20.6	44.1

Groundwater Laboratory Testing Results

Compliance Levels

The agreed Control levels and Compliance limits for Area 2 ‘priority contaminants’ are reproduced in Tables 2 and 3 below.

Table 2 PPC Permit Compliance Levels for Emissions to Groundwater (Hazardous Substances)

Monitoring Well	Benzene	Naphthalene	Xylene	EPH	Arsenic
	Compliance Limit	Compliance Limit	Compliance Limit	Compliance Limit	Compliance Limit
	µg/l	µg/l	µg/l	µg/l	µg/l
GW03_09	2	5	3	Not Required	35
GW06_13	2	5	3	Not Required	50
GW06_14a	2	5	3	Not Required	25
GW06_34	2	5	3	Not Required	65
GW06_36	2	5	3	Not Required	30
GW06_37	2	5	3	Not Required	60
GW06_39	2	5	3	Not Required	50
GW07_40	2	5	3	Not Required	35
GW09_31	13	5	3	Not Required	80
GW09_32	3	5	3	Not Required	30
GW09_35	2	5	3	Not Required	50
GW12_30	1	1	1	Not Required	160
GW12_33	1	1	1	Not Required	560
GW12_38	1	1	1	Not Required	26

Table 3 PPC Permit Compliance Levels for Emissions to Groundwater (Non-Hazardous Substances)

Monitoring Well	Nickel		Potassium		Ammoniacal Nitrogen	
	Control Level	Compliance Limit	Control Level	Compliance Limit	Control Level	Compliance Limit
	µg/l	µg/l	mg/l	mg/l	mg/l	mg/l
GW03_09	8	10	160	180	30	35
GW06_13	12	14	100	110	30	35
GW06_14a	12	14	160	180	53	60
GW06_34	12	14	310	350	30	35
GW06_36	8	10	100	110	20	23
GW06_37	8	10	100	110	30	35
GW06_39	26.4	30	100	110	20	23
GW07_40	8	10	39.6	45	20	23
GW09_31	8	10	100	110	50	50
GW09_32	8	10	160	180	50	50
GW09_35	8	10	100	110	30	35
GW12_30	25	30	35	40	10	12
GW12_33	5	6	50	55	15	18
GW12_38	25	30	65	70	10	12

Priority Contaminants

Hazardous Substances (formally List I substances)

All of the hazardous substances specified as “priority contaminants” in the Area 2 Hydrogeological Risk Assessment were monitored in groundwater samples from compliance wells in December 2020 and the majority were recorded below the Control Level and Compliance Limits. The exception to this was Arsenic in GW06_37 which recorded a concentration of 70.9ug/l compared to a compliance limit of 60ug/l.

Non-hazardous Substances

None of the non-hazardous substances agreed as “priority contaminants” exceeded the well specific Compliance Limits in the groundwater sampled during Round 202, with the exception of Ammoniacal Nitrogen in GW06_37 where a concentration of 47mg/l was recorded, above the compliance limit of 35mg/l.

Leachate Measurements and Laboratory Test Results

Leachate levels were recorded at C1A, C1B, C1D, C1E C2A, C2B, C2C, C3B, C4 and LF08_07 in December 2020 and the leachate head levels are indicated to be as follows:

Table 4 Leachate Head

Monitoring Location	Leachate Head (m)
C1A	3.13
C1B	2.46
C1D	1.54
C1E	0.95
C2A	2.40
C2B	2.11
C2C	2.40
C3B	1.90
C4	2.88
LF08_07 (Cell 1)	1.37

Of the ten monitoring points, six (C1A, C1B, C2A, C2B, C2C and C4) are above the permitted level of 2m. At the remaining four monitoring points, leachate head levels are at or below the permitted level.

Leachate Removed

During December 2020 a total of 726,080kg of Leachate was removed from Area 2 (Cells 1 to 4 combined).

Concluding Remarks

The exceedance of Arsenic and Ammoniacal Nitrogen at GW06_37 in December 2020 is not, at this time, considered to represent a significant deterioration in groundwater quality and remedial action is not being considered. However, the concentrations of these parameters will be closely monitored during subsequent monitoring rounds

Stantec will continue to monitor and comment on the groundwater quality and leachate within subsequent reports. If you have any questions regarding the data, then please do not hesitate to contact us.

Yours sincerely



Kate Riley
Associate
on behalf of Stantec UK Ltd

Encls: Laboratory Certificates
Figure 2

CC: Silvia Gonzalez-Lopez – Newport City Council
Robert Hughes – NCC (Docksway Disposal Site)



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Website: www.alsenvironmental.co.uk

Newport City Council
Civic Centre
Newport
NP20 4UR

Attention: Luke Embrey

CERTIFICATE OF ANALYSIS

Date of report Generation: 16 December 2020
Customer: Newport City Council
Sample Delivery Group (SDG): 201209-32
Your Reference: Dec 2020 GW Part 1
Location: Newport landfill site
Report No: 580359

This report has been revised and directly supersedes 579475 in its entirety.

We received 7 samples on Wednesday December 09, 2020 and 7 of these samples were scheduled for analysis which was completed on Wednesday December 16, 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: 201209-32 **Client Reference:** Dec 2020 GW Part 1 **Report Number:** 580359
Location: Newport landfill site **Order Number:** 700156882 **Superseded Report:** 579475

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23390371	GW 03_09		0.00 - 0.00	07/12/2020
23390291	GW 06_39		0.00 - 0.00	07/12/2020
23390308	GW 07_40		0.00 - 0.00	07/12/2020
23390351	GW 09_31		0.00 - 0.00	07/12/2020
23390386	GW 09_32		0.00 - 0.00	07/12/2020
23390332	GW 12_30		0.00 - 0.00	07/12/2020
23390402	GW 12_33		0.00 - 0.00	07/12/2020

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



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Validated

SDG:	201209-32	Client Reference:	Dec 2020 GW Part 1	Report Number:	580359
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	579475

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
					<small> H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5l glass bottle (ALE227) ZnAc (ALE246) Vial (ALE297) NaOH (ALE245) HNO3 Filtered (ALE204) H2SO4 (ALE244) H2SO4 (ALE204) HNO3 Filtered (ALE204) NaOH (ALE245) Vial (ALE297) ZnAc (ALE246) 0.5l glass bottle (ALE227) 250ml BOD (ALE208) 500ml Plastic (ALE208) H2SO4 (ALE244) H2SO4 (ALE204) HNO3 Filtered (ALE204) NaOH (ALE245) Vial (ALE297) </small>	
	23390371	GW 03_09		0.00 - 0.00		GW
	23390291	GW 06_39		0.00 - 0.00		GW
	23390308	GW 07_40		0.00 - 0.00		GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 7				X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 7				X
Anions by Kone (w)	All	NDPs: 0 Tests: 7				X
BOD True Total	All	NDPs: 0 Tests: 7				X
COD Unfiltered	All	NDPs: 0 Tests: 7				X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 7				X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 7				X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7				X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 7				X
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 7				X
Ionic Balance	All	NDPs: 0 Tests: 7				X
Nitrite by Kone (w)	All	NDPs: 0 Tests: 7				X
pH Value	All	NDPs: 0 Tests: 7				X
Phosphate by Kone (w)	All	NDPs: 0 Tests: 7				X
Sulphide	All	NDPs: 0 Tests: 7				X



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	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	Sample Type
	23390371	GW_03_09		0.00 - 0.00	H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5l glass bottle (ALE227)	GW
	23390291	GW_06_39		0.00 - 0.00	ZnAc (ALE246) Vial (ALE297) NaOH (ALE245) HNO3 Filtered (ALE204) H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5l glass bottle (ALE227)	GW
	23390308	GW_07_40		0.00 - 0.00	H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5l glass bottle (ALE227)	GW
VOC MS (W)	All	NDPs: 0 Tests: 7				

23390366	GW_09_32	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				
500ml Plastic (ALE208)	GW				
250ml BOD (ALE212)	GW				
0.5l glass bottle (ALE227)	GW				
ZnAc (ALE246)	GW				
Vial (ALE297)	GW				
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				
NaOH (ALE245)	GW	X			
HNO3 Filtered (ALE204)	GW				
23390308	GW_07_40	0.00 - 0.00	ZnAc (ALE246)	GW	
			Vial (ALE297)	GW	
			NaOH (ALE245)	GW	X
			HNO3 Filtered (ALE204)	GW	



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Results Legend <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;">X Test</div> <div style="display: flex; align-items: center;">N 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	
		23390332	GW_12_30		0.00 - 0.00	ZnAc (ALE246)	GW
			GW_12_33		0.00 - 0.00	VIAI (ALE297)	GW
						NaOH (ALE245)	GW
						HNO3 Filtered (ALE204)	GW
						H2SO4 (ALE244)	GW
						500ml Plastic (ALE208)	GW
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- OTH - Other

	Lab Sample No(s)	23390332														23390402							
	Customer Sample Reference	GW_12_30														GW_12_33							
	AGS Reference																						
	Depth (m)	0.00 - 0.00														0.00 - 0.00							
	Container	0.5l glass bottle (ALEZ27)	250ml BOD (ALE112)	500ml Plastic (ALE208)	500ml Plastic (ALE244)	H2SO4 (ALE204)	HNO3 Filtered (ALE204)	NaOH (ALE245)	NaOH (ALE245)	Vial (ALE297)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE112)	500ml Plastic (ALE208)	500ml Plastic (ALE244)	H2SO4 (ALE204)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	Vial (ALE297)	ZnAc (ALE246)	
	Sample Type	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
VOC MS (W)	All	NDPs: 0 Tests: 7								X													X



CERTIFICATE OF ANALYSIS

Validated

SDG:	201209-32	Client Reference:	Dec 2020 GW Part 1	Report Number:	580359
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	579475

Results Legend			Customer Sample Ref.	GW 03_09	GW 06_39	GW 07_40	GW 09_31	GW 09_32	GW 12_30
# 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.				07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020	07/12/2020
diss.filt Dissolved / filtered sample.									
tot.unfilt Total / unfiltered sample.									
* Subcontracted - refer to subcontractor report for accreditation status.									
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery				09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
(F) Trigger breach confirmed				201209-32	201209-32	201209-32	201209-32	201209-32	201209-32
1-4-@ Sample deviation (see appendix)				23390371	23390291	23390308	23390351	23390386	23390332
Component	LOD/Units	Method							
Ionic balance	% Diff	Calulation		-2.71	-6.81	-4.05	1.39	-5.24	-6.52
Alkalinity, Total as CaCO3	<2 mg/l	TM043		97.8	998	357	574	536	807
BOD, unfiltered	<1 mg/l	TM045		2.53	<1	<1	<1	24.4	<1
Carbon, Organic (diss.filt)	<3 mg/l	TM090		10.5	17.4	9.86	15.9	29.9	23.3
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2	4.49	0.555	5.24	3.8	0.703
Sulphide	<0.01 mg/l	TM101		0.0141	0.0112	0.11	<0.01	0.131	<0.01
COD, unfiltered	<7 mg/l	TM107		57.5	63.2	26.9	61.8	322	79.9
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120		1.41	4.81	1.23	2.3	2.12	2.05
Arsenic (diss.filt)	<0.5 µg/l	TM152		1.09	11.7	2.45	10.9	4.14	25.1
Boron (diss.filt)	<10 µg/l	TM152		211	1140	224	899	795	524
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	1.87	<1	2	<1
Copper (diss.filt)	<0.3 µg/l	TM152		12	<0.3	2.87	2.19	5.82	<0.3
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2	0.25	<0.2	<0.2	0.325	<0.2
Manganese (diss.filt)	<3 µg/l	TM152		87.2	1780	48.8	1670	1530	4310
Nickel (diss.filt)	<0.4 µg/l	TM152		4.66	3.43	1.9	6	6.36	5.09
Selenium (diss.filt)	<1 µg/l	TM152		<1	<1	<1	<1	<1	<1
Zinc (diss.filt)	<1 µg/l	TM152		33.5	3.56	6.7	34.4	5.5	3.17
Sodium (Dis.Filt)	<0.076 mg/l	TM152		74.8	766	74.3	229	253	271
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		14	126	28.4	70.7	51.1	65
Potassium (Dis.Filt)	<0.2 mg/l	TM152		16.6	50.3	21.4	26.7	25.3	10.6
Calcium (Dis.Filt)	<0.2 mg/l	TM152		259	177	165	239	144	132
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019	7.64	0.0297	4.71	0.142	14.8
Hardness, Total as CaCO3	<0.65 mg/l	TM152		704	962	530	888	570	598
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172		420	<100	<100	130	483	<100
Nitrite as NO2	<0.05 mg/l	TM184		0.191	<0.05	0.093	<0.05	<0.05	<0.05
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		0.283	0.056	0.352	<0.05	<0.05	<0.05
Sulphate	<2 mg/l	TM184		666	144	209	368	350	185
Chloride	<2 mg/l	TM184		92.1	1400	88.9	219	273	306
Nitrate as NO3	<0.3 mg/l	TM184		15.8	<0.3	9.4	3.27	<0.3	0.423
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		3.64	<0.1	2.15	0.744	<0.1	<0.1
Cyanide, Total	<0.05 mg/l	TM227		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05



CERTIFICATE OF ANALYSIS

Validated

SDG:	201209-32	Client Reference:	Dec 2020 GW Part 1	Report Number:	580359
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	579475

#	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
ISO17025 accredited.	GW 12_33	0.00 - 0.00	Ground Water (GW)	07/12/2020		09/12/2020	201209-32	23390402	
mCERTS accredited.									
aq Aqueous / settled sample.									
diss.filt Dissolved / filtered sample.									
tot.unfilt Total / unfiltered sample.									
* Subcontracted - refer to subcontractor report for accreditation status.									
** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery									
(F) Trigger breach confirmed									
1-4* Sample deviation (see appendix)									
Component	LOD/Units	Method							
Ionic balance	% Diff	Calulation	0.867						
Alkalinity, Total as CaCO3	<2 mg/l	TM043	517	#					
BOD, unfiltered	<1 mg/l	TM045	4.94	#					
Carbon, Organic (diss.filt)	<3 mg/l	TM090	11.6						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	8.63	#					
Sulphide	<0.01 mg/l	TM101	0.668	#					
COD, unfiltered	<7 mg/l	TM107	58.5	#					
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	1.85	#					
Arsenic (diss.filt)	<0.5 µg/l	TM152	57.8	#					
Boron (diss.filt)	<10 µg/l	TM152	728	#					
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	#					
Chromium (diss.filt)	<1 µg/l	TM152	<1	#					
Copper (diss.filt)	<0.3 µg/l	TM152	<0.3	#					
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	#					
Manganese (diss.filt)	<3 µg/l	TM152	590	#					
Nickel (diss.filt)	<0.4 µg/l	TM152	0.897	#					
Selenium (diss.filt)	<1 µg/l	TM152	<1	#					
Zinc (diss.filt)	<1 µg/l	TM152	4.57	#					
Sodium (Dis.Filt)	<0.076 mg/l	TM152	184	#					
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	80.7	#					
Potassium (Dis.Filt)	<0.2 mg/l	TM152	31.1	#					
Calcium (Dis.Filt)	<0.2 mg/l	TM152	142	#					
Iron (Dis.Filt)	<0.019 mg/l	TM152	1.7	#					
Hardness, Total as CaCO3	<0.65 mg/l	TM152	688						
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172	177	#					
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	#					
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	0.179	#					
Sulphate	<2 mg/l	TM184	334	#					
Chloride	<2 mg/l	TM184	196	#					
Nitrate as NO3	<0.3 mg/l	TM184	4.18						
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.949	#					
Cyanide, Total	<0.05 mg/l	TM227	<0.05	#					



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Validated

SDG: 201209-32 **Client Reference:** Dec 2020 GW Part 1 **Report Number:** 580359
Location: Newport landfill site **Order Number:** 700156882 **Superseded Report:** 579475

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).



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SDG: 201209-32	Client Reference: Dec 2020 GW Part 1	Report Number: 580359
Location: Newport landfill site	Order Number: 700156882	Superseded Report: 579475

Test Completion Dates

Lab Sample No(s)	23390371	23390291	23390308	23390351	23390386	23390332	23390402
Customer Sample Ref.	GW 03_09	GW 06_39	GW 07_40	GW 09_31	GW 09_32	GW 12_30	GW 12_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
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
Alkalinity Filtered as CaCO3	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020
Ammoniacal Nitrogen	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
Anions by Kone (w)	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
BOD True Total	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020
COD Unfiltered	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
Conductivity (at 20 deg.C)	10-Dec-2020	11-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020
Cyanide Comp/Free/Total/Thiocyanate	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020
Dissolved Metals by ICP-MS	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020
Dissolved Organic/Inorganic Carbon	10-Dec-2020	11-Dec-2020	10-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020
EPH (DRO) (C10-C40) Aqueous (W)	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020
Ionic Balance	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
Nitrite by Kone (w)	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020
pH Value	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020
Phosphate by Kone (w)	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020
Sulphide	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
VOC MS (W)	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020	10-Dec-2020



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SDG: 201209-32	Client Reference: Dec 2020 GW Part 1	Report Number: 580359
Location: Newport landfill site	Order Number: 700156882	Superseded Report: 579475

Chromatogram

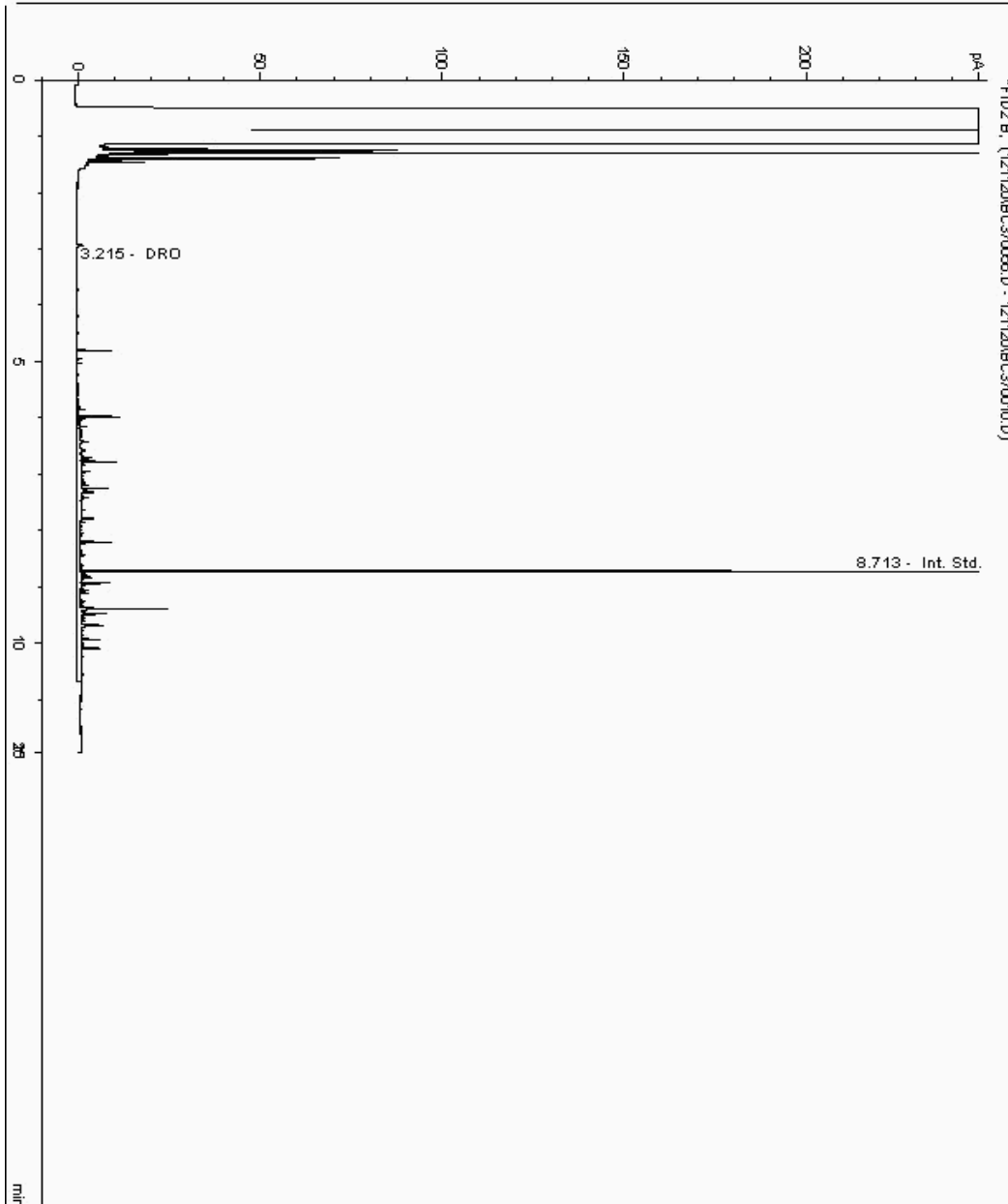
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23391981
Sample ID : GW_09_32

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21943995-
Date Acquired : 12/12/2020 12:32:56 PM
Units : mg/l





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Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	579475

Chromatogram

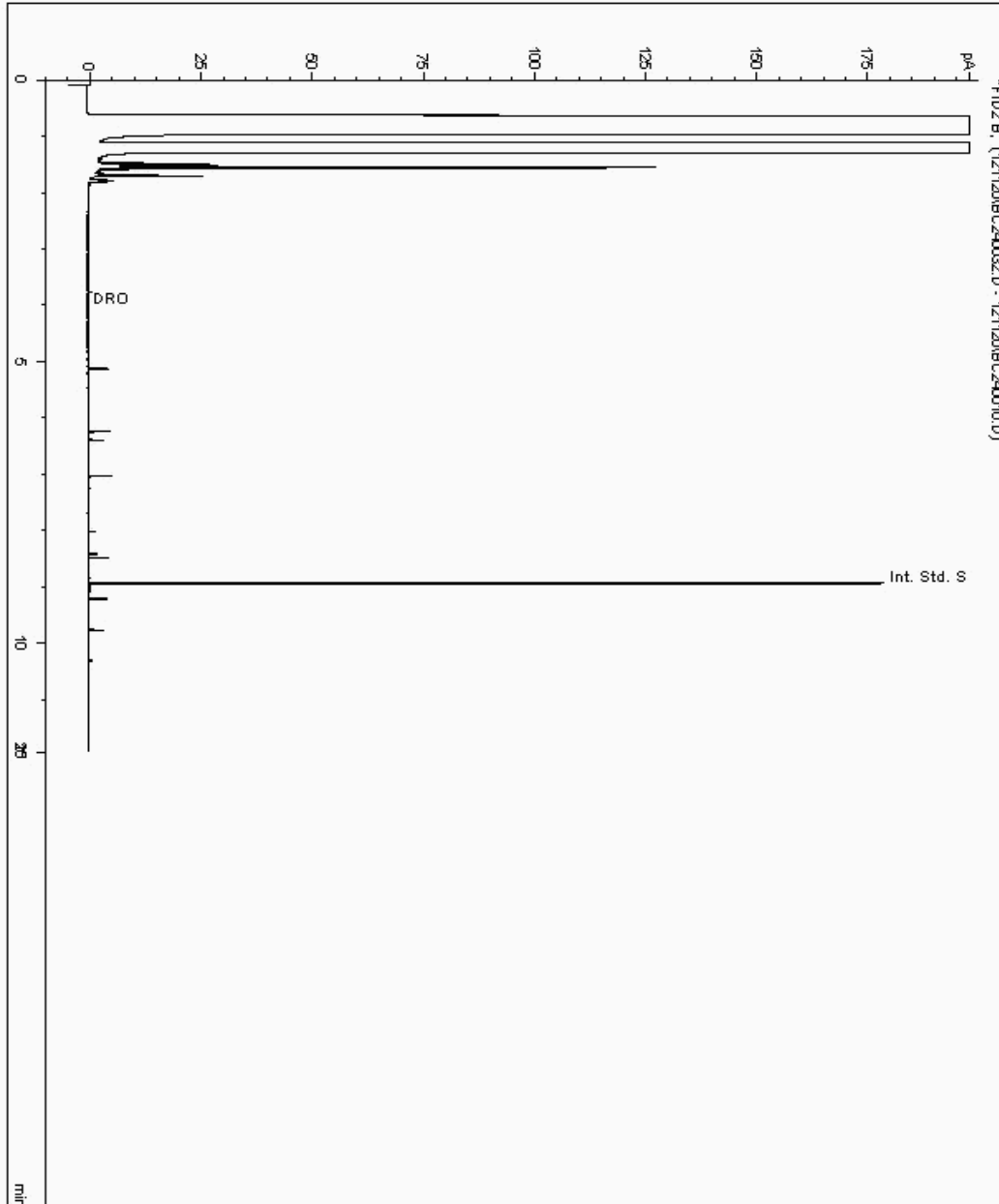
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23391992
Sample ID : GW_06_39

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21943834-
Date Acquired : 12/12/2020 02:45:20 PM
Units : mg/l





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Chromatogram

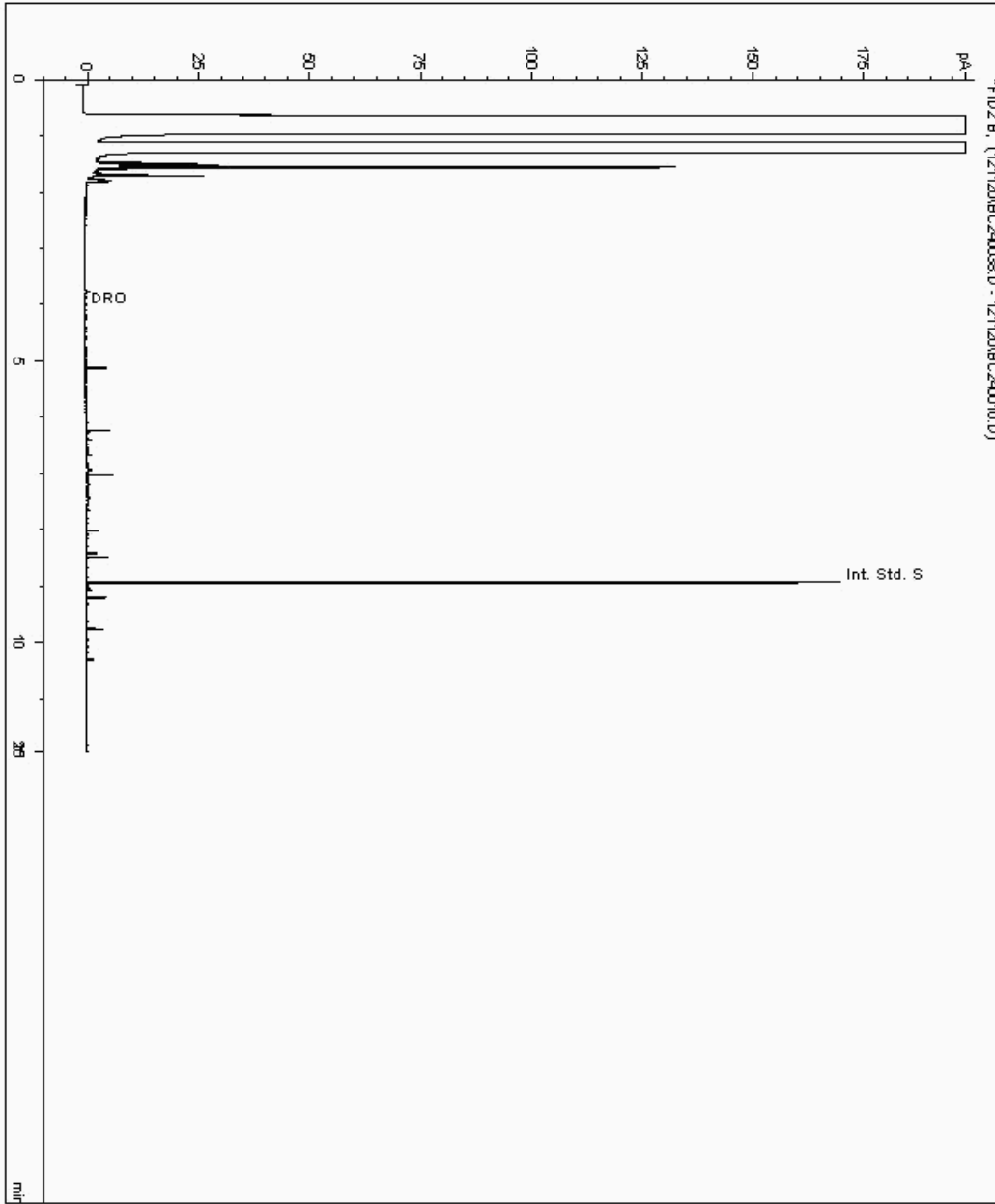
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23391997
Sample ID : GW 12_33

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21944029-
Date Acquired : 12/12/2020 05:12:29 PM
Units : mg/l





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SDG:	201209-32	Client Reference:	Dec 2020 GW Part 1	Report Number:	580359
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Chromatogram

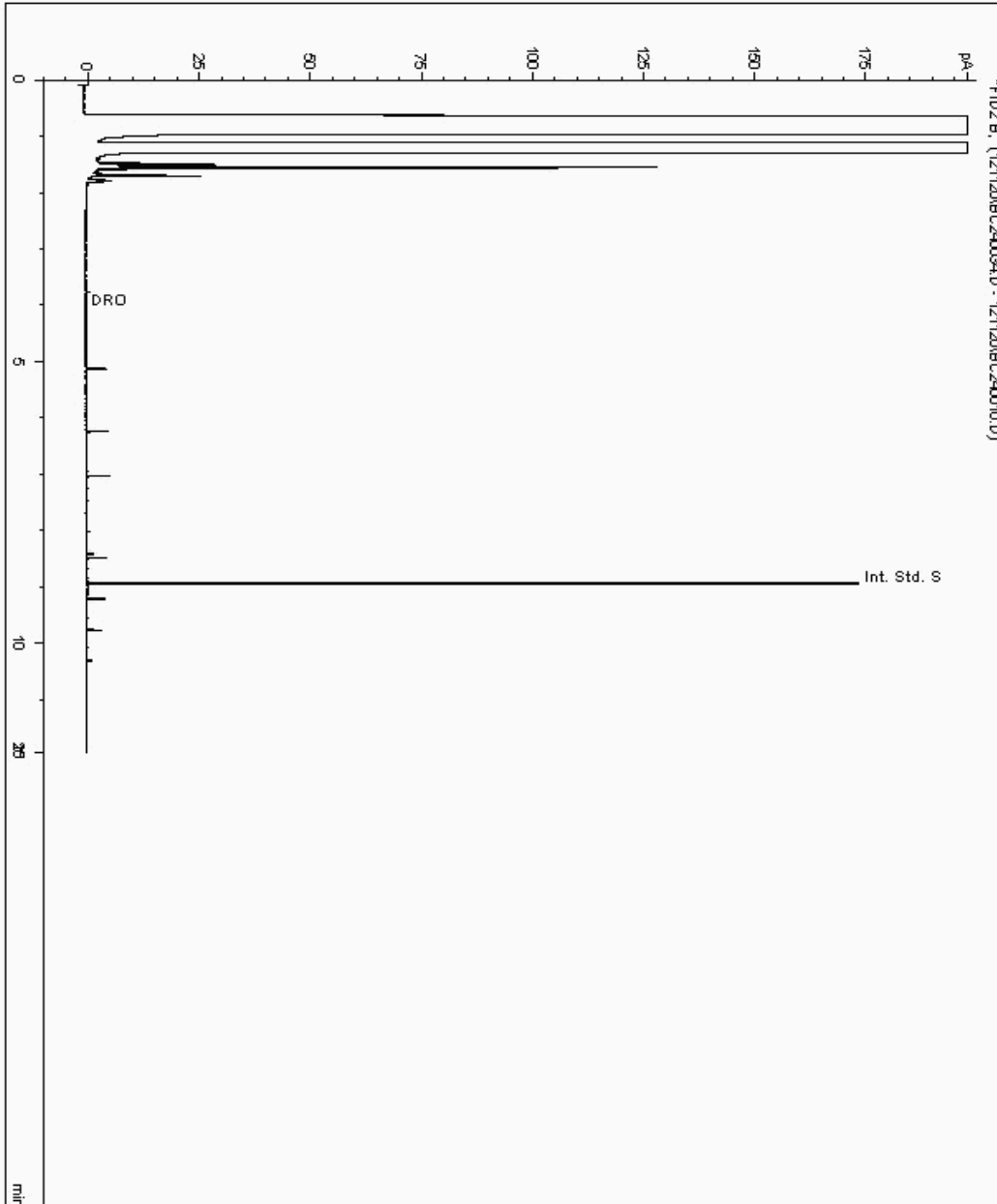
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23392001
Sample ID : GW 12_30

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21943909-
Date Acquired : 12/12/2020 03:34:29 PM
Units : mg/l





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Validated

SDG:	201209-32	Client Reference:	Dec 2020 GW Part 1	Report Number:	580359
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	579475

Chromatogram

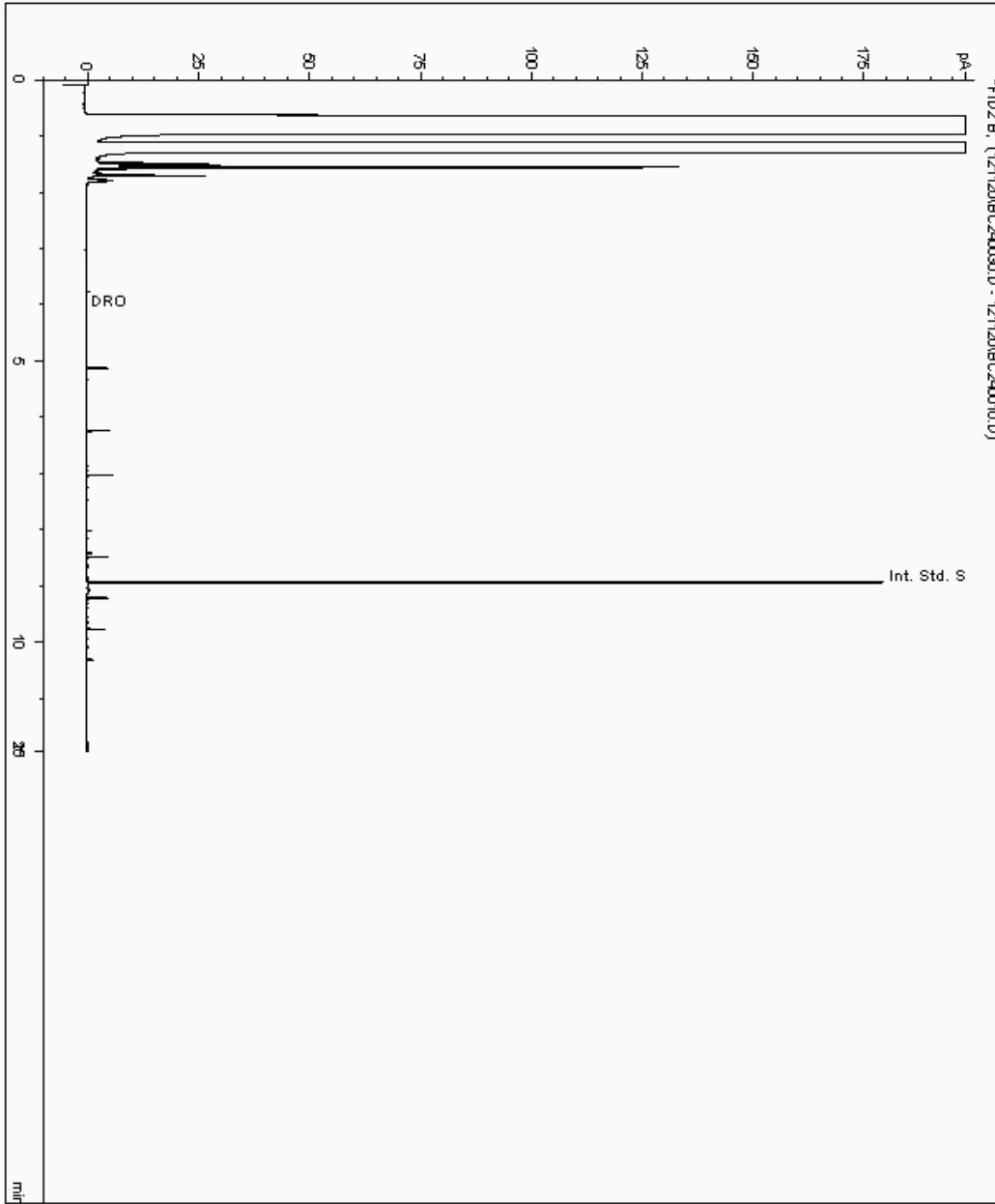
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23392012
Sample ID : GW 07_40

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21943878-
Date Acquired : 12/12/2020 01:56:23 PM
Units : mg/l





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Validated

SDG:	201209-32	Client Reference:	Dec 2020 GW Part 1	Report Number:	580359
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	579475

Chromatogram

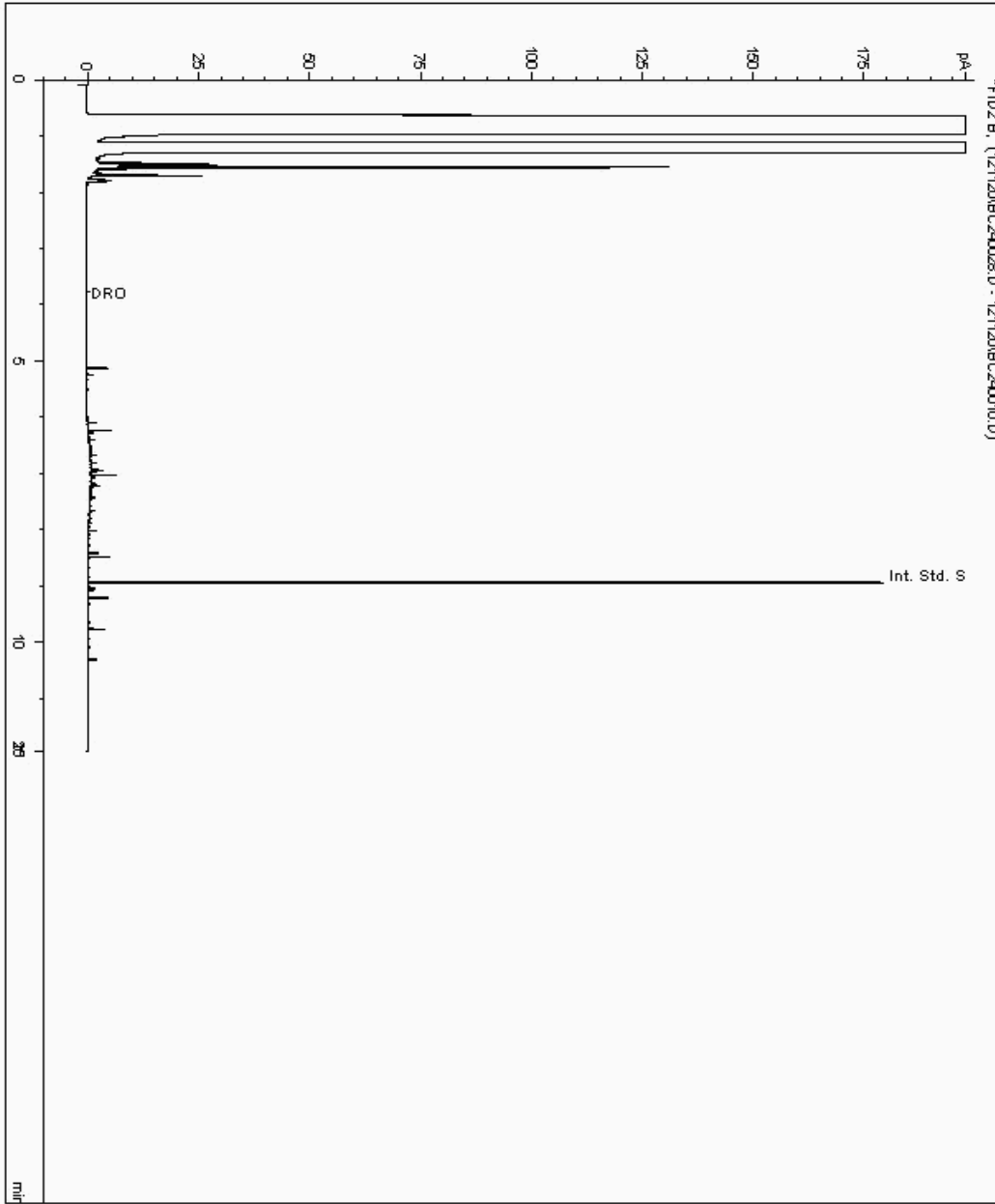
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23392029
Sample ID : GW_03_09

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21943956-
Date Acquired : 12/12/2020 01:07:10 PM
Units : mg/l





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SDG:	201209-32	Client Reference:	Dec 2020 GW Part 1	Report Number:	580359
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	579475

Chromatogram

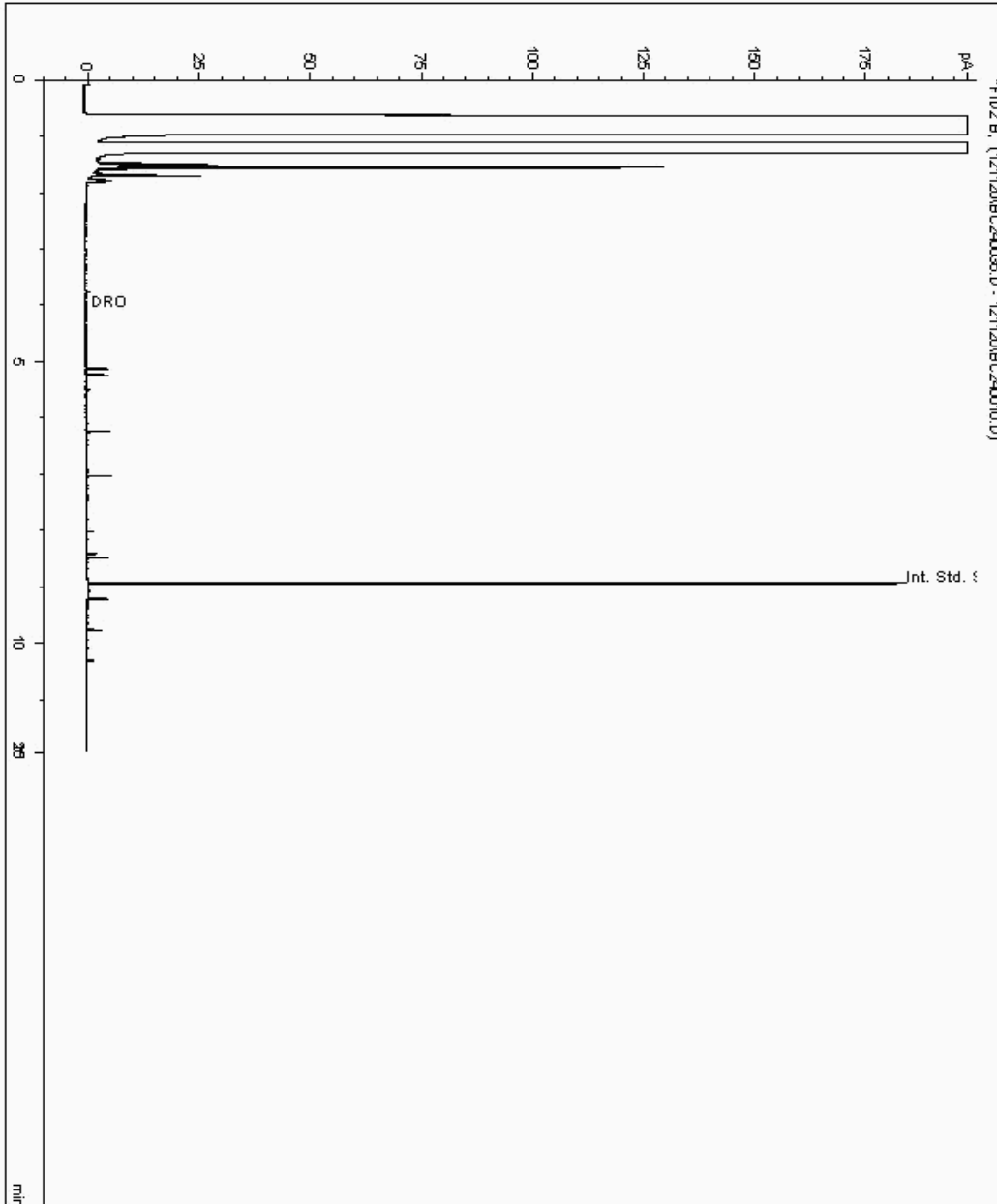
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23392037
Sample ID : GW_09_31

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21943936-
Date Acquired : 12/12/2020 04:23:33 PM
Units : mg/l





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SDG: 201209-32	Client Reference: Dec 2020 GW Part 1	Report Number: 580359
Location: Newport landfill site	Order Number: 700156882	Superseded Report: 579475

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

19. Asbestos

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

Identification of Asbestos in Bulk Materials & Soils

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

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

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

Visual Estimation Of Fibre Content

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

Respirable Fibres

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

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

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



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Fax: (01244) 528701

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Website: www.alsenvironmental.co.uk

Newport City Council
Civic Centre
Newport
NP20 4UR

Attention: Luke Embrey

CERTIFICATE OF ANALYSIS

Date of report Generation: 22 December 2020
Customer: Newport City Council
Sample Delivery Group (SDG): 201210-56
Your Reference: Dec 2020 GW Part 2
Location: Newport landfill site
Report No: 581206

This report has been revised and directly supersedes 580208 in its entirety.

We received 7 samples on Thursday December 10, 2020 and 7 of these samples were scheduled for analysis which was completed on Tuesday December 22, 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: 201210-56 **Client Reference:** Dec 2020 GW Part 2 **Report Number:** 581206
Location: Newport landfill site **Order Number:** 700156882 **Superseded Report:** 580208

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23400898	GW 06_13		0.00 - 0.00	08/12/2020
23400815	GW 06_34		0.00 - 0.00	08/12/2020
23400857	GW 06_36		0.00 - 0.00	08/12/2020
23400874	GW 06_37		0.00 - 0.00	08/12/2020
23400833	GW 09_35		0.00 - 0.00	08/12/2020
23400913	GW 12_38		0.00 - 0.00	08/12/2020
23400935	GW 06_14A		0.00 - 0.00	08/12/2020

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



CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

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		
	23400898	GW 06_13		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		
					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
					H2SO4 (ALE204)	GW		
					500ml Plastic (ALE208)	GW		
					250ml BOD (ALE212)	GW		
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					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
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					H2SO4 (ALE204)	GW		
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					Vial (ALE297)	GW		
					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
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					H2SO4 (ALE204)	GW		
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					Vial (ALE297)	GW		
					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
					H2SO4 (ALE204)	GW		
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					250ml BOD (ALE212)	GW		
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					ZnAc (ALE246)	GW		
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					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
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					Vial (ALE297)	GW		
					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
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					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
					H2SO4 (ALE204)	GW		
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					ZnAc (ALE246)	GW		
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					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
					H2SO4 (ALE204)	GW		
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					NaOH (ALE245)	GW		
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					H2SO4 (ALE244)	GW		
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					250ml BOD (ALE212)	GW		
					0.5l glass bottle (ALE227)	GW		
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					H2SO4 (ALE204)	GW		
					500ml Plastic (ALE208)	GW		
					250ml BOD (ALE212)	GW		
					0.5l glass bottle (ALE227)	GW		
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					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
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					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
					H2SO4 (ALE204)	GW		
					500ml Plastic (ALE208)	GW		
					250ml BOD (ALE212)	GW		
					0.5l glass bottle (ALE227)	GW		
					ZnAc (ALE246)	GW		
					Vial (ALE297)	GW		
					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
					H2SO4 (ALE204)	GW		
					500ml Plastic (ALE208)	GW		
					250ml BOD (ALE212)	GW		
					0.5l glass bottle (ALE227)	GW		
					ZnAc (ALE246)	GW		
					Vial (ALE297)	GW		
					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
					H2SO4 (ALE204)	GW		
					500ml Plastic (ALE208)	GW		
					250ml BOD (ALE212)	GW		
					0.5l glass bottle (ALE227)	GW		
					ZnAc (ALE246)	GW		
					Vial (ALE297)	GW		
					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
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					H2SO4 (ALE244)	GW		
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					0.5l glass bottle (ALE227)	GW		
					ZnAc (ALE246)	GW		
					Vial (ALE297)	GW		
					NaOH (ALE245)	GW		
					HNO3 Filtered (ALE204)	GW		
					H2SO4 (ALE244)	GW		
					H2SO4 (ALE204)	GW		
					500ml Plastic (ALE208)	GW		
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CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

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
		23400898	GW_06_13		0.00 - 0.00	H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5l glass bottle (ALE227)
	23400815	GW_06_34		0.00 - 0.00	ZnAc (ALE246) Vial (ALE297) NaOH (ALE245) HNO3 Filtered (ALE204) H2SO4 (ALE244) 500ml Plastic (ALE208) 250ml BOD (ALE212) 0.5l glass bottle (ALE227)	GW
VOC MS (W)	All	NDPs: 0 Tests: 7				

23400833	GW_09_35	0.00 - 0.00	0.5l glass bottle (ALE227)	GW	
			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
23400874	GW_06_37	0.00 - 0.00	NaOH (ALE245)	GW	
			HNO3 Filtered (ALE204)	GW	
			H2SO4 (ALE244)	GW	
			500ml Plastic (ALE208)	GW	
			250ml BOD (ALE112)	GW	
			0.5l glass bottle (ALE227)	GW	
			Vial (ALE297)	GW	
			NaOH (ALE245)	GW	
			HNO3 Filtered (ALE204)	GW	
			H2SO4 (ALE244)	GW	
			500ml Plastic (ALE208)	GW	
250ml BOD (ALE112)	GW				
0.5l glass bottle (ALE227)	GW				
Vial (ALE297)	GW				
NaOH (ALE245)	GW				
HNO3 Filtered (ALE204)	GW				
23400857	GW_06_36	0.00 - 0.00	NaOH (ALE245)	GW	
			HNO3 Filtered (ALE204)	GW	
			Vial (ALE297)	GW	X



CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

Results Legend <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;">X Test</div> <div style="display: flex; align-items: center;">N 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	
		23400913	GW_06_14A		0.00 - 0.00	ZnAc (ALE246)	GW
						Vial (ALE297)	GW
						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	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
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					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
					500ml Plastic (ALE208)	GW	
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					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
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					ZnAc (ALE246)	GW	
					Vial (ALE297)	GW	
					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	
					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	
					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	
					NaOH (ALE245)	GW	
					HNO3 Filtered (ALE204)	GW	
					H2SO4 (ALE244)	GW	
</							



CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

Results Legend <div style="margin-top: 10px;"> X Test </div> <div style="margin-top: 10px;"> N No Determination Possible </div> Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)	23400913										23400935					
	Customer Sample Reference	GW_12_38										GW_06_14A					
	AGS Reference																
	Depth (m)	0.00 - 0.00										0.00 - 0.00					
	Container	ZnAc (ALE246)	Vial (ALE297)	NaOH (ALE245)	HNO3 Filtered (ALE204)	H2SO4 (ALE244)	500ml Plastic (ALE208)	250ml BOD (ALE212)	0.5l glass bottle (ALE227)	ZnAc (ALE246)	Vial (ALE297)	NaOH (ALE245)	HNO3 Filtered (ALE204)	H2SO4 (ALE244)	500ml Plastic (ALE208)	250ml BOD (ALE212)	0.5l glass bottle (ALE227)
	Sample Type	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
	VOC MS (W)	All	NDPs: 0 Tests: 7														
								X									X



CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

Results Legend			Customer Sample Ref.	GW 06_13	GW 06_34	GW 06_36	GW 06_37	GW 09_35	GW 12_38
#	ISO17025 accredited.								
M	mCERTS accredited.								
aq	Aqueous / settled sample.								
diss.filt	Dissolved / filtered sample.								
tot.unfilt	Total / unfiltered sample.								
*	Subcontracted - refer to subcontractor report for accreditation status.								
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery								
(F)	Trigger breach confirmed								
1-4*\$@	Sample deviation (see appendix)								
		Depth (m)	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
		Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
		Date Sampled	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
		Sampled Time							
		Date Received	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
		SDG Ref	201210-56	201210-56	201210-56	201210-56	201210-56	201210-56	201210-56
		Lab Sample No.(s)	23400898	23400815	23400857	23400874	23400833	23400913	23400913
		AGS Reference							
Component	LOD/Units	Method							
Ionic balance	% Diff	Calulation	3.52	-4.37	-10.6	-23.9	-12.8	-2.73	
Alkalinity, Total as CaCO3	<2 mg/l	TM043	960	755	951	1090	759	579	#
BOD, unfiltered	<1 mg/l	TM045	2.94	127	18.3	25.2	3.27	3.03	#
Carbon, Organic (diss.filt)	<3 mg/l	TM090	12.7	18.6	12.4	36.6	9.88	19.7	#
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	12.8	0.431	8.37	47	9.01	<0.2	#
Sulphide	<0.01 mg/l	TM101	0.391	1.58	0.0872	0.327	<0.01	0.0582	#
COD, unfiltered	<7 mg/l	TM107	316	1140	242	273	272	127	#
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	7.78	1.13	9.83	14.3	9.94	2.41	#
Arsenic (diss.filt)	<0.5 µg/l	TM152	1.69	10.8	0.882	70.9	0.837	1.07	#
Boron (diss.filt)	<10 µg/l	TM152	1480	470	1210	2780	1000	542	#
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	<0.3	4.42	0.314	<0.3	0.801	3.54	#
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	0.381	0.302	<0.2	<0.2	0.237	#
Manganese (diss.filt)	<3 µg/l	TM152	400	695	219	458	149	690	#
Nickel (diss.filt)	<0.4 µg/l	TM152	0.891	2.06	0.997	0.755	0.584	7.83	#
Selenium (diss.filt)	<1 µg/l	TM152	<1	<1	<1	<1	<1	<1	#
Zinc (diss.filt)	<1 µg/l	TM152	4.34	5.25	1.82	3.59	7.62	5.28	#
Sodium (Dis.Filt)	<0.076 mg/l	TM152	1820	39.1	1590	2020	1480	162	#
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	235	41.1	245	214	204	63.9	#
Potassium (Dis.Filt)	<0.2 mg/l	TM152	63.8	13.2	67.4	96.6	58.7	34	#
Calcium (Dis.Filt)	<0.2 mg/l	TM152	117	159	216	73.1	201	354	#
Iron (Dis.Filt)	<0.019 mg/l	TM152	0.0794	0.172	0.175	5.02	0.806	<0.019	#
Hardness, Total as CaCO3	<0.65 mg/l	TM152	1260	566	1550	1060	1340	1150	#
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172	196	2590	714	528	217	276	#
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	0.095	<0.05	<0.05	<0.05	<0.05	#
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	4.61	0.071	10.3	3.45	7.72	0.059	#
Sulphate	<2 mg/l	TM184	98.6	87.9	153	<2	102	633	#
Chloride	<2 mg/l	TM184	2770	34.3	3670	5840	3640	291	#
Nitrate as NO3	<0.3 mg/l	TM184	1.72	<0.3	<0.3	<0.3	0.907	1.07	#
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.395	<0.1	<0.1	<0.1	0.212	0.247	#
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	#



CERTIFICATE OF ANALYSIS

Validated

SDG: 201210-56 **Client Reference:** Dec 2020 GW Part 2 **Report Number:** 581206
Location: Newport landfill site **Order Number:** 700156882 **Superseded Report:** 580208

Results Legend			Customer Sample Ref.	GW 06_13	GW 06_34	GW 06_36	GW 06_37	GW 09_35	GW 12_38
#	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	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020	08/12/2020
dis.filt	Dissolved / filtered sample.		Sampled Time
tot.unfilt	Total / unfiltered sample.		Date Received	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020	10/12/2020
*	Subcontracted - refer to subcontractor report for accreditation status.		SDG Ref	201210-56	201210-56	201210-56	201210-56	201210-56	201210-56
**	% 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)	23400898	23400815	23400857	23400874	23400833	23400913
(F)	Trigger breach confirmed		AGS Reference						
1.4.4.5@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
pH	<1 pH Units	TM256	7.89	7.51	7.67	7.66	7.7	7.19	
			#	#	#	#	#	#	#



CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

#	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
<div style="font-size: small;"> Results Legend # ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-4*\$@ Sample deviation (see appendix) </div>									
		0.00 - 0.00	Ground Water (GW)	08/12/2020		10/12/2020	201210-56	23400935	
Component	LOD/Units	Method							
Ionic balance		Calulation	-19.6						
Alkalinity, Total as CaCO3	<2 mg/l	TM043	247	#					
BOD, unfiltered	<1 mg/l	TM045	<1	#					
Carbon, Organic (diss.filt)	<3 mg/l	TM090	<3						
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2	#					
Sulphide	<0.01 mg/l	TM101	0.0272	#					
COD, unfiltered	<7 mg/l	TM107	177	#					
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	14.7	#					
Arsenic (diss.filt)	<0.5 µg/l	TM152	1.5	#					
Boron (diss.filt)	<10 µg/l	TM152	998	#					
Cadmium (diss.filt)	<0.08 µg/l	TM152	0.159	#					
Chromium (diss.filt)	<1 µg/l	TM152	<1	#					
Copper (diss.filt)	<0.3 µg/l	TM152	3.32	#					
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	#					
Manganese (diss.filt)	<3 µg/l	TM152	38.7	#					
Nickel (diss.filt)	<0.4 µg/l	TM152	1.68	#					
Selenium (diss.filt)	<1 µg/l	TM152	<1	#					
Zinc (diss.filt)	<1 µg/l	TM152	17.3	#					
Sodium (Dis.Filt)	<0.076 mg/l	TM152	2120	#					
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	262	#					
Potassium (Dis.Filt)	<0.2 mg/l	TM152	120	#					
Calcium (Dis.Filt)	<0.2 mg/l	TM152	223	#					
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.019	#					
Hardness, Total as CaCO3	<0.65 mg/l	TM152	1640						
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172	153	#					
Nitrite as NO2	<0.05 mg/l	TM184	0.237	#					
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	0.194	#					
Sulphate	<2 mg/l	TM184	819	#					
Chloride	<2 mg/l	TM184	5970	#					
Nitrate as NO3	<0.3 mg/l	TM184	0.893						
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.274	#					
Cyanide, Total	<0.05 mg/l	TM227	<0.05	#					



CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

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: 201210-56	Client Reference: Dec 2020 GW Part 2	Report Number: 581206	
Location: Newport landfill site	Order Number: 700156882	Superseded Report: 580208	

Test Completion Dates

Lab Sample No(s)	23400898	23400815	23400857	23400874	23400833	23400913	23400935
Customer Sample Ref.	GW_06_13	GW_06_34	GW_06_36	GW_06_37	GW_09_35	GW_12_38	GW_06_14A
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
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water

Alkalinity as CaCO3	16-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Alkalinity Filtered as CaCO3	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
Ammoniacal Nitrogen	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Anions by Kone (w)	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
BOD True Total	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
COD Unfiltered	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Conductivity (at 20 deg.C)	14-Dec-2020	11-Dec-2020	14-Dec-2020	11-Dec-2020	11-Dec-2020	14-Dec-2020	11-Dec-2020
Cyanide Comp/Free/Total/Thiocyanate	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
Dissolved Metals by ICP-MS	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
Dissolved Organic/Inorganic Carbon	12-Dec-2020	11-Dec-2020	12-Dec-2020	11-Dec-2020	12-Dec-2020	12-Dec-2020	11-Dec-2020
EPH (DRO) (C10-C40) Aqueous (W)	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Ionic Balance	17-Dec-2020	17-Dec-2020	17-Dec-2020	22-Dec-2020	17-Dec-2020	17-Dec-2020	22-Dec-2020
Nitrite by Kone (w)	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020
pH Value	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020
Phosphate by Kone (w)	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
Sulphide	16-Dec-2020	17-Dec-2020	18-Dec-2020	18-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
VOC MS (W)	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020



CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

Chromatogram

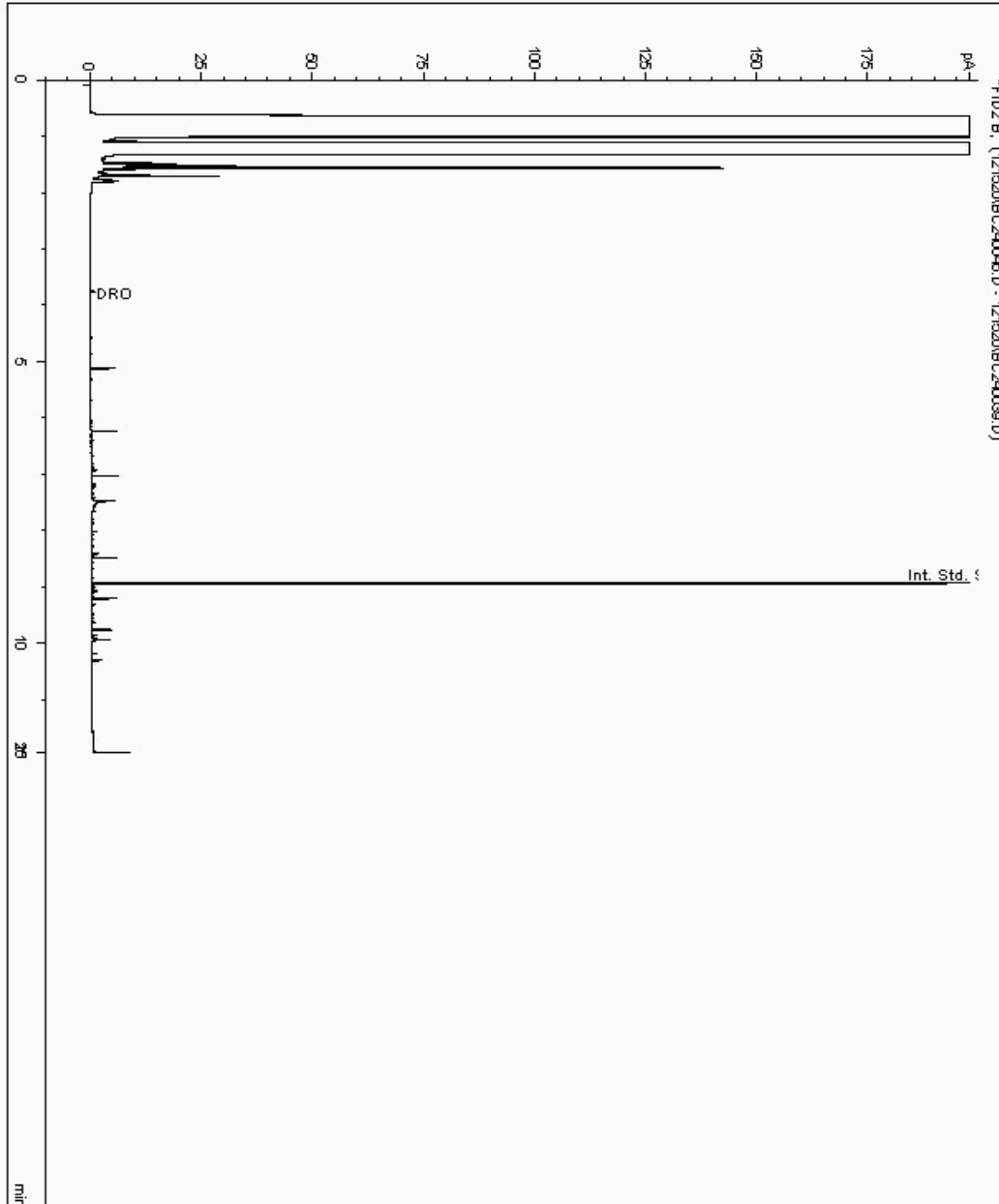
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23402371
Sample ID : GW_06_13

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21954143-
Date Acquired : 16/12/2020 09:43:27 PM
Units : mg/l





CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

Chromatogram

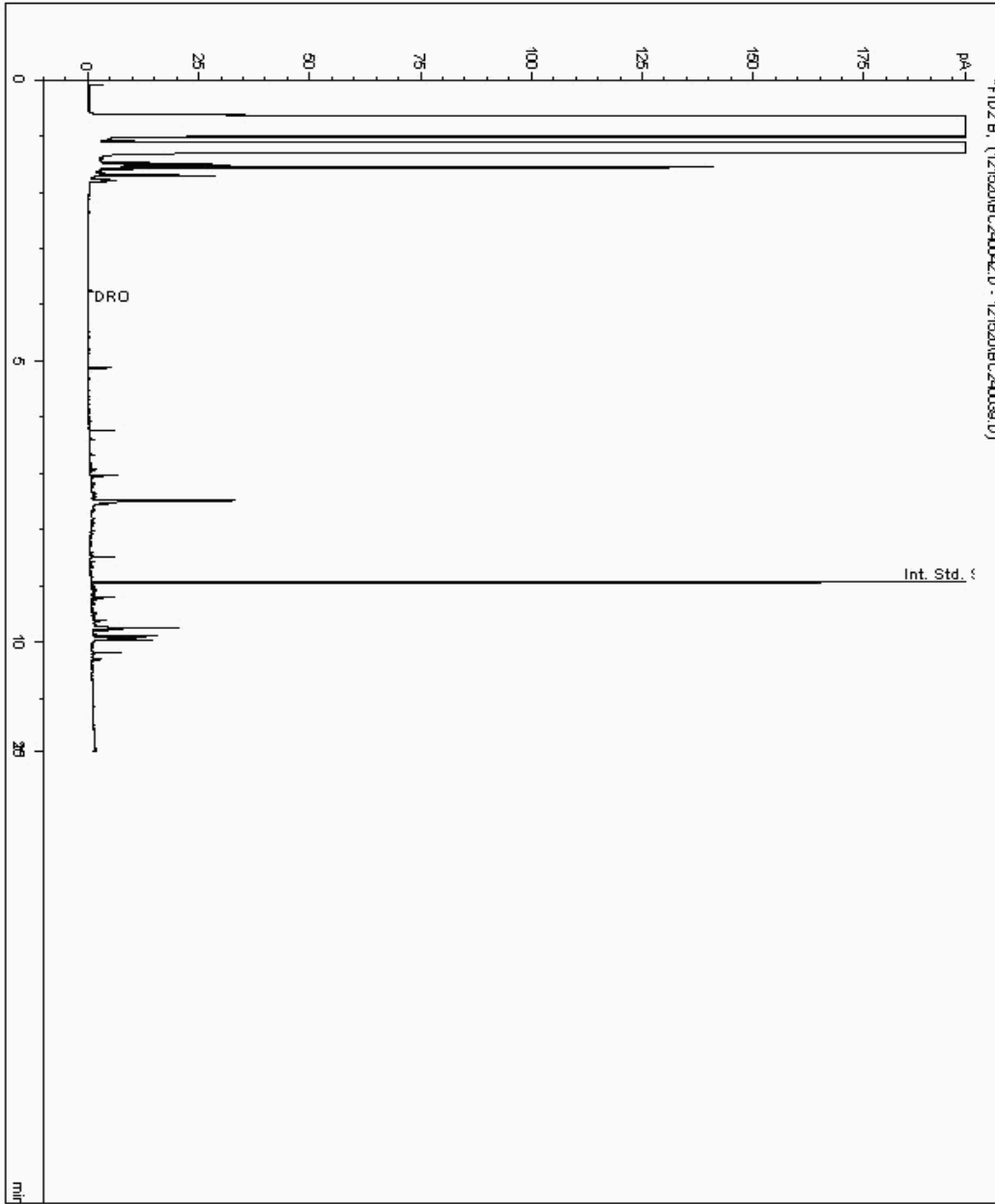
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23402377
Sample ID : GW_06_37

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21954119-
Date Acquired : 16/12/2020 08:06:42 PM
Units : mg/l





CERTIFICATE OF ANALYSIS

Validated

SDG: 201210-56
Location: Newport landfill site

Client Reference: Dec 2020 GW Part 2
Order Number: 700156882

Report Number: 581206
Superseded Report: 580208

Chromatogram

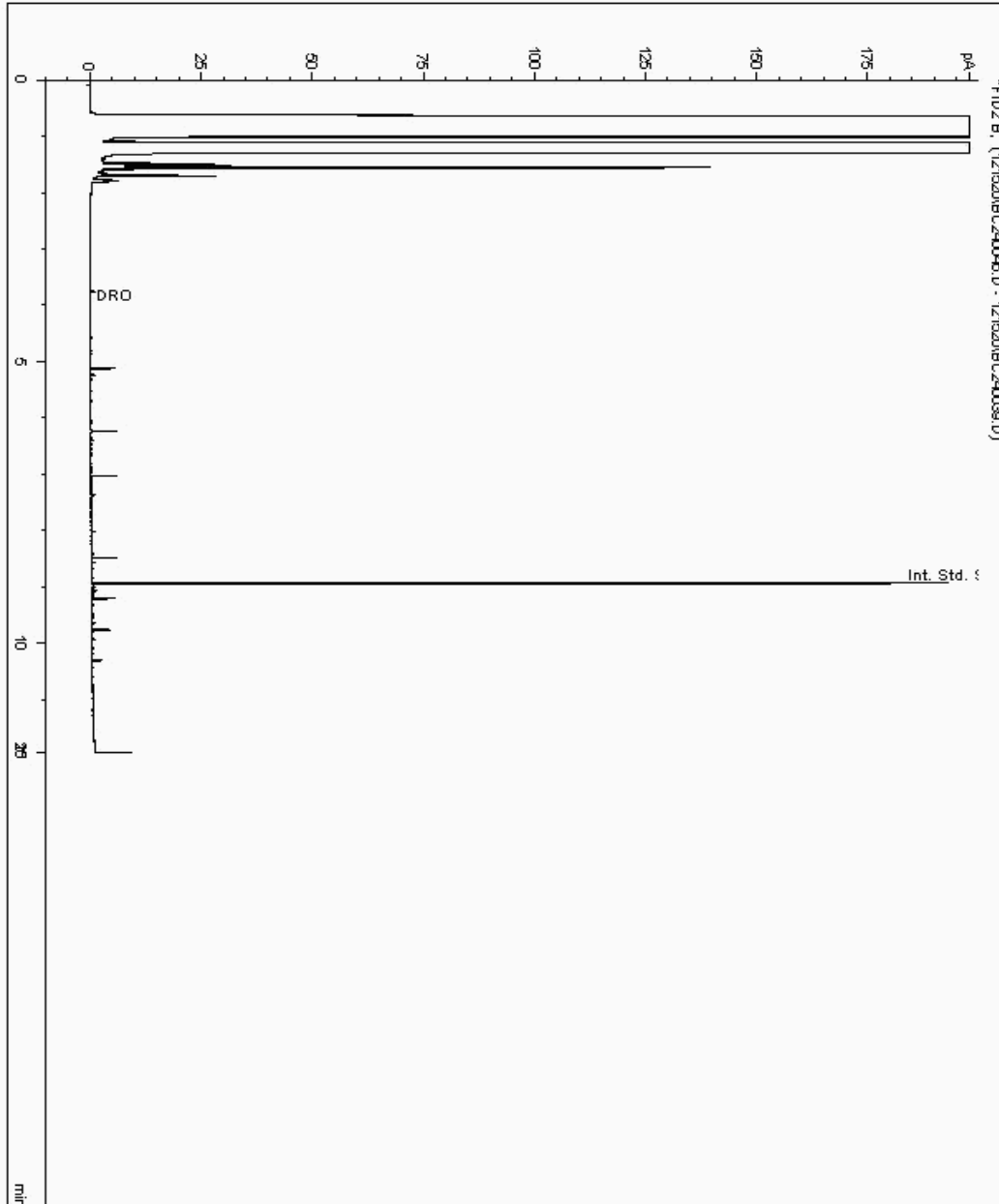
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23402394
Sample ID : GW_06_14A

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21954177-
Date Acquired : 16/12/2020 09:19:03 PM
Units : mg/l





CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

Chromatogram

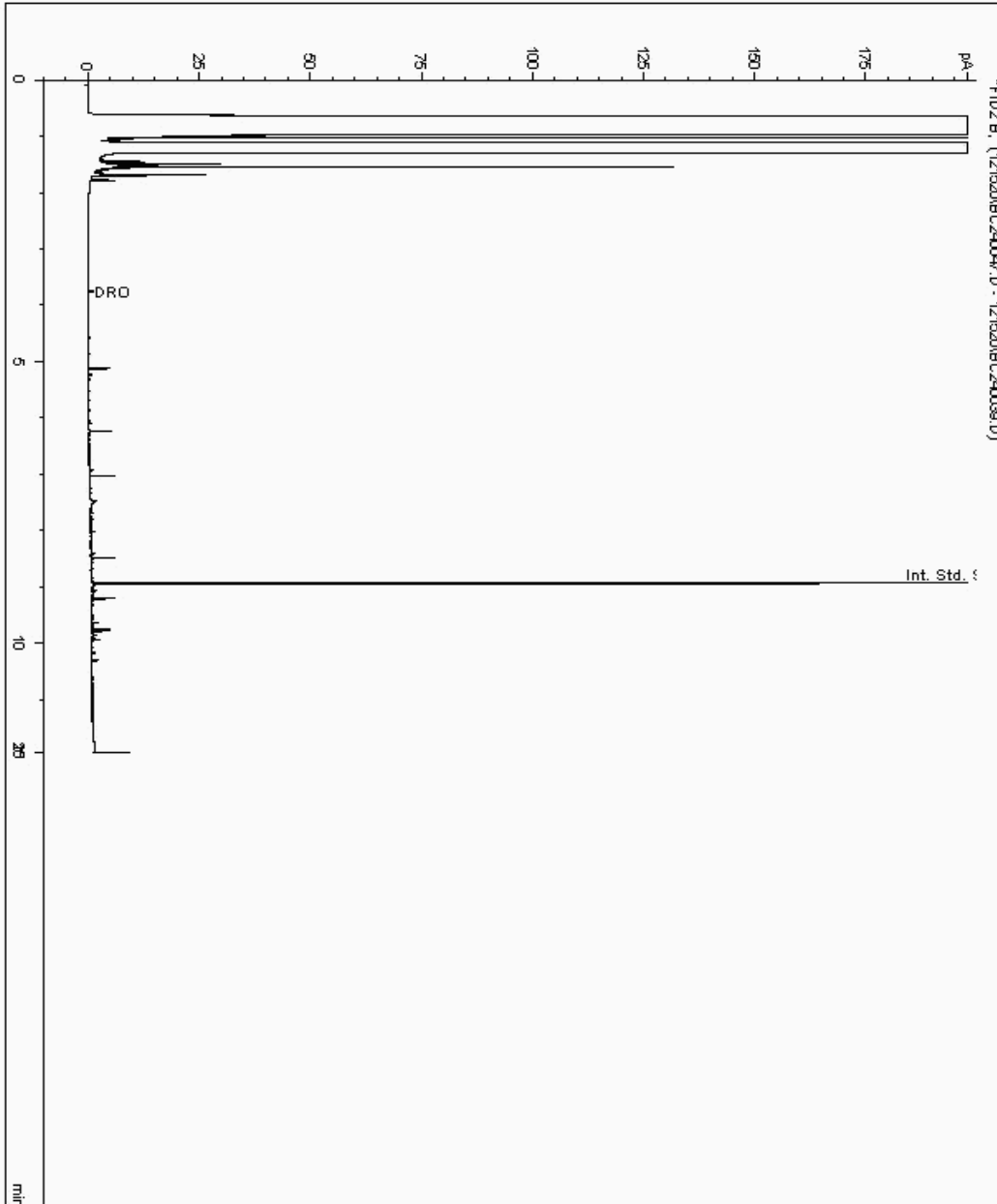
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23402403
Sample ID : GW 12_38

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21954160-
Date Acquired : 16/12/2020 10:06:14 PM
Units : mg/l





CERTIFICATE OF ANALYSIS

Validated

SDG: 201210-56
Location: Newport landfill site

Client Reference: Dec 2020 GW Part 2
Order Number: 700156882

Report Number: 581206
Superseded Report: 580208

Chromatogram

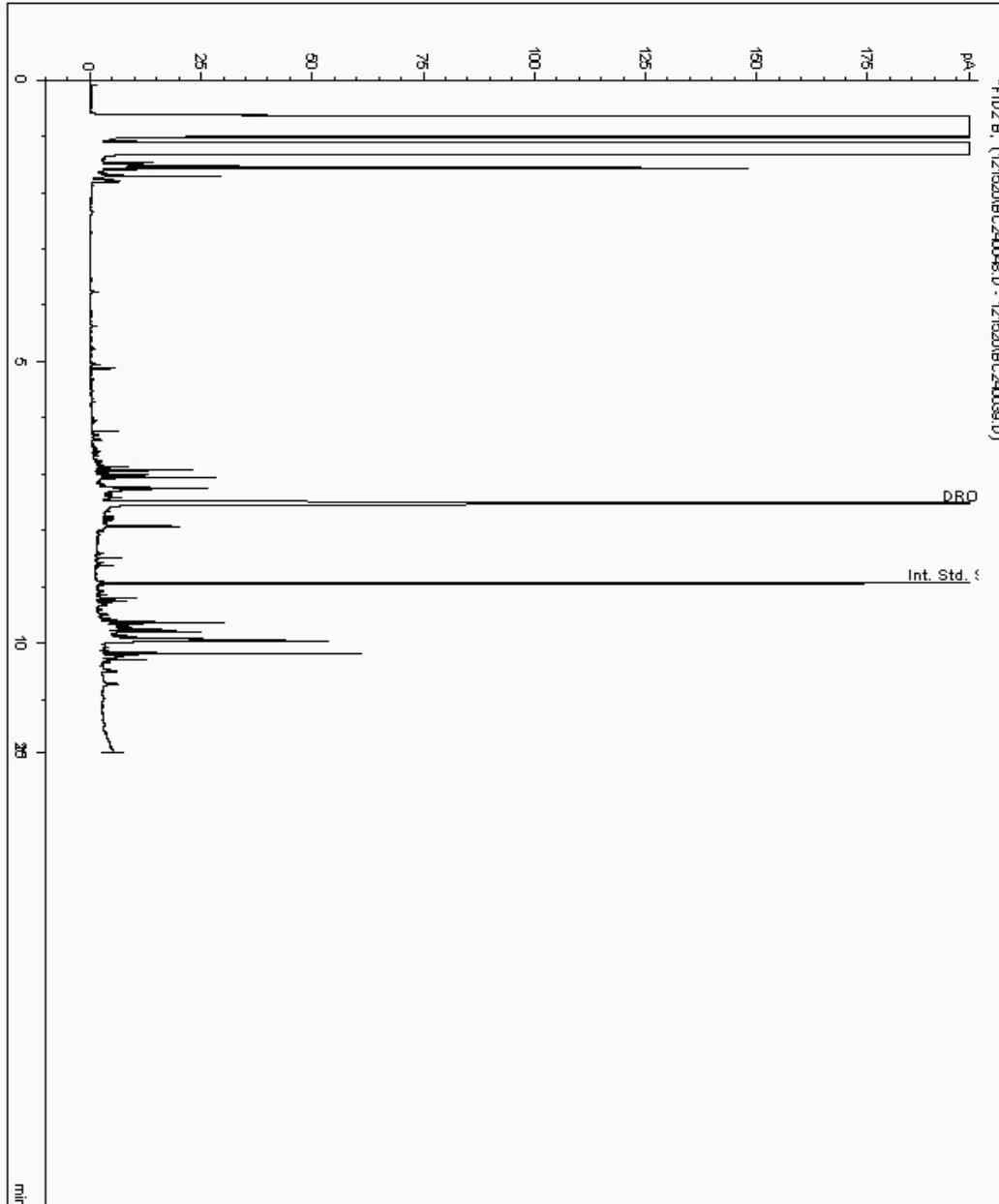
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23402941
Sample ID : GW_06_34

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21954058-
Date Acquired : 16/12/2020 10:28:58 PM
Units : mg/l





CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

Chromatogram

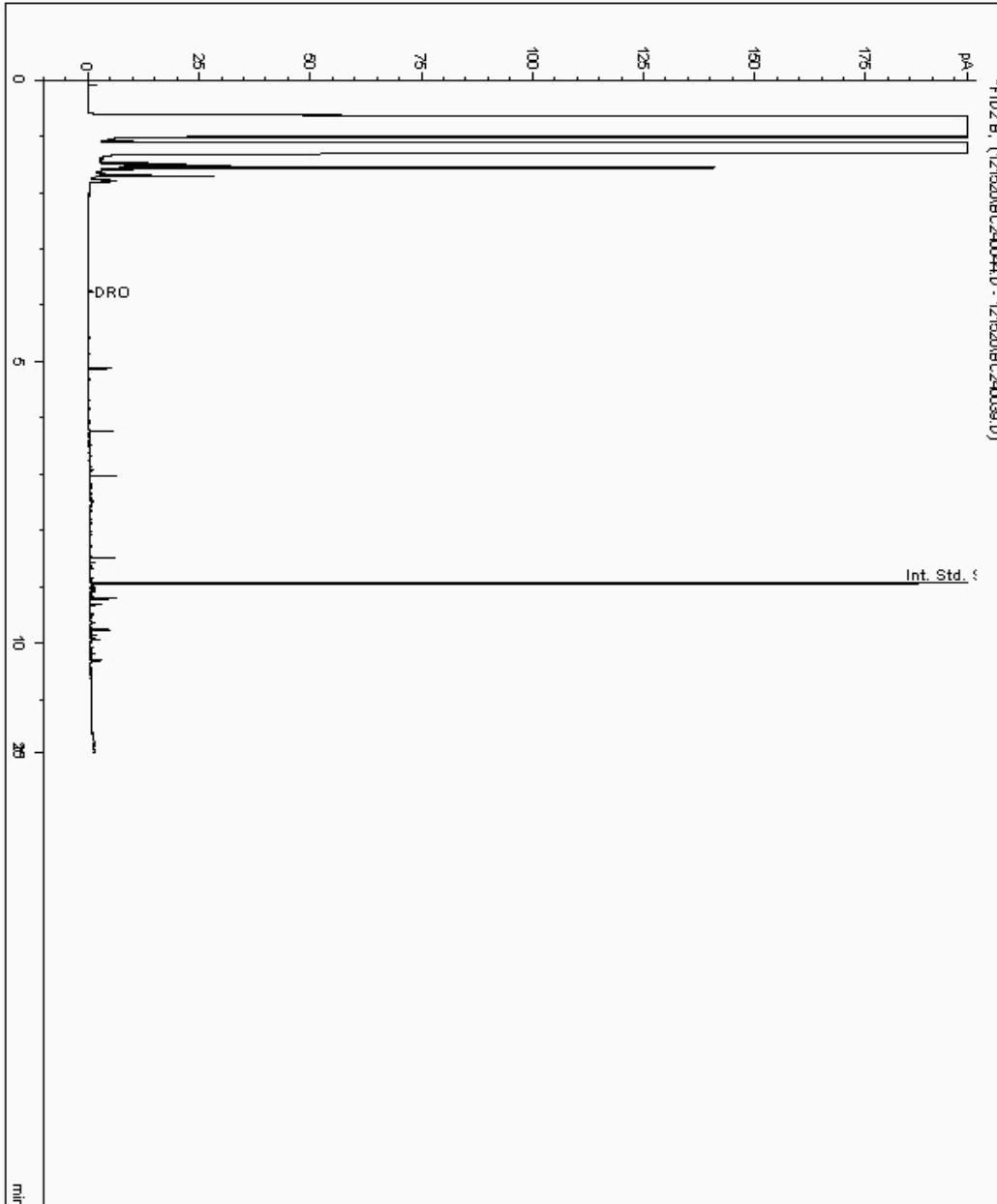
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23402975
Sample ID : GW_09_35

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21954083-
Date Acquired : 16/12/2020 08:54:36 PM
Units : mg/l





CERTIFICATE OF ANALYSIS

Validated

SDG:	201210-56	Client Reference:	Dec 2020 GW Part 2	Report Number:	581206
Location:	Newport landfill site	Order Number:	700156882	Superseded Report:	580208

Chromatogram

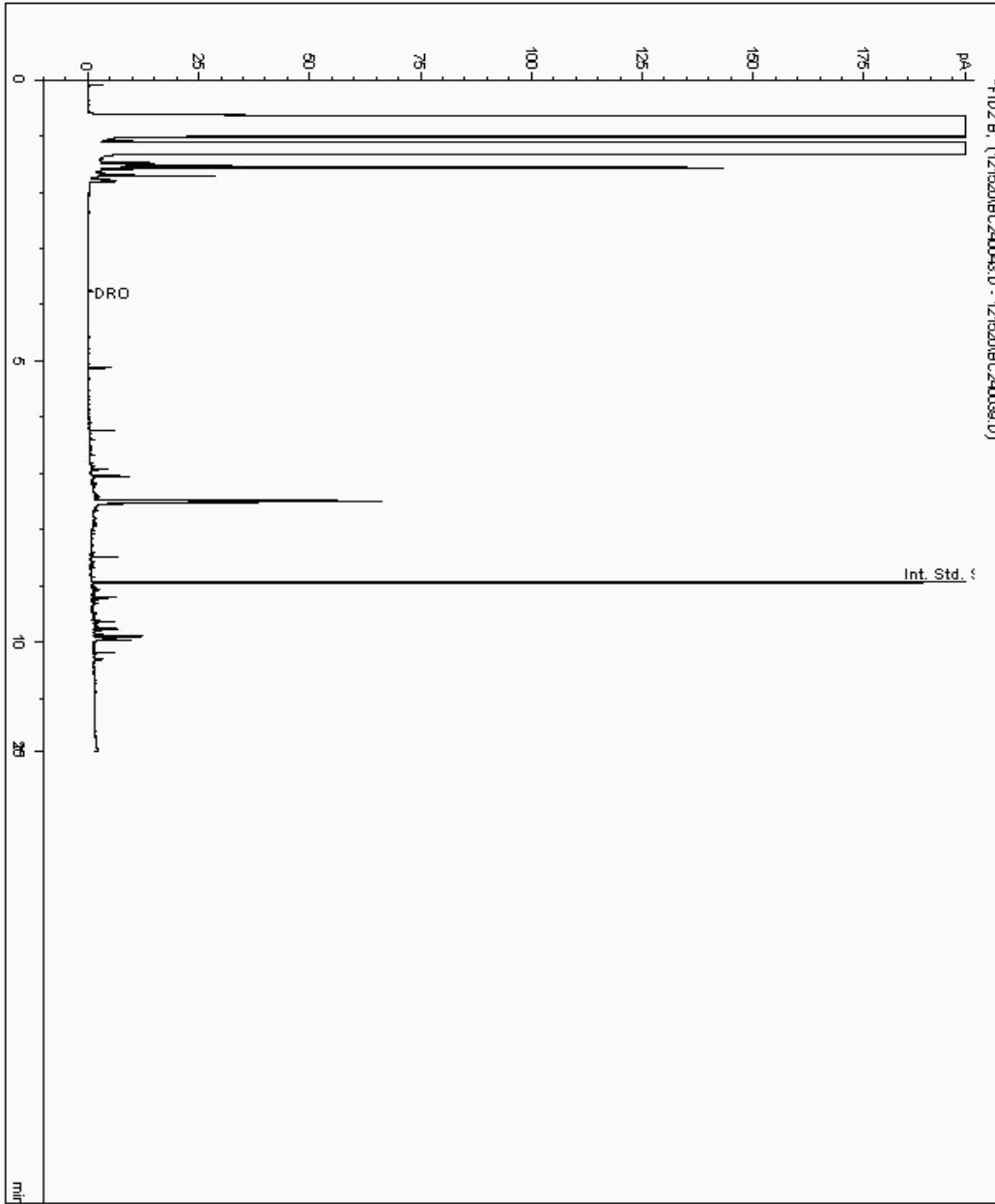
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23402988
Sample ID : GW_06_36

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 21954102-
Date Acquired : 16/12/2020 08:31:02 PM
Units : mg/l





CERTIFICATE OF ANALYSIS

SDG: 201210-56	Client Reference: Dec 2020 GW Part 2	Report Number: 581206
Location: Newport landfill site	Order Number: 700156882	Superseded Report: 580208

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

19. Asbestos

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

Identification of Asbestos in Bulk Materials & Soils

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

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

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

Visual Estimation Of Fibre Content

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

Respirable Fibres

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

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

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



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Website: www.alsenvironmental.co.uk

Newport City Council
Civic Centre
Newport
NP20 4UR

Attention: Luke Embrey

CERTIFICATE OF ANALYSIS

Date of report Generation: 04 January 2021
Customer: Newport City Council
Sample Delivery Group (SDG): 201218-6
Your Reference: Dec 2020 leachate
Location: Newport landfill
Report No: 582059

We received 4 samples on Friday December 18, 2020 and 4 of these samples were scheduled for analysis which was completed on Monday January 04, 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.

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: 201218-6 **Client Reference:** Dec 2020 leachate **Report Number:** 582059
Location: Newport landfill **Order Number:** 700156882 **Superseded Report:**

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23460271	C4		0.00 - 0.00	17/12/2020
23460298	C2B		0.00 - 0.00	17/12/2020
23460253	C3B		0.00 - 0.00	17/12/2020
23460287	C1D		0.00 - 0.00	17/12/2020

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

23460287	C1D	0.00 - 0.00	ZnAc (ALE246)	LE		
			ViaI (ALE297)	LE	X	
			NaOH (ALE245)	LE		
			HNO3 Filtered (ALE304)	LE		
			H2SO4 (ALE244)	LE		
			500ml Plastic (ALE208)	LE		
			250ml BOD (ALE112)	LE		
			0.5l glass bottle (ALE227)	LE		
			ZnAc (ALE246)	LE		
			ViaI (ALE297)	LE		X
			NaOH (ALE245)	LE		
23460253	C3B	0.00 - 0.00				



CERTIFICATE OF ANALYSIS

Validated

SDG:	201218-6	Client Reference:	Dec 2020 leachate	Report Number:	582059
Location:	Newport landfill	Order Number:	700156882	Superseded Report:	

Results Legend			Customer Sample Ref.	C4	C2B	C3B	C1D		
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) Trigger breach confirmed 1-4*\$@ Sample deviation (see appendix)	Depth (m)	Sample Type	0.00 - 0.00 Land Leachate (LE)	0.00 - 0.00 Land Leachate (LE)	0.00 - 0.00 Land Leachate (LE)	0.00 - 0.00 Land Leachate (LE)			
	Date Sampled	Sampled Time	17/12/2020	17/12/2020	17/12/2020	17/12/2020			
	Date Received	SDG Ref	18/12/2020	18/12/2020	18/12/2020	18/12/2020			
	Lab Sample No.(s)	AGS Reference	201218-6 23460271	201218-6 23460298	201218-6 23460253	201218-6 23460287			
Component	LOD/Units	Method							
Ionic balance	% Diff	Calulation	-5.85	-0.115	-2.51	-4.43			
Alkalinity, Total as CaCO3 (diss.filt)	<2 mg/l	TM043	2850	6100	9240	2230			
Alkalinity, Bicarbonate as CaCO3 (diss.filt)	<2 mg/l	TM043	2850	6100	9240	2230			
BOD, unfiltered	<1 mg/l	TM045	33	92.1	277	19.9			
Organic Carbon, Total	<3 mg/l	TM090	215	496	1990	132			
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	334	1070	1930	327			
Sulphide	<0.01 mg/l	TM101	0.521	0.0584	0.732	0.214			
COD, unfiltered	<7 mg/l	TM107	852	1730	6080	383			
Conductivity @ 20 deg.C	<0.02 mS/cm	TM120	11.6	13.7	20.1	5.17			
Arsenic (diss.filt)	<0.5 µg/l	TM152	32.8	69.6	237	3.57			
Boron (diss.filt)	<10 µg/l	TM152	6560	9140	32300	2800			
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08	<0.8	<0.8	<0.08			
Chromium (diss.filt)	<1 µg/l	TM152	51.3	153	519	24.7			
Copper (diss.filt)	<0.3 µg/l	TM152	<0.3	<3	<3	0.732			
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2	3.52	2.65	0.236			
Manganese (diss.filt)	<3 µg/l	TM152	1590	548	279	837			
Nickel (diss.filt)	<0.4 µg/l	TM152	109	185	196	43.2			
Selenium (diss.filt)	<1 µg/l	TM152	1.06	<10	<10	<1			
Zinc (diss.filt)	<1 µg/l	TM152	6.54	77.9	34.4	28.8			
Sodium (Dis.Filt)	<0.076 mg/l	TM152	1560	1460	2240	381			
Magnesium (Dis.Filt)	<0.036 mg/l	TM152	210	181	163	83.6			
Potassium (Dis.Filt)	<0.2 mg/l	TM152	253	503	617	179			
Calcium (Dis.Filt)	<0.2 mg/l	TM152	489	114	60.8	191			
Iron (Dis.Filt)	<0.019 mg/l	TM152	2.9	5.91	0.95	1.86			
Hardness, Total as CaCO3	<0.65 mg/l	TM152	2090	1030	824	822			
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172	1550	2030	2620	931			
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	<0.05	<0.05	<0.05			
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	0.542	19.7	43	0.396			
Sulphate	<2 mg/l	TM184	133	<10	<2	229			
Chloride	<2 mg/l	TM184	3450	1840	3440	614			
Nitrate as NO3	<0.3 mg/l	TM184	0.302	0.779	<3	0.377			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	<0.1	0.165	<1	<0.1			



CERTIFICATE OF ANALYSIS

Validated

SDG:	201218-6	Client Reference:	Dec 2020 leachate	Report Number:	582059
Location:	Newport landfill	Order Number:	700156882	Superseded Report:	

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: 201218-6	Client Reference: Dec 2020 leachate	Report Number: 582059
Location: Newport landfill	Order Number: 700156882	Superseded Report:

Test Completion Dates

Lab Sample No(s)	23460271	23460298	23460253	23460287
Customer Sample Ref.	C4	C2B	C3B	C1D
AGS Ref.				
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Land Leachate	Land Leachate	Land Leachate	Land Leachate

Alkalinity Filtered as CaCO3	24-Dec-2020	24-Dec-2020	24-Dec-2020	24-Dec-2020
Ammoniacal Nitrogen	29-Dec-2020	30-Dec-2020	30-Dec-2020	29-Dec-2020
Anions by Kone (w)	29-Dec-2020	29-Dec-2020	30-Dec-2020	29-Dec-2020
BOD True Total	24-Dec-2020	24-Dec-2020	24-Dec-2020	24-Dec-2020
COD Unfiltered	29-Dec-2020	29-Dec-2020	29-Dec-2020	29-Dec-2020
Conductivity (at 20 deg.C)	23-Dec-2020	23-Dec-2020	23-Dec-2020	23-Dec-2020
Cyanide Comp/Free/Total/Thiocyanate	22-Dec-2020	22-Dec-2020	22-Dec-2020	22-Dec-2020
Dissolved Metals by ICP-MS	24-Dec-2020	29-Dec-2020	29-Dec-2020	24-Dec-2020
EPH (DRO) (C10-C40) Aqueous (W)	29-Dec-2020	29-Dec-2020	29-Dec-2020	29-Dec-2020
Ionic Balance	31-Dec-2020	31-Dec-2020	31-Dec-2020	31-Dec-2020
Nitrite by Kone (w)	22-Dec-2020	22-Dec-2020	22-Dec-2020	22-Dec-2020
pH Value	22-Dec-2020	22-Dec-2020	22-Dec-2020	22-Dec-2020
Phosphate by Kone (w)	21-Dec-2020	21-Dec-2020	21-Dec-2020	21-Dec-2020
Sulphide	04-Jan-2021	04-Jan-2021	04-Jan-2021	04-Jan-2021
Total Organic and Inorganic Carbon	24-Dec-2020	23-Dec-2020	23-Dec-2020	24-Dec-2020
VOC MS (W)	23-Dec-2020	23-Dec-2020	23-Dec-2020	23-Dec-2020



CERTIFICATE OF ANALYSIS

Validated

SDG: 201218-6
Location: Newport landfill

Client Reference: Dec 2020 leachate
Order Number: 700156882

Report Number: 582059
Superseded Report:

Chromatogram

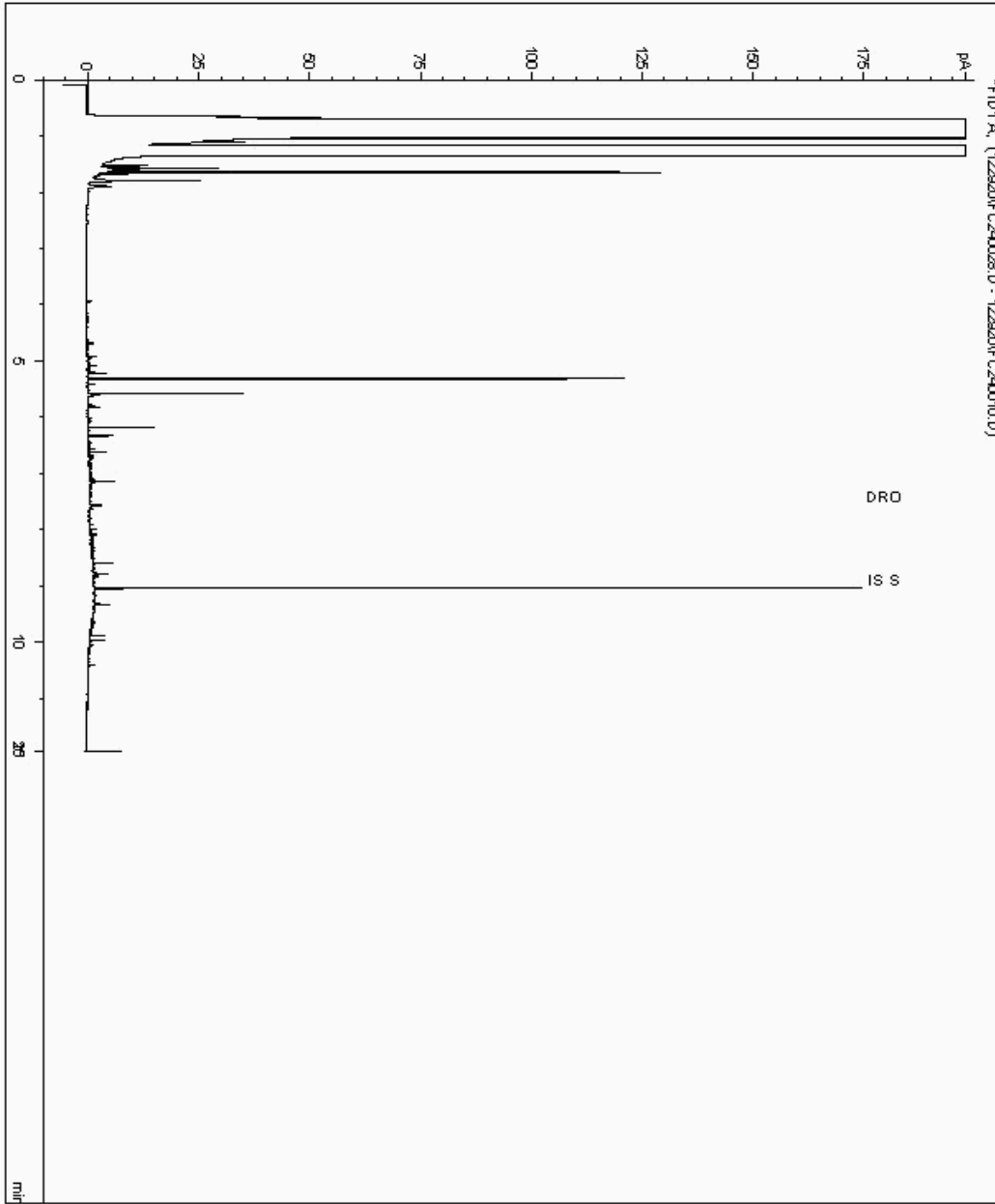
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23469667
Sample ID : C1D

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 22010296-
Date Acquired : 30/12/2020 04:54:28 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 201218-6
Location: Newport landfill

Client Reference: Dec 2020 leachate
Order Number: 700156882

Report Number: 582059
Superseded Report:

Chromatogram

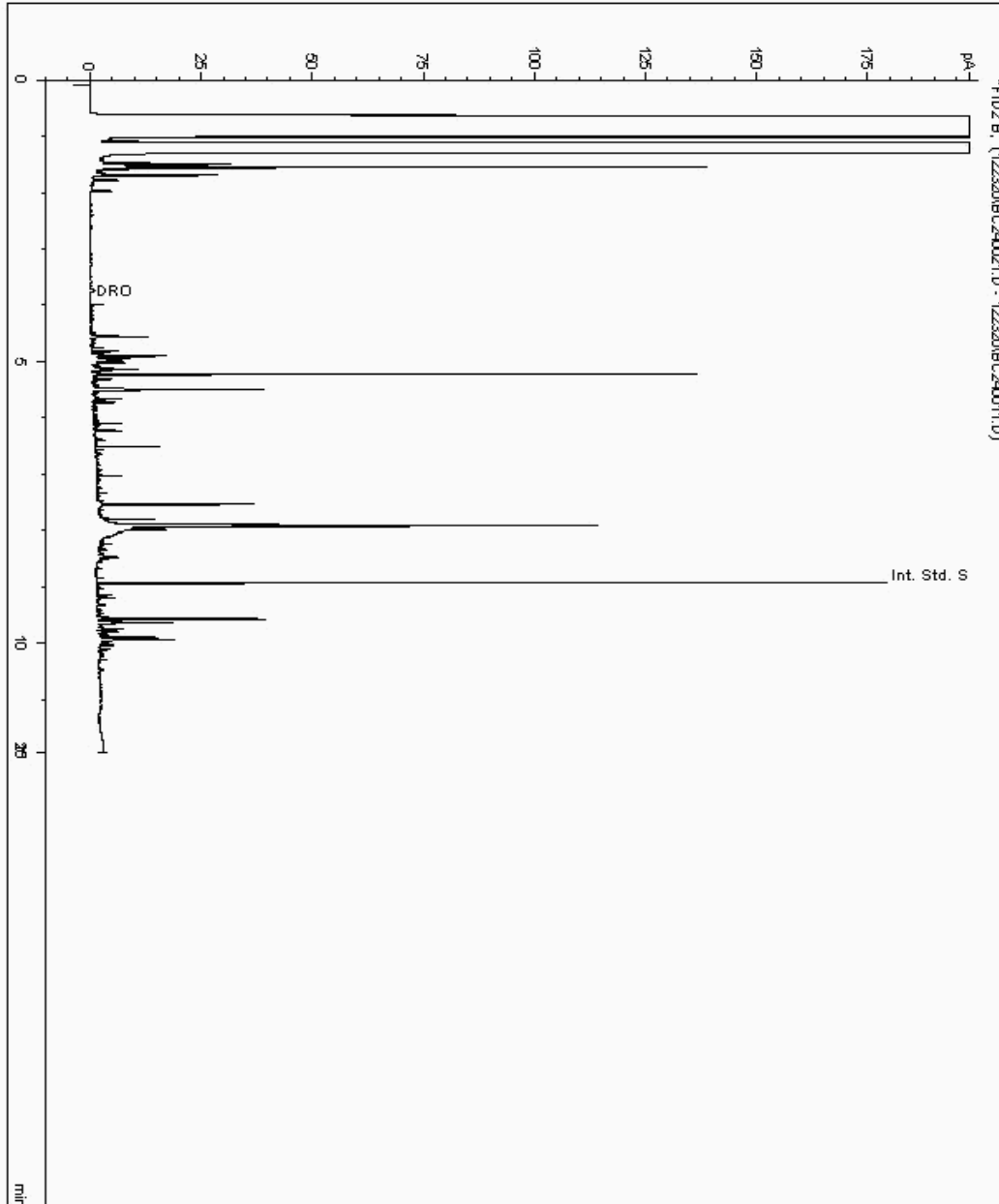
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23469685
Sample ID : C2B

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 22010313-
Date Acquired : 24/12/2020 01:47:00 PM
Units : mg/l





CERTIFICATE OF ANALYSIS

Validated

SDG: 201218-6
Location: Newport landfill

Client Reference: Dec 2020 leachate
Order Number: 700156882

Report Number: 582059
Superseded Report:

Chromatogram

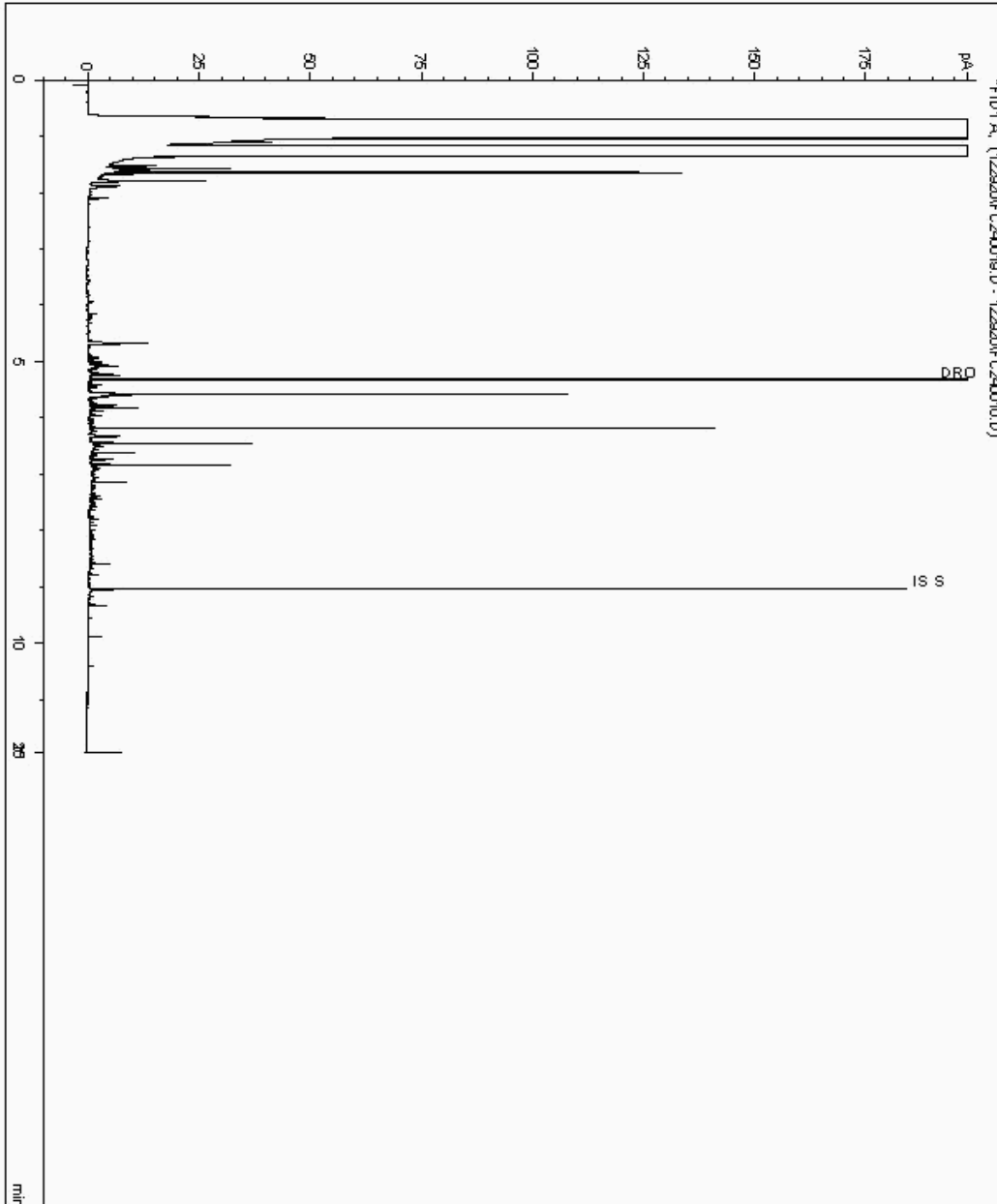
Analysis: EPH (DRO) (C10-C40) Aqueous (W)

Sample No : 23469694
Sample ID : C4

Depth : 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 22010276-
Date Acquired : 30/12/2020 01:14:39 PM
Units : ppm





CERTIFICATE OF ANALYSIS

Validated

SDG: 201218-6
Location: Newport landfill

Client Reference: Dec 2020 leachate
Order Number: 700156882

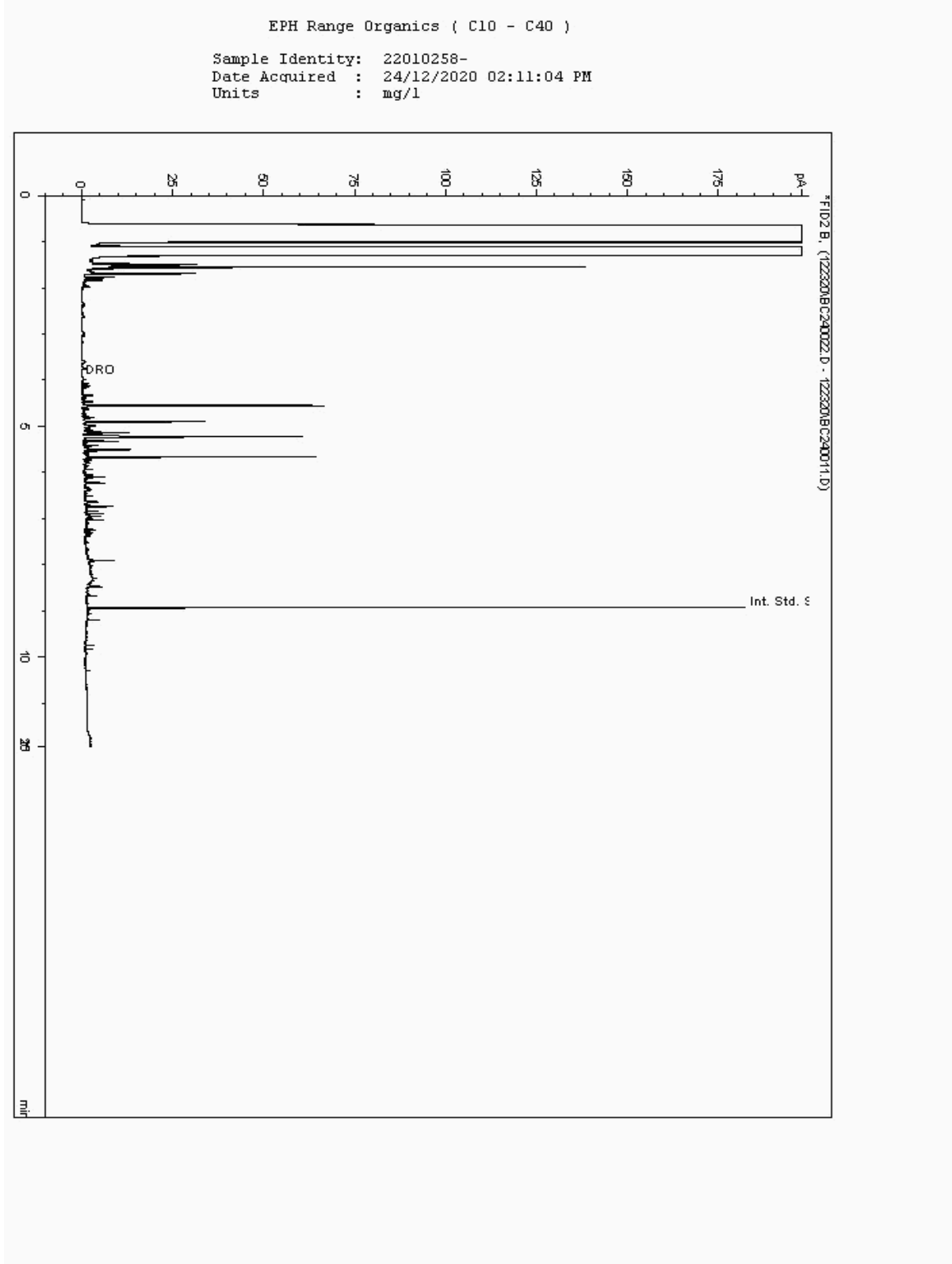
Report Number: 582059
Superseded Report:

Chromatogram

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

Sample No : 23469776
Sample ID : C3B

Depth : 0.00 - 0.00





CERTIFICATE OF ANALYSIS

SDG: 201218-6	Client Reference: Dec 2020 leachate	Report Number: 582059
Location: Newport landfill	Order Number: 700156882	Superseded Report:

Appendix

General

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

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

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

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

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

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

7. Results relate only to the items tested.

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

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

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

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

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

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

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

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

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

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

18. Sample Deviations

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

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
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

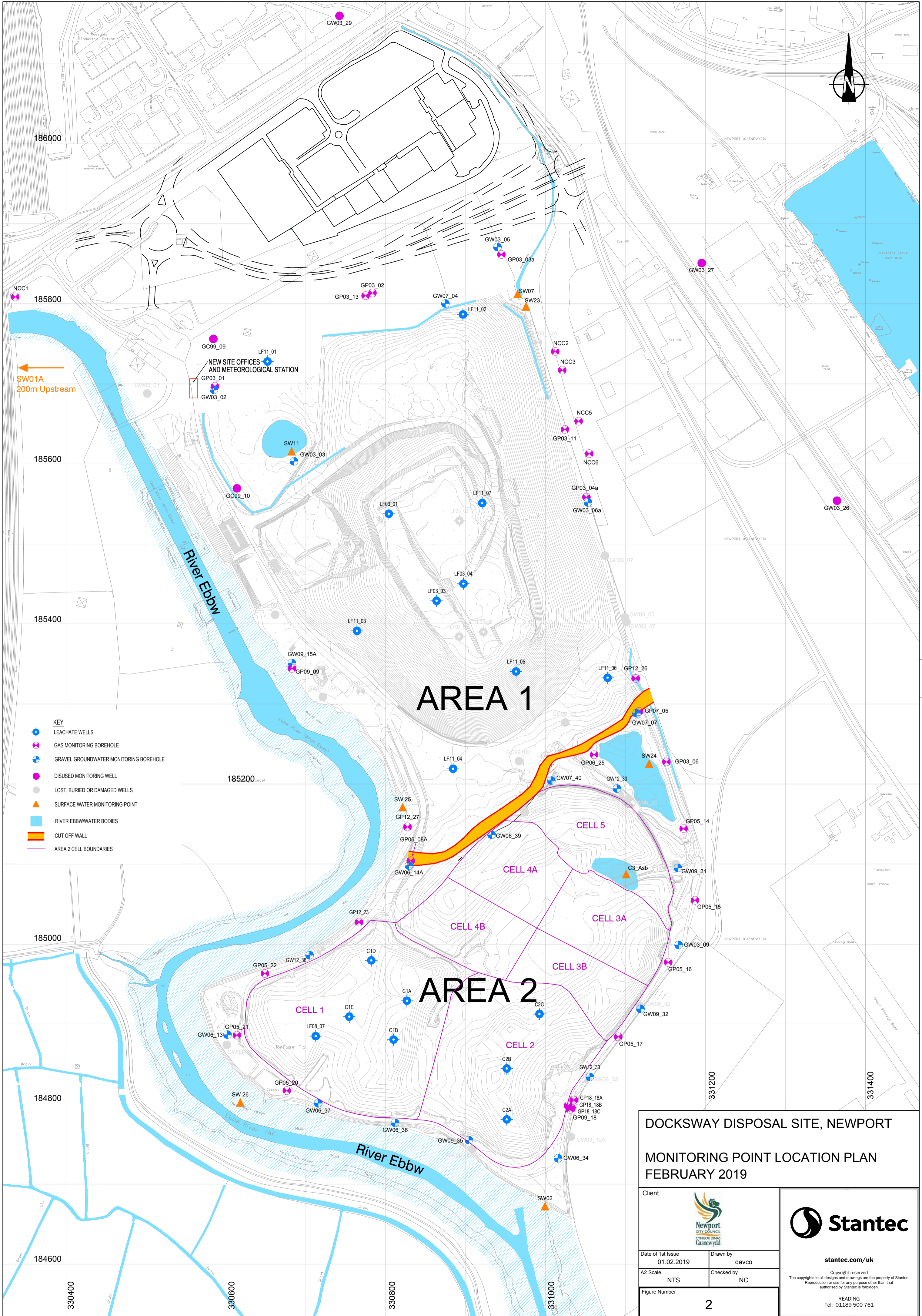
Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

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.



- KEY**
- LEACHATE WELLS
 - GAS MONITORING BOREHOLE
 - GRAVEL GROUNDWATER MONITORING BOREHOLE
 - DISUSED MONITORING WELL
 - LOST, BURIED OR DAMAGED WELLS
 - ▲ SURFACE WATER MONITORING POINT
 - RIVER EBBW WATER BODIES
 - CUT OFF WALL
 - AREA 2 CELL BOUNDARIES

DOCKSWAY DISPOSAL SITE, NEWPORT
MONITORING POINT LOCATION PLAN
FEBRUARY 2019

Client		 Newport CITY COUNCIL CYMRU DDWYF CASNEWYDD
Date of 1st Issue	Drawn by	
A2 Scale	Checked by	
Figure Number		
		2



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