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Attention: [REDACTED]

## CERTIFICATE OF ANALYSIS

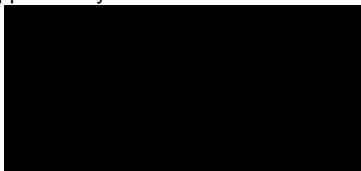
**Date:** 26 January 2018  
**Customer:** H\_GEOTECHEN\_GLO  
**Sample Delivery Group (SDG):** 180112-98  
**Your Reference:** 33538  
**Location:** Castle Quay, Jersey  
**Report No:** 441737

We received 7 samples on Friday January 12, 2018 and 7 of these samples were scheduled for analysis which was completed on Friday January 26, 2018. 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).

Approved By:



[REDACTED]  
Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98 Client Reference: 33538 Report Number: 441737
Location: Castle Quay, Jersey Order Number: Superseded Report:

Received Sample Overview

Table with 5 columns: Lab Sample No(s), Customer Sample Ref., AGS Ref., Depth (m), and Sampled Date. It lists 8 samples with their respective details.

Maximum Sample/Coolbox Temperature (°C) : 6.4

ISO5667-3 Water quality - Sampling - Part3 - During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

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

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



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SDG: 180112-98  
 Location: Castle Quay, Jersey

Client Reference: 33538  
 Order Number:

Report Number: 441737  
 Superseded Report:

<b>Results Legend</b>  <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;"><span style="background-color: yellow; border: 1px solid black; padding: 2px 5px;">X</span> Test</div> <div style="display: flex; align-items: center;"><span style="background-color: red; color: white; border: 1px solid black; padding: 2px 5px;">N</span> 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	
		16983152	BH2/01		7.56	Vial (ALE297)	GW
		16983154	BH2/03		6.37	250ml Amber Gl. PTFE/PE	GW
		16983156	BH2/04		8.34	500ml Plastic (ALE204)	GW
		16983157	BH2/06		7.43	500ml Plastic (ALE204)	GW
		16983158	BH2/07		7.22	Vial (ALE297)	GW
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 7					
Anions by Kone (w)	All	NDPs: 0 Tests: 7					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 7					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7					
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 7					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 7					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 7					
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 7					
Mercury Dissolved	All	NDPs: 0 Tests: 7					
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 7					
Metals by iCap-OES Unfiltered (W)	All	NDPs: 0 Tests: 7					
Nitrite by Kone (w)	All	NDPs: 0 Tests: 7					
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 7					
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 4					
pH Value	All	NDPs: 0 Tests: 7					





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<b>Results Legend</b>  <div style="display: flex; flex-direction: column; gap: 5px;"> <div style="display: flex; align-items: center;"><span style="background-color: yellow; border: 1px solid black; width: 15px; height: 15px; margin-right: 5px;"></span> <b>Test</b></div> <div style="display: flex; align-items: center;"><span style="background-color: red; color: white; border: 1px solid black; width: 15px; height: 15px; margin-right: 5px;"></span> <b>No Determination Possible</b></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	
		169863152	BH2/01		7.56	Vial (ALE297)	GW
		169863154	BH2/03		6.37	HN03 Filtered (ALE204)	GW
		169863156	BH2/04		8.34	500ml Plastic (ALE208)	GW
		169863157	BH2/06		7.43	250ml Amber Gl. PTFE/PE	GW
		169863158	BH2/07		7.22	Vial (ALE297)	GW
						HN03 Filtered (ALE204)	GW
					500ml Plastic (ALE208)	GW	
					250ml Amber Gl. PTFE/PE	GW	
					Vial (ALE297)	GW	
					HN03 Filtered (ALE204)	GW	
					500ml Plastic (ALE208)	GW	
					250ml Amber Gl. PTFE/PE	GW	
					Vial (ALE297)	GW	
					HN03 Filtered (ALE204)	GW	
					500ml Plastic (ALE208)	GW	
					250ml Amber Gl. PTFE/PE	GW	
					Vial (ALE297)	GW	
Sulphide	All	NDPs: 0 Tests: 7					
						X	
						X	
						X	
						X	
TPH CWG (W)	All	NDPs: 0 Tests: 7					
						X	
						X	
						X	
						X	
VOC MS (W)	All	NDPs: 0 Tests: 7					
						X	
						X	
						X	
						X	





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Results Legend		Customer Sample Ref.	BH2/01	BH2/03	BH2/04	BH2/06	BH2/07	BH2/10	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	7.56	6.37	8.34	7.43	7.22	6.51	
M	mCERTS accredited.		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.		10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018
diss.filt	Dissolved / filtered sample.		09:45:00	11:30:00	13:00:00	13:35:00	12:10:00	14:30:00	14:30:00
tot.unfilt	Total / unfiltered sample.		12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
-	Subcontracted test.		180112-98	180112-98	180112-98	180112-98	180112-98	180112-98	180112-98
**	% 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		16863152	16863154	16863156	16863157	16863158	16863159	16863159
(F)	Trigger breach confirmed								
1-5&*\$@	Sample deviation (see appendix)								
Component	LOD/Units	Method							
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	3.45 2 #	0.275 2 #	7.1 2 #	<0.2 2 #	10.8 2 #	2.78 2 #	
Ammoniacal Nitrogen as NH4 (BRE)	<0.0003 g/l	TM099	0.00444 #			<0.0003 #	0.0139 #		
Sulphide	<0.01 mg/l	TM101	<0.01 2 #	0.0334 2 #	<0.01 2 #	0.158 2 #	0.127 2 #	0.0982 2 #	
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	1.22 #	1.44 #	23.9 #	41.5 #	18.2 #	36.8 #	
Salinity	<2	TM120	<2	<2	16.4	30	12.2	26.2	
Arsenic (diss.filt)	<0.5 µg/l	TM152	6.67 #	5.67 #	5.95 #	2.14 #	8.66 #	6.61 #	
Barium (diss.filt)	<0.2 µg/l	TM152	23 #	51.7 #	98.7 #	28.6 #	390 #	88.2 #	
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	
Boron (diss.filt)	<5 µg/l	TM152	375 #	311 #	1570 #	3130 #	687 #	2700 #	
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 #	<0.08 #	0.125 #	0.0919 #	<0.08 #	0.104 #	
Chromium (diss.filt)	<1 µg/l	TM152	<1 #	<1 #	<1 #	<1 #	1.07 #	<1 #	
Cobalt (diss.filt)	<0.15 µg/l	TM152	0.502 #	0.46 #	5.6 #	0.336 #	1.57 #	1.77 #	
Copper (diss.filt)	<0.3 µg/l	TM152	<0.3 #	5.54 #	3.03 #	2.13 #	0.31 #	8.79 #	
Lead (diss.filt)	<0.2 µg/l	TM152	0.278 #	<0.2 #	0.58 #	0.217 #	<0.2 #	0.307 #	
Molybdenum (diss.filt)	<0.5 µg/l	TM152	19.7 #	8.91 #	17.8 #	10.1 #	11.7 #	8.59 #	
Nickel (diss.filt)	<0.4 µg/l	TM152	3.03 #	3.03 #	5.91 #	2.29 #	5.49 #	3.85 #	
Selenium (diss.filt)	<0.5 µg/l	TM152	<0.5 #	5.98 #	0.548 #	<0.5 #	<0.5 #	<0.5 #	
Vanadium (diss.filt)	<1 µg/l	TM152	4.54 #	3.46 #	2.16 #	3.78 #	5.04 #	3.28 #	
Zinc (diss.filt)	<1 µg/l	TM152	<1 #	4.24 #	17.2 #	10.2 #	4.13 #	5.31 #	
Mercury (diss.filt)	<0.01 µg/l	TM183	<0.01 #	<0.01 #	0.107 #	<0.01 #	0.0237 #	<0.01 #	
Nitrite as NO2	<0.05 mg/l	TM184	<0.05 2 #	1.1 2 #	<0.05 2 #	0.121 2 #	<0.05 2 #	0.596 2 #	
Sulphate	<2 mg/l	TM184	233 #	271 #	1060 #	2470 #	1090 #	2310 #	
Chloride	<2 mg/l	TM184	189 #	126 #	8530 #	17700 #	7710 #	16500 #	
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	<0.1 #	5.85 #	<0.1 #	<0.1 #	<0.1 #	0.541 #	
Nitrate as NO3 (BRE)	<0.0003 g/l	TM184	<0.0003			<0.0003	<0.0003		
Sulphate as SO4 (BRE)	<0.002 g/l	TM184	0.233 #			2.47 #	1.09 #		
Chloride (BRE)	<0.002 g/l	TM184	0.189 #			17.7 #	7.71 #		
PCB congener 28	<0.015 µg/l	TM197	<0.015		<0.015	<0.015		<0.015	
PCB congener 52	<0.015 µg/l	TM197	<0.015		<0.015	<0.015		<0.015	
PCB congener 101	<0.015 µg/l	TM197	<0.015		<0.015	<0.015		<0.015	
PCB congener 118	<0.015 µg/l	TM197	<0.015		<0.015	<0.015		<0.015	
PCB congener 138	<0.015 µg/l	TM197	<0.015		<0.015	<0.015		<0.015	



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Results Legend		Customer Sample Ref.	BH2/01	BH2/03	BH2/04	BH2/06	BH2/07	BH2/10
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		7.56	6.37	8.34	7.43	7.22	6.51
aq	Aqueous / settled sample.		Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
diss.filt	Dissolved / filtered sample.		10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018
tot.unfilt	Total / unfiltered sample.		09:45:00	11:30:00	13:00:00	13:35:00	12:10:00	14:30:00
*	Subcontracted test.		12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
**	% 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		180112-98	180112-98	180112-98	180112-98	180112-98	180112-98
(F)	Trigger breach confirmed		16863152	16863154	16863156	16863157	16863158	16863159
1-5&*\$@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
PCB congener 153	<0.015 µg/l	TM197	<0.015		<0.015	<0.015		<0.015
PCB congener 180	<0.015 µg/l	TM197	<0.015		<0.015	<0.015		<0.015
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105		<0.105	<0.105		<0.105
Calcium (diss.filt)	<0.012 mg/l	TM228	91.7	252	307	374	460	482
Sodium (diss.filt)	<0.076 mg/l	TM228	184	72.6	3930	9130	4100	8100
Magnesium (diss.filt)	<0.036 mg/l	TM228	3.74	19.2	400	1090	240	936
Iron (diss.filt)	<0.019 mg/l	TM228	0.129	<0.019	12.6	<1.9	3.37	<1.9
Hardness, Total as CaCO3 unfiltered	<0.35 mg/l	TM228	244	699	3590	5260	2150	4630
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
pH	<1 pH Units	TM256	8.93	7.76	7.33	7.6	7.78	7.83
			#	#	#	#	#	#





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**Superseded Report:**

Results Legend		Customer Sample Ref.	BH2/11				
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % 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 1-5&*\$@ Sample deviation (see appendix)		Depth (m) 4.53 Sample Type Ground Water (GW) Date Sampled 10/01/2018 Sampled Time 10:45:00 Date Received 12/01/2018 SDG Ref 180112-98 Lab Sample No.(s) 16863160 AGS Reference					
Component	LOD/Units	Method					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	5				
				2 #			
Ammoniacal Nitrogen as NH4 (BRE)	<0.0003 g/l	TM099	0.00643				
				#			
Sulphide	<0.01 mg/l	TM101	0.0528				
				2 #			
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	1.21				
				#			
Salinity	<2	TM120	<2				
Arsenic (diss.filt)	<0.5 µg/l	TM152	15.5				
				#			
Barium (diss.filt)	<0.2 µg/l	TM152	45.8				
				#			
Beryllium (diss.filt)	<0.1 µg/l	TM152	<0.1				
				#			
Boron (diss.filt)	<5 µg/l	TM152	118				
				#			
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08				
				#			
Chromium (diss.filt)	<1 µg/l	TM152	<1				
				#			
Cobalt (diss.filt)	<0.15 µg/l	TM152	3.17				
				#			
Copper (diss.filt)	<0.3 µg/l	TM152	<0.3				
				#			
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2				
				#			
Molybdenum (diss.filt)	<0.5 µg/l	TM152	7.67				
				#			
Nickel (diss.filt)	<0.4 µg/l	TM152	3.88				
				#			
Selenium (diss.filt)	<0.5 µg/l	TM152	0.876				
				#			
Vanadium (diss.filt)	<1 µg/l	TM152	4.36				
				#			
Zinc (diss.filt)	<1 µg/l	TM152	1.37				
				#			
Mercury (diss.filt)	<0.01 µg/l	TM183	0.0157				
				#			
Nitrite as NO2	<0.05 mg/l	TM184	<0.05				
				2 #			
Sulphate	<2 mg/l	TM184	43.5				
				#			
Chloride	<2 mg/l	TM184	175				
				#			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	<0.1				
				#			
Nitrate as NO3 (BRE)	<0.0003 g/l	TM184	<0.0003				
Sulphate as SO4 (BRE)	<0.002 g/l	TM184	0.0435				
				#			
Chloride (BRE)	<0.002 g/l	TM184	0.175				
				#			
Calcium (diss.filt)	<0.012 mg/l	TM228	153				
Sodium (diss.filt)	<0.076 mg/l	TM228	115				
Magnesium (diss.filt)	<0.036 mg/l	TM228	11.3				
Iron (diss.filt)	<0.019 mg/l	TM228	0.704				
Hardness, Total as CaCO3 unfiltered	<0.35 mg/l	TM228	408				
				2			





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Superseded Report:

## PAH Spec MS - Aqueous (W)

Results Legend		Customer Sample Ref.	BH2/01	BH2/03	BH2/04	BH2/06	BH2/07	BH2/10
#	ISO17025 accredited.							
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% 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							
1-5&*\$@	Sample deviation (see appendix)							
		Depth (m)	7.56	6.37	8.34	7.43	7.22	6.51
		Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
		Date Sampled	10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018
		Sampled Time	09:45:00	11:30:00	13:00:00	13:35:00	12:10:00	14:30:00
		Date Received	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
		SDG Ref	180112-98	180112-98	180112-98	180112-98	180112-98	180112-98
		Lab Sample No.(s)	16863152	16863154	16863156	16863157	16863158	16863159
		AGS Reference						
Component	LOD/Units	Method						
Naphthalene (aq)	<0.01 µg/l	TM178	0.285	<0.01	0.119	<0.01	0.041	<0.01
Acenaphthene (aq)	<0.005 µg/l	TM178	0.136	<0.005	0.0137	<0.005	0.0276	<0.005
Acenaphthylene (aq)	<0.005 µg/l	TM178	0.0118	<0.005	0.0095	<0.005	0.00551	<0.005
Fluoranthene (aq)	<0.005 µg/l	TM178	0.0508	0.00847	0.116	0.0479	0.0211	0.0958
Anthracene (aq)	<0.005 µg/l	TM178	0.00548	<0.005	0.00716	<0.005	<0.005	<0.005
Phenanthrene (aq)	<0.005 µg/l	TM178	0.0828	<0.005	0.0601	0.0142	0.0095	<0.005
Fluorene (aq)	<0.005 µg/l	TM178	0.0424	<0.005	0.0109	<0.005	0.00898	<0.005
Chrysene (aq)	<0.005 µg/l	TM178	0.00945	0.00526	0.0508	0.028	0.0103	0.0549
Pyrene (aq)	<0.005 µg/l	TM178	0.0516	0.0145	0.117	0.0488	0.0183	0.101
Benzo(a)anthracene (aq)	<0.005 µg/l	TM178	0.0136	0.00942	0.0502	0.0259	0.0126	0.0493
Benzo(b)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.0634	0.0347	<0.005	0.0554
Benzo(k)fluoranthene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.0335	0.0142	<0.005	0.025
Benzo(a)pyrene (aq)	<0.002 µg/l	TM178	<0.002	<0.002	0.0329	0.0111	<0.002	0.0278
Dibenzo(a,h)anthracene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(g,h,i)perylene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.0504	0.0277	<0.005	0.0459
Indeno(1,2,3-cd)pyrene (aq)	<0.005 µg/l	TM178	<0.005	<0.005	0.029	0.0134	<0.005	0.0143
PAH, Total Detected USEPA 16 (aq)	<0.082 µg/l	TM178	0.689	<0.082	0.763	0.266	0.155	0.47



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PAH Spec MS - Aqueous (W)

Table with columns: Component, LOD/Units, Method, and concentration values for various PAHs like Naphthalene, Acenaphthene, etc.



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**TPH CWG (W)**

Results Legend			Customer Sample Ref.	BH2/01	BH2/03	BH2/04	BH2/06	BH2/07	BH2/10
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % 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 1-5&*\$@ Sample deviation (see appendix)			Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	7.56 Ground Water (GW) 10/01/2018 09:45:00 12/01/2018 180112-98 16863152	6.37 Ground Water (GW) 10/01/2018 11:30:00 12/01/2018 180112-98 16863154	8.34 Ground Water (GW) 10/01/2018 13:00:00 12/01/2018 180112-98 16863156	7.43 Ground Water (GW) 10/01/2018 13:35:00 12/01/2018 180112-98 16863157	7.22 Ground Water (GW) 10/01/2018 12:10:00 12/01/2018 180112-98 16863158	6.51 Ground Water (GW) 10/01/2018 14:30:00 12/01/2018 180112-98 16863159
Component	LOD/Units	Method							
GRO Surrogate % recovery**	%	TM245	87	92	85	82	94	94	
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50	<50	<50	<50	
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3	
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7	
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4	
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5	
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8	
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3	
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11	
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28	
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10	
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10	
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10	
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10	
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<20	53	<10	
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	28	<10	<10	<20	<10	<10	
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	141	<10	67	48	<10	<10	
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	169	<10	67	48	53	<10	
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10	
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10	
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10	
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10	
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<20	<10	<10	
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<20	<10	<10	
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	19	<10	19	<20	<10	<10	
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	19	<10	19	<20	<10	<10	
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	188	<10	86	48	53	<10	
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174	169	<10	67	48	<10	<10	





# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 180112-98  
**Location:** Castle Quay, Jersey

**Client Reference:** 33538  
**Order Number:**

**Report Number:** 441737  
**Superseded Report:**

**VOC MS (W)**

Results Legend			Customer Sample Ref.		BH2/01	BH2/03	BH2/04	BH2/06	BH2/07	BH2/10
#	ISO17025 accredited.		Depth (m)		7.56	6.37	8.34	7.43	7.22	6.51
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		10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018
diss.filt	Dissolved / filtered sample.		Sampled Time		09:45:00	11:30:00	13:00:00	13:35:00	12:10:00	14:30:00
tot.unfilt	Total / unfiltered sample.		Date Received		12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
-	Subcontracted test.		SDG Ref		180112-98	180112-98	180112-98	180112-98	180112-98	180112-98
**	% 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)		16863152	16863154	16863156	16863157	16863158	16863159
(F)	Trigger breach confirmed		AGS Reference							
1-5&*\$@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
Dibromofluoromethane**	%	TM208	117	105	104	105	106	102		
Toluene-d8**	%	TM208	97.8	98.6	99.4	99.4	99	98		
4-Bromofluorobenzene**	%	TM208	92.5	98.2	98.7	98.8	99.2	98.1		
Dichlorodifluoromethane	<1 µg/l	TM208	<1	1.87	<1	<1	<1	<1		
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	<3		
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	1.59	<1	<1	<1		
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Benzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		



# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 180112-98  
**Location:** Castle Quay, Jersey

**Client Reference:** 33538  
**Order Number:**

**Report Number:** 441737  
**Superseded Report:**

## VOC MS (W)

Results Legend			Customer Sample Ref.	BH2/01	BH2/03	BH2/04	BH2/06	BH2/07	BH2/10	
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	7.56	6.37	8.34	7.43	7.22	6.51	
M	mCERTS accredited.			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
aq	Aqueous / settled sample.			10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018	10/01/2018
diss.filt	Dissolved / filtered sample.			09:45:00	11:30:00	13:00:00	13:35:00	12:10:00	14:30:00	14:30:00
tot.unfilt	Total / unfiltered sample.			12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018	12/01/2018
*	Subcontracted test.			180112-98	180112-98	180112-98	180112-98	180112-98	180112-98	180112-98
**	% 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			16863152	16863154	16863156	16863157	16863158	16863159	
(F)	Trigger breach confirmed									
1-5&*\$@	Sample deviation (see appendix)									
Component	LOD/Units	Method								
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	<1	







# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 180112-98  
**Location:** Castle Quay, Jersey

**Client Reference:** 33538  
**Order Number:**

**Report Number:** 441737  
**Superseded Report:**

**VOC MS (W)**

Results Legend		Customer Sample Ref.	BH2/11				
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test. ** % 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 1-5&*\$@ Sample deviation (see appendix)		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	4.53 Ground Water (GW) 10/01/2018 10:45:00 12/01/2018 180112-98 16863160				
Component	LOD/Units	Method					
Dibromofluoromethane**	%	TM208	108				
Toluene-d8**	%	TM208	98.6				
4-Bromofluorobenzene**	%	TM208	98.5				
Dichlorodifluoromethane	<1 µg/l	TM208	<1	#			
Chloromethane	<1 µg/l	TM208	<1	#			
Vinyl chloride	<1 µg/l	TM208	<1	#			
Bromomethane	<1 µg/l	TM208	<1	#			
Chloroethane	<1 µg/l	TM208	<1	#			
Trichlorofluoromethane	<1 µg/l	TM208	<1	#			
1,1-Dichloroethene	<1 µg/l	TM208	<1	#			
Carbon disulphide	<1 µg/l	TM208	<1	#			
Dichloromethane	<3 µg/l	TM208	<3	#			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	#			
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	#			
1,1-Dichloroethane	<1 µg/l	TM208	<1	#			
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	#			
2,2-Dichloropropane	<1 µg/l	TM208	<1	#			
Bromochloromethane	<1 µg/l	TM208	<1	#			
Chloroform	<1 µg/l	TM208	<1	#			
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	#			
1,1-Dichloropropene	<1 µg/l	TM208	<1	#			
Carbontetrachloride	<1 µg/l	TM208	<1	#			
1,2-Dichloroethane	<1 µg/l	TM208	<1	#			
Benzene	<1 µg/l	TM208	<1	#			
Trichloroethene	<1 µg/l	TM208	<1	#			
1,2-Dichloropropane	<1 µg/l	TM208	<1	#			
Dibromomethane	<1 µg/l	TM208	<1	#			
Bromodichloromethane	<1 µg/l	TM208	<1	#			
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	#			
Toluene	<1 µg/l	TM208	<1	#			
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	#			
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	#			



# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 180112-98  
**Location:** Castle Quay, Jersey

**Client Reference:** 33538  
**Order Number:**

**Report Number:** 441737  
**Superseded Report:**

## VOC MS (W)

Results Legend		Customer Sample Ref.	BH2/11				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	4.53 Ground Water (GW) 10/01/2018 10:45:00 12/01/2018 180112-98 16863160				
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.						
**	% 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						
1-5&*\$@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
1,3-Dichloropropane	<1 µg/l	TM208	<1	#			
Tetrachloroethene	<1 µg/l	TM208	<1	#			
Dibromochloromethane	<1 µg/l	TM208	<1	#			
1,2-Dibromoethane	<1 µg/l	TM208	<1	#			
Chlorobenzene	<1 µg/l	TM208	<1	#			
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	#			
Ethylbenzene	<1 µg/l	TM208	<1	#			
m,p-Xylene	<1 µg/l	TM208	<1	#			
o-Xylene	<1 µg/l	TM208	<1	#			
Styrene	<1 µg/l	TM208	<1	#			
Bromoform	<1 µg/l	TM208	<1	#			
Isopropylbenzene	<1 µg/l	TM208	<1	#			
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	#			
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	#			
Bromobenzene	<1 µg/l	TM208	<1	#			
Propylbenzene	<1 µg/l	TM208	<1	#			
2-Chlorotoluene	<1 µg/l	TM208	<1	#			
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	#			
4-Chlorotoluene	<1 µg/l	TM208	<1	#			
tert-Butylbenzene	<1 µg/l	TM208	<1	#			
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	#			
sec-Butylbenzene	<1 µg/l	TM208	<1	#			
4-iso-Propyltoluene	<1 µg/l	TM208	<1	#			
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	#			
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	#			
n-Butylbenzene	<1 µg/l	TM208	<1	#			
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	#			
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	#			
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	#			
Hexachlorobutadiene	<1 µg/l	TM208	<1	#			
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	#			
Naphthalene	<1 µg/l	TM208	<1	#			





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Table of Results - Appendix

Method No	Reference	Description
TM061	Method for the Determination of EPH, Massachusetts Dept. of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
TM099	BS 2690: Part 7:1968 / BS 6068: Part 2.11:1984	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
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
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM191	Standard Methods for the examination of waters and wastewaters 16th Edition, ALPHA, Washington DC, USA. ISBN 0-87553-131-8.	Determination of Unfiltered Metals in Water Matrices by ICP-MS
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter

NA = not applicable.

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



# CERTIFICATE OF ANALYSIS

Validated

**SDG:** 180112-98  
**Location:** Castle Quay, Jersey

**Client Reference:** 33538  
**Order Number:**

**Report Number:** 441737  
**Superseded Report:**

## Test Completion Dates

Lab Sample No(s)	16863152	16863154	16863156	16863157	16863158	16863159	16863160
Customer Sample Ref.	BH2/01	BH2/03	BH2/04	BH2/06	BH2/07	BH2/10	BH2/11
AGS Ref.							
Depth	7.56	6.37	8.34	7.43	7.22	6.51	4.53
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Ammoniacal Nitrogen	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018
Anions by Kone (w)	26-Jan-2018	26-Jan-2018	26-Jan-2018	26-Jan-2018	26-Jan-2018	26-Jan-2018	26-Jan-2018
Conductivity (at 20 deg.C)	18-Jan-2018	18-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	18-Jan-2018	17-Jan-2018
Dissolved Metals by ICP-MS	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018	23-Jan-2018
EPH CWG (Aliphatic) Aqueous GC (W)	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018
EPH CWG (Aromatic) Aqueous GC (W)	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018
GRO by GC-FID (W)	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	22-Jan-2018	18-Jan-2018
Hexavalent Chromium (w)	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018
Mercury Dissolved	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018	18-Jan-2018
Metals by iCap-OES Dissolved (W)	18-Jan-2018	18-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	18-Jan-2018
Metals by iCap-OES Unfiltered (W)	16-Jan-2018	16-Jan-2018	19-Jan-2018	19-Jan-2018	19-Jan-2018	19-Jan-2018	16-Jan-2018
Nitrite by Kone (w)	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018
PAH Spec MS - Aqueous (W)	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018
PCB Congeners - Aqueous (W)	22-Jan-2018		22-Jan-2018	22-Jan-2018		22-Jan-2018	
pH Value	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018
Sulphide	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018
TPH CWG (W)	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018	22-Jan-2018
VOC MS (W)	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018	17-Jan-2018



# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

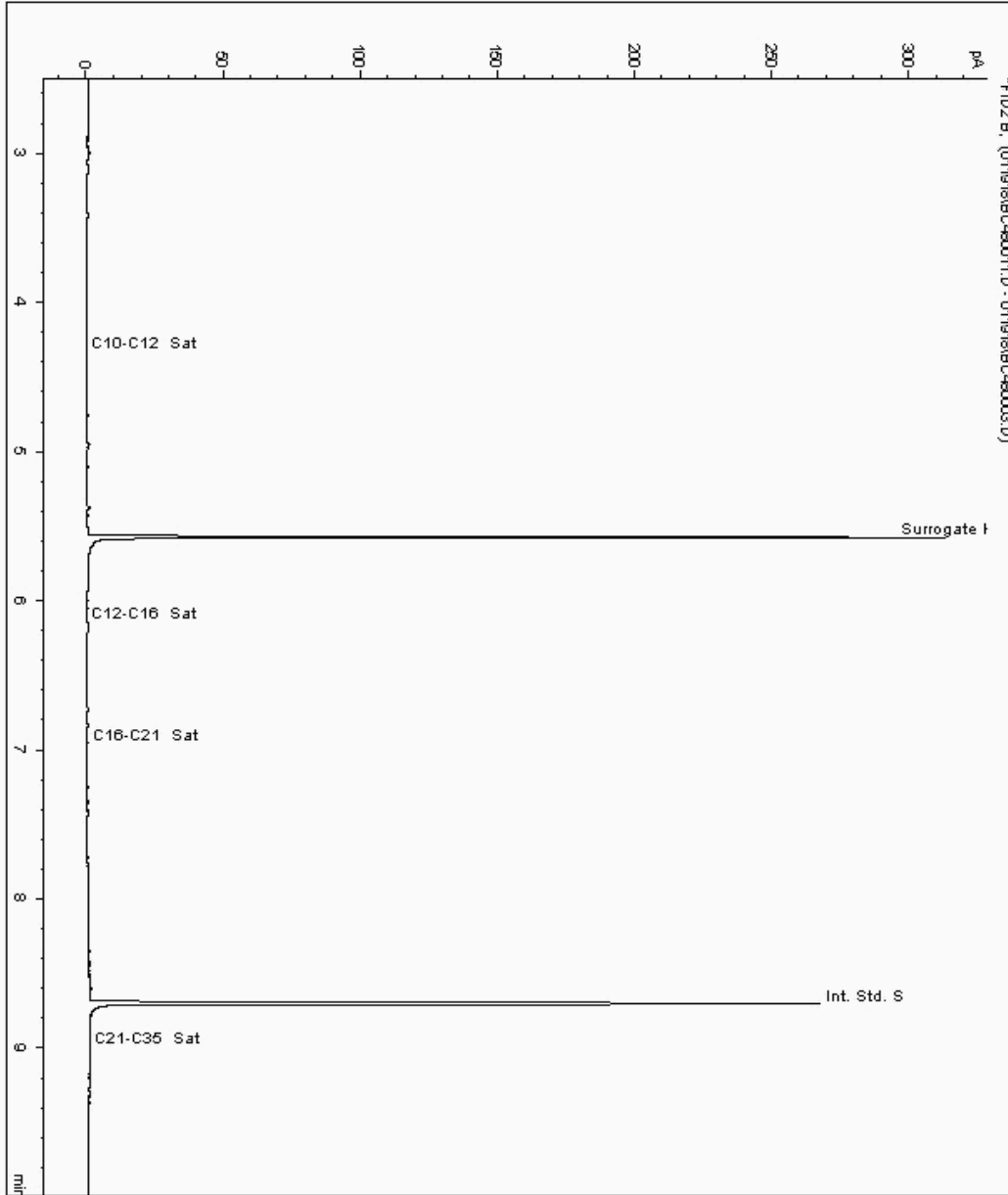
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 16890748  
Sample ID : BH2/04

Depth : 8.34

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

Sample Identity: 15827421-  
Date Acquired : 19/01/2018 17:30:48 PM  
Units : ppb  
Dilution : SE BH2/04[8.34] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

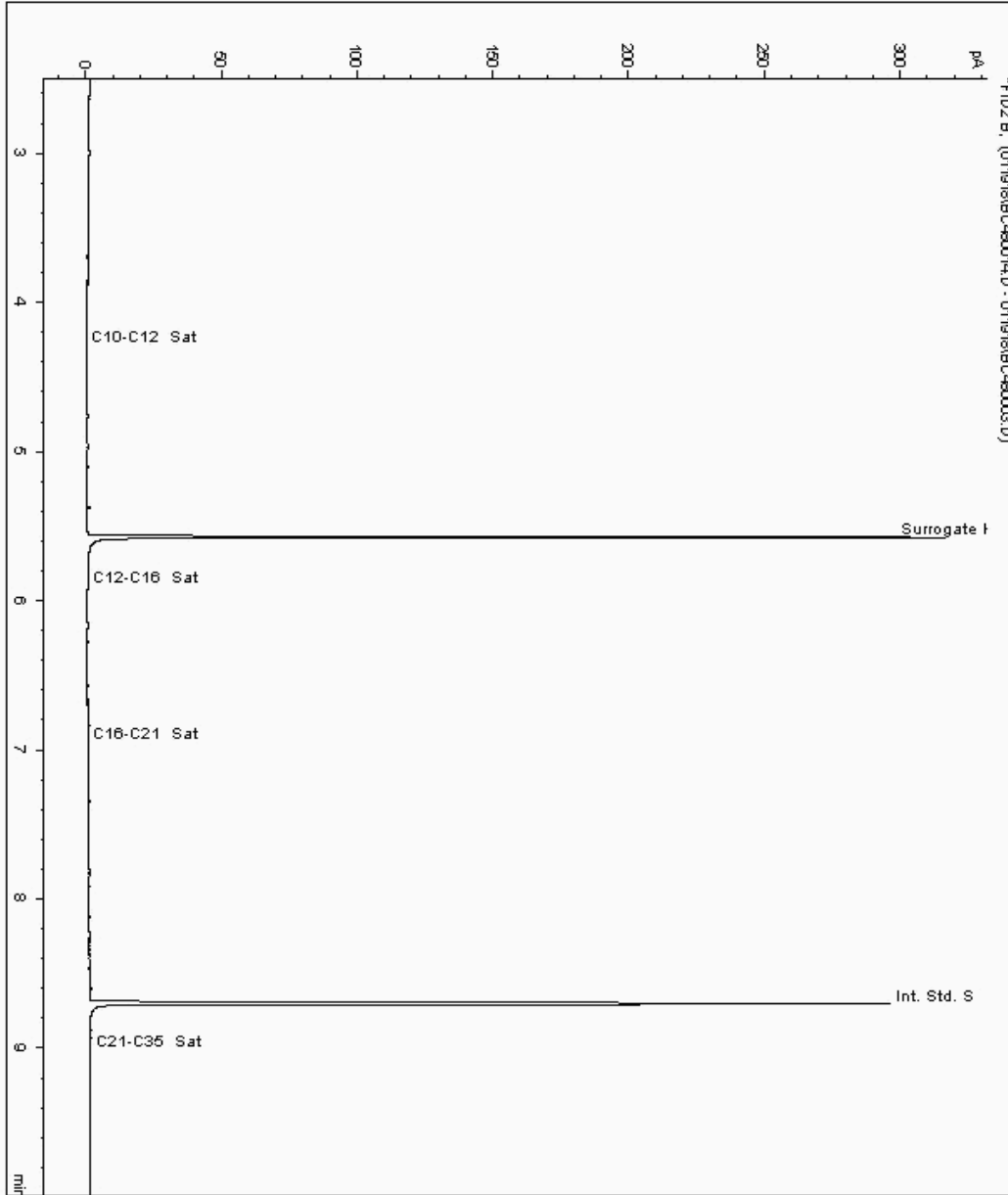
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 16890756  
Sample ID : BH2/01

Depth : 7.56

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

Sample Identity: 15827390-  
Date Acquired : 19/01/2018 18:40:23 PM  
Units : ppb  
Dilution : SE BH2/01[7.56] ->  
CF : 1  
Multiplier : 0.025







# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

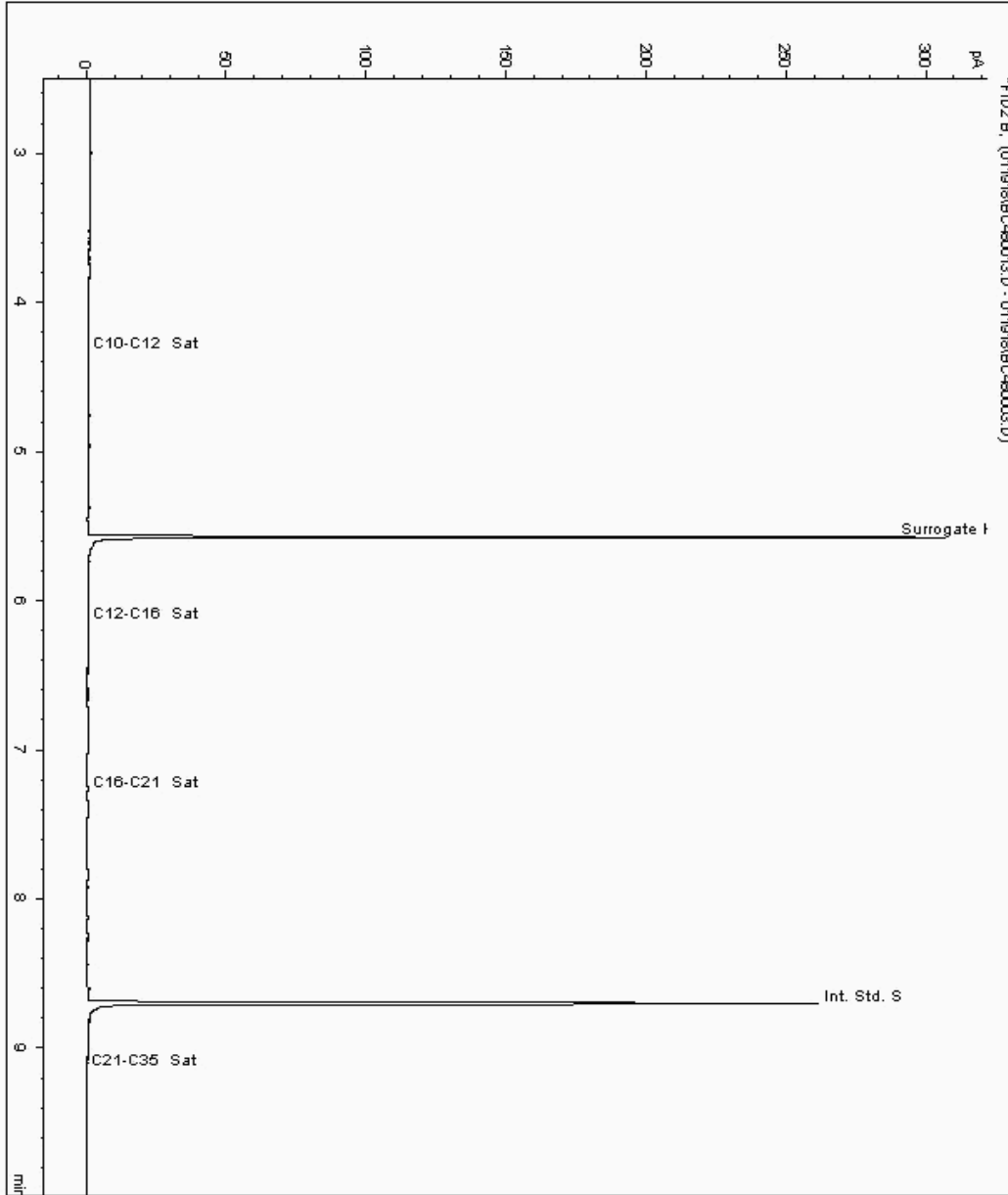
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 16890760  
Sample ID : BH2/03

Depth : 6.37

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

Sample Identity: 15827406-  
Date Acquired : 19/01/2018 18:16:41 PM  
Units : ppb  
Dilution : SE BH2/03[6.37] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

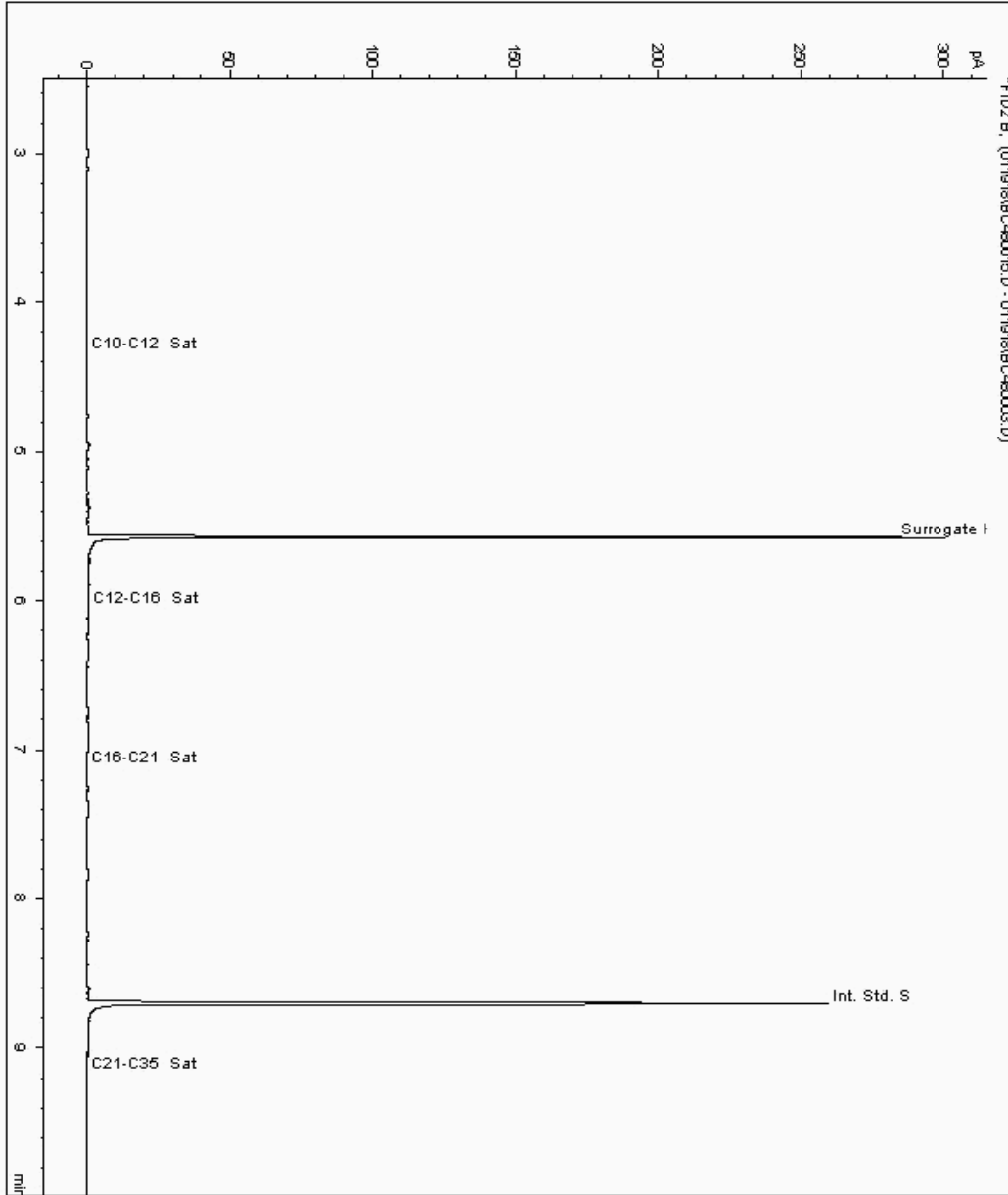
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 16890764  
Sample ID : BH2/11

Depth : 4.53

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

Sample Identity: 15827484-  
Date Acquired : 19/01/2018 19:03:53 PM  
Units : ppb  
Dilution : SE BH2/11[4.53] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

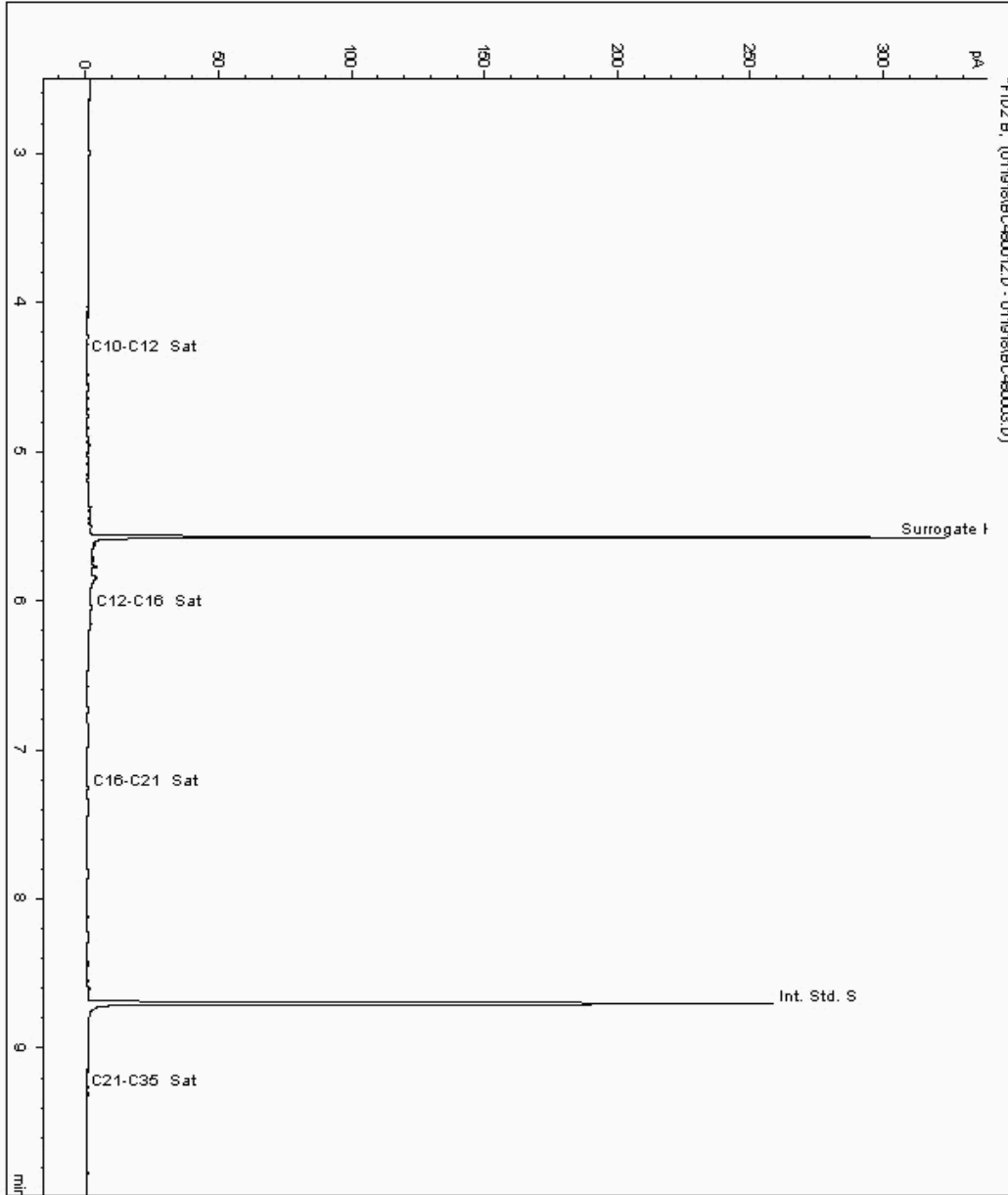
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 16890773  
Sample ID : BH2/07

Depth : 7.22

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

Sample Identity: 15827453-  
Date Acquired : 19/01/2018 17:53:47 PM  
Units : ppb  
Dilution : SE BH2/07[7.22] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

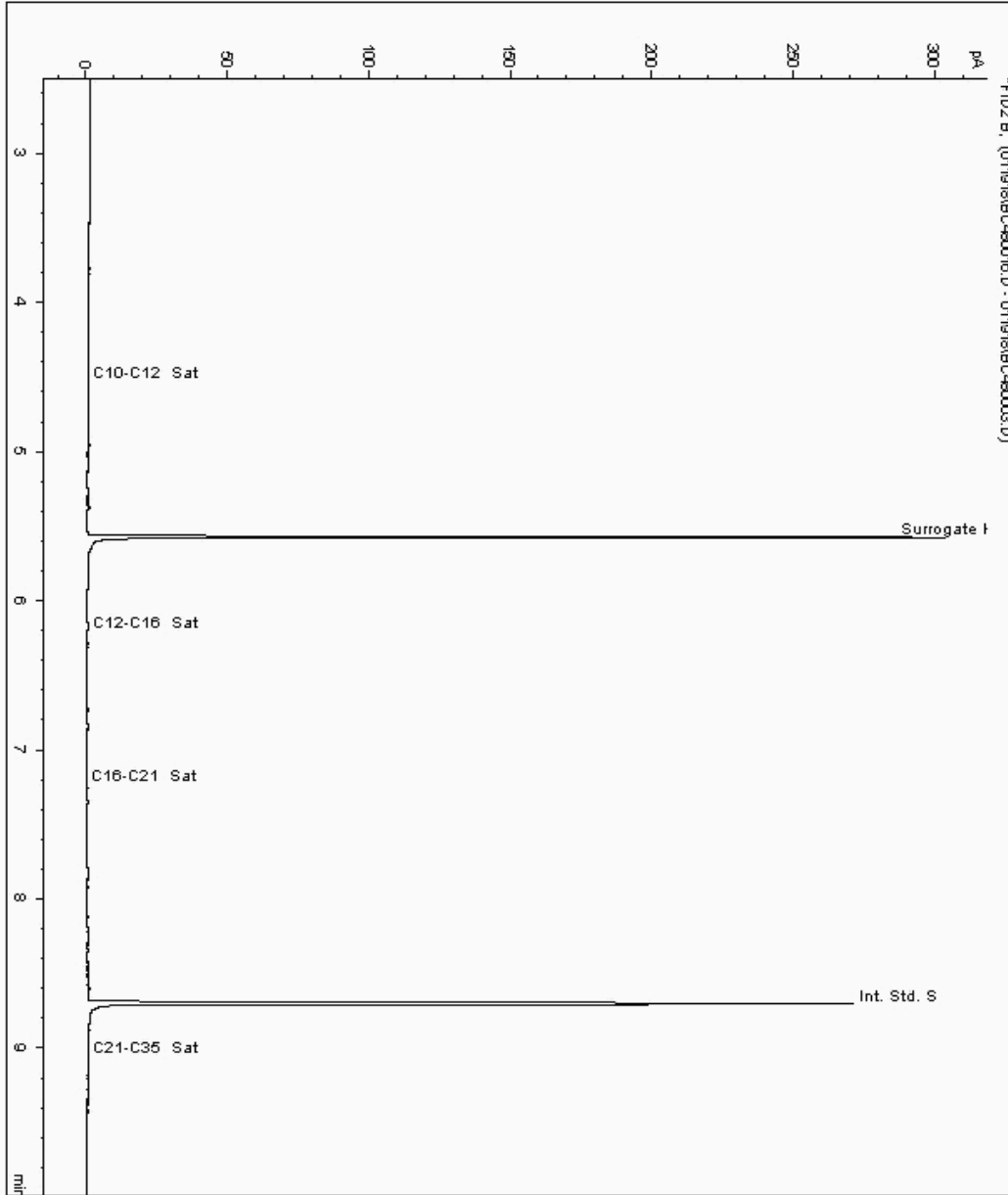
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 16890775  
Sample ID : BH2/06

Depth : 7.43

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

Sample Identity: 15827437-  
Date Acquired : 19/01/2018 19:26:47 PM  
Units : ppb  
Dilution : SE BH2/06[7.43] ->  
CF : 1  
Multiplier : 0.050





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

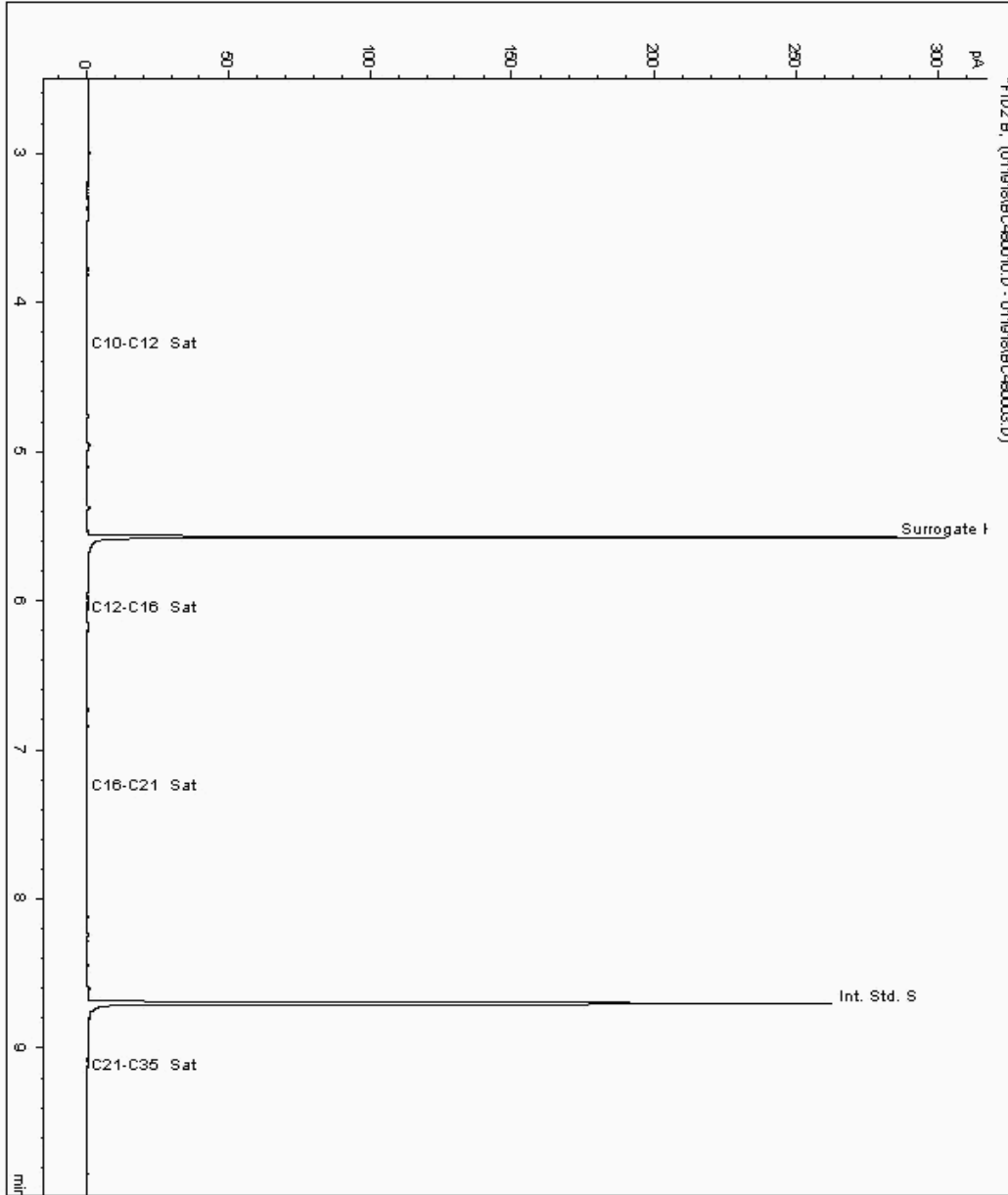
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 16890781  
Sample ID : BH2/10

Depth : 6.51

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

Sample Identity: 15827468-  
Date Acquired : 19/01/2018 17:07:05 PM  
Units : ppb  
Dilution : SE BH2/10[6.51] ->  
CF : 1  
Multiplier : 0.025





CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

Chromatogram

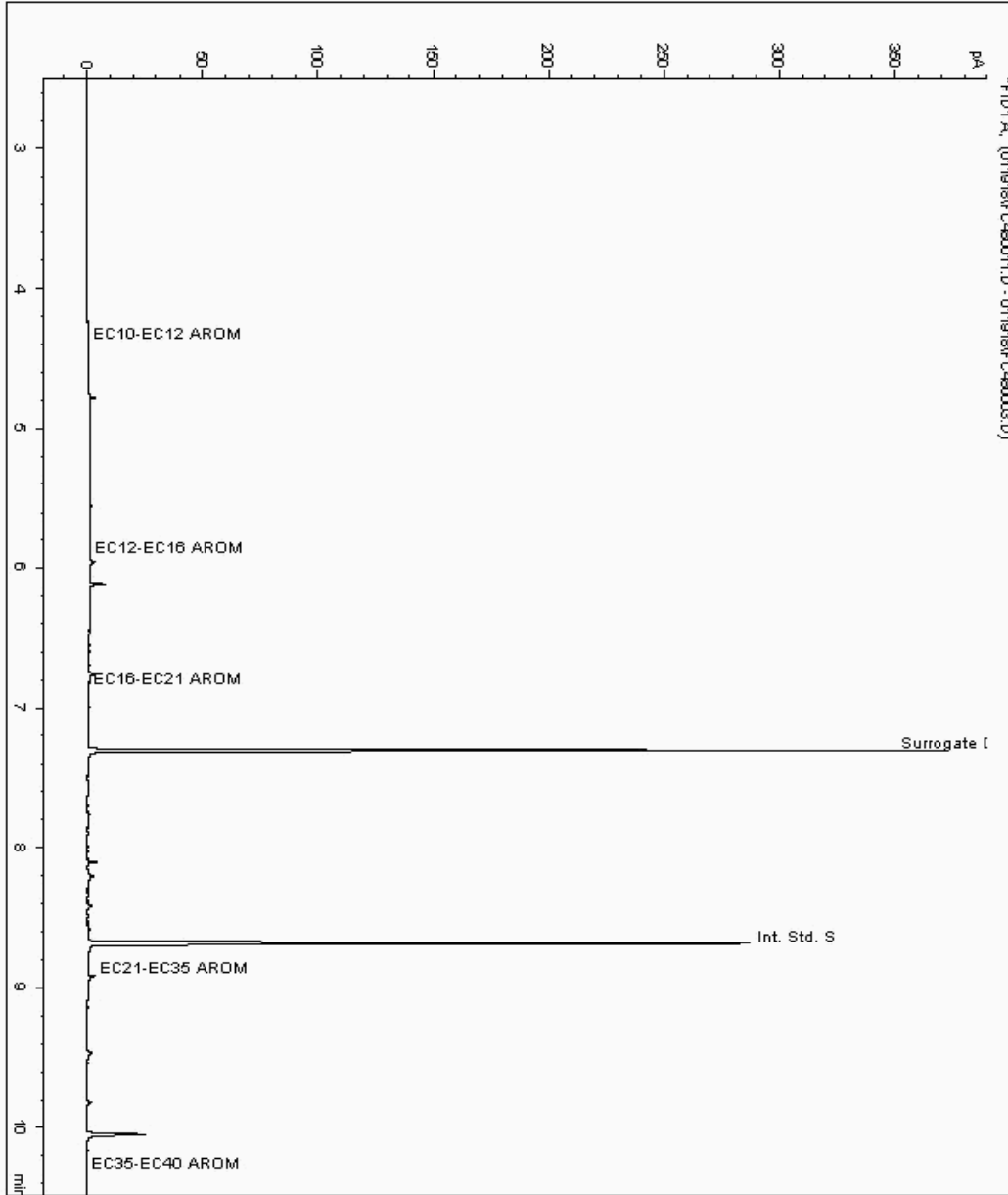
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 16890748  
Sample ID : BH2/04

Depth : 8.34

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

Sample Identity: 15827422-  
Date Acquired : 19/01/2018 17:30:49 PM  
Units : ppb  
Dilution : SE BH2/04[8.34] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

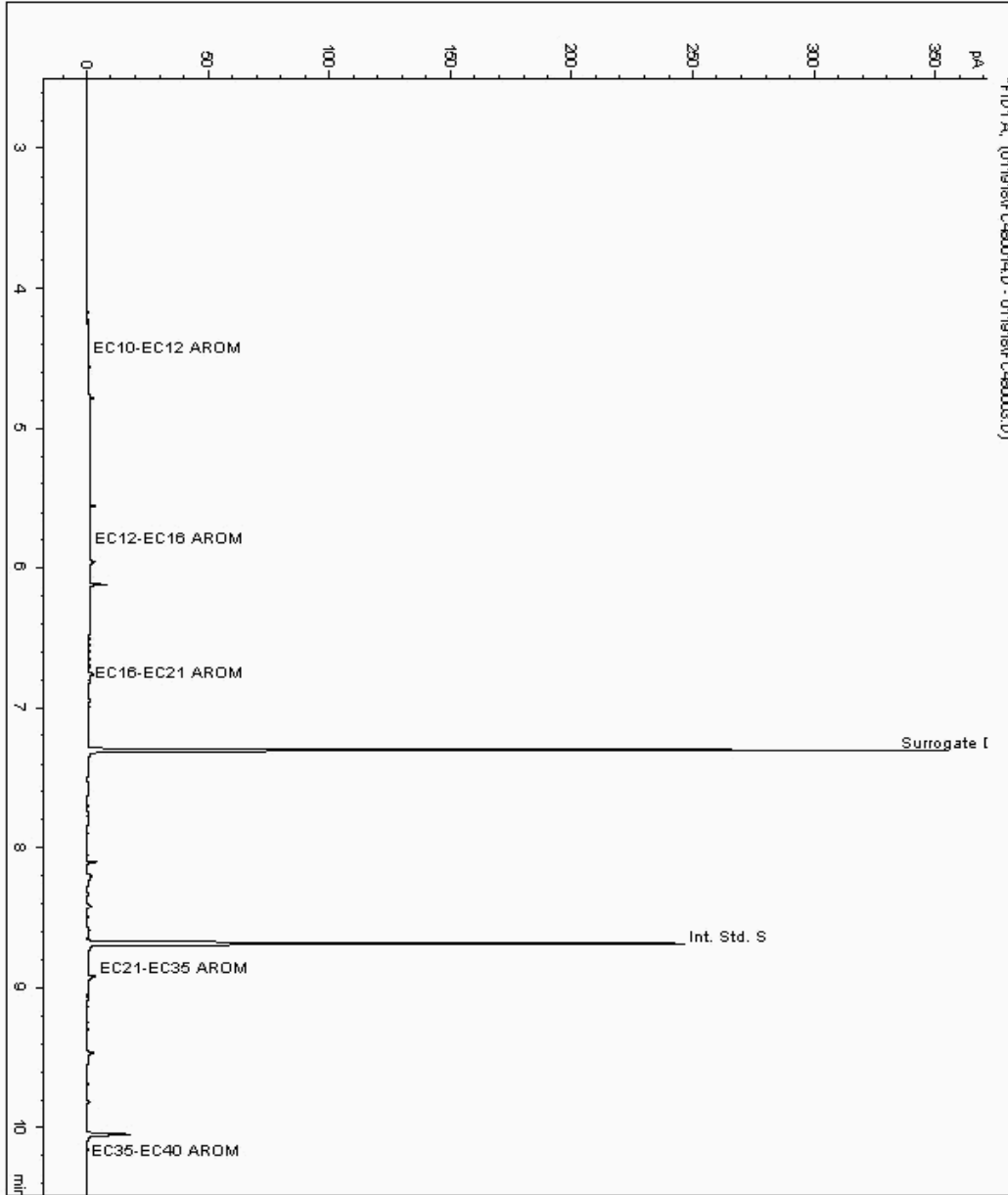
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 16890756  
Sample ID : BH2/01

Depth : 7.56

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

Sample Identity: 15827391-  
Date Acquired : 19/01/2018 18:40:24 PM  
Units : ppb  
Dilution : SE BH2/01[7.56] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

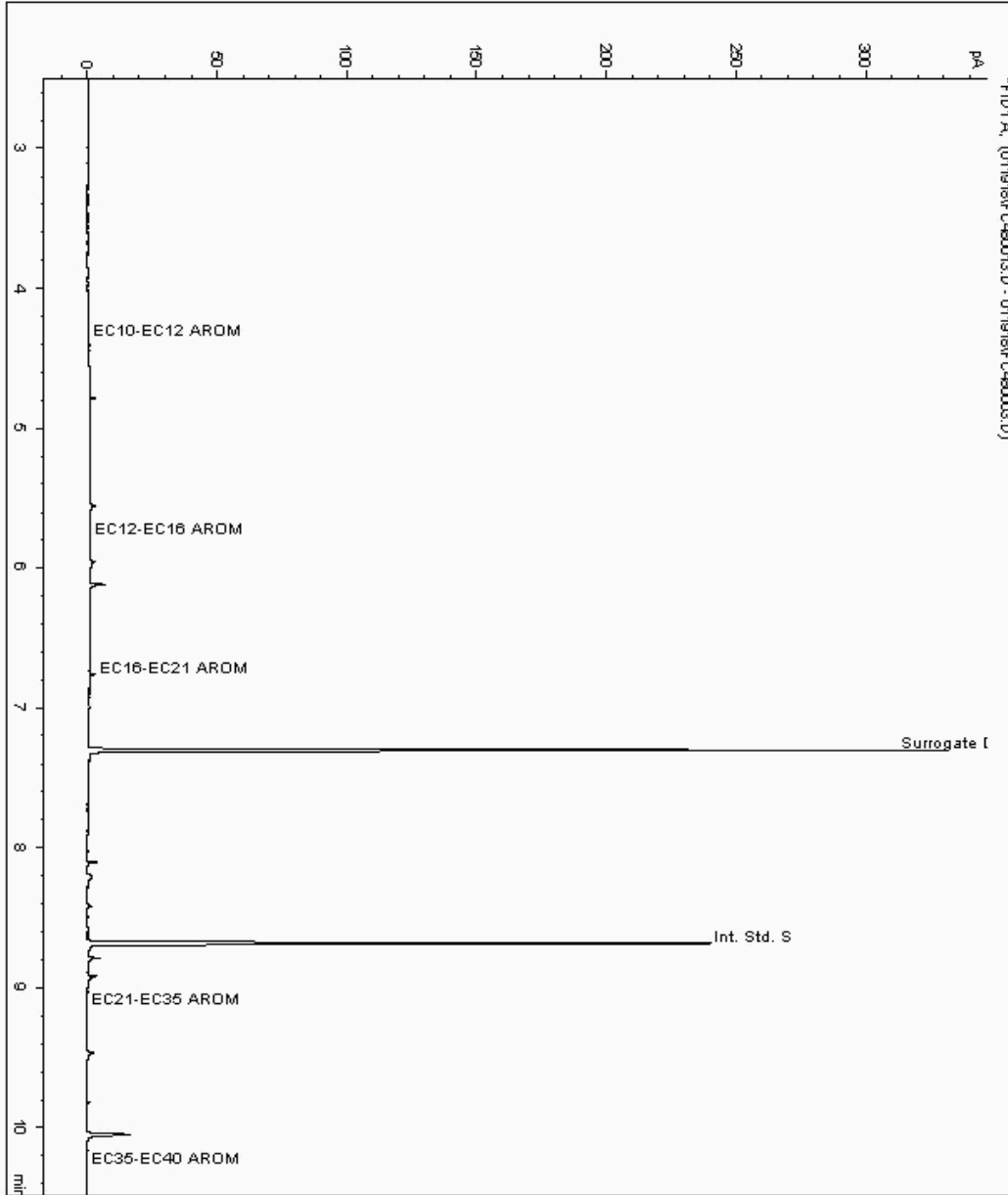
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 16890760  
Sample ID : BH2/03

Depth : 6.37

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

Sample Identity: 15827407-  
Date Acquired : 19/01/2018 18:16:42 PM  
Units : ppb  
Dilution : SE BH2/03[6.37] ->  
CF : 1  
Multiplier : 0.025







# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

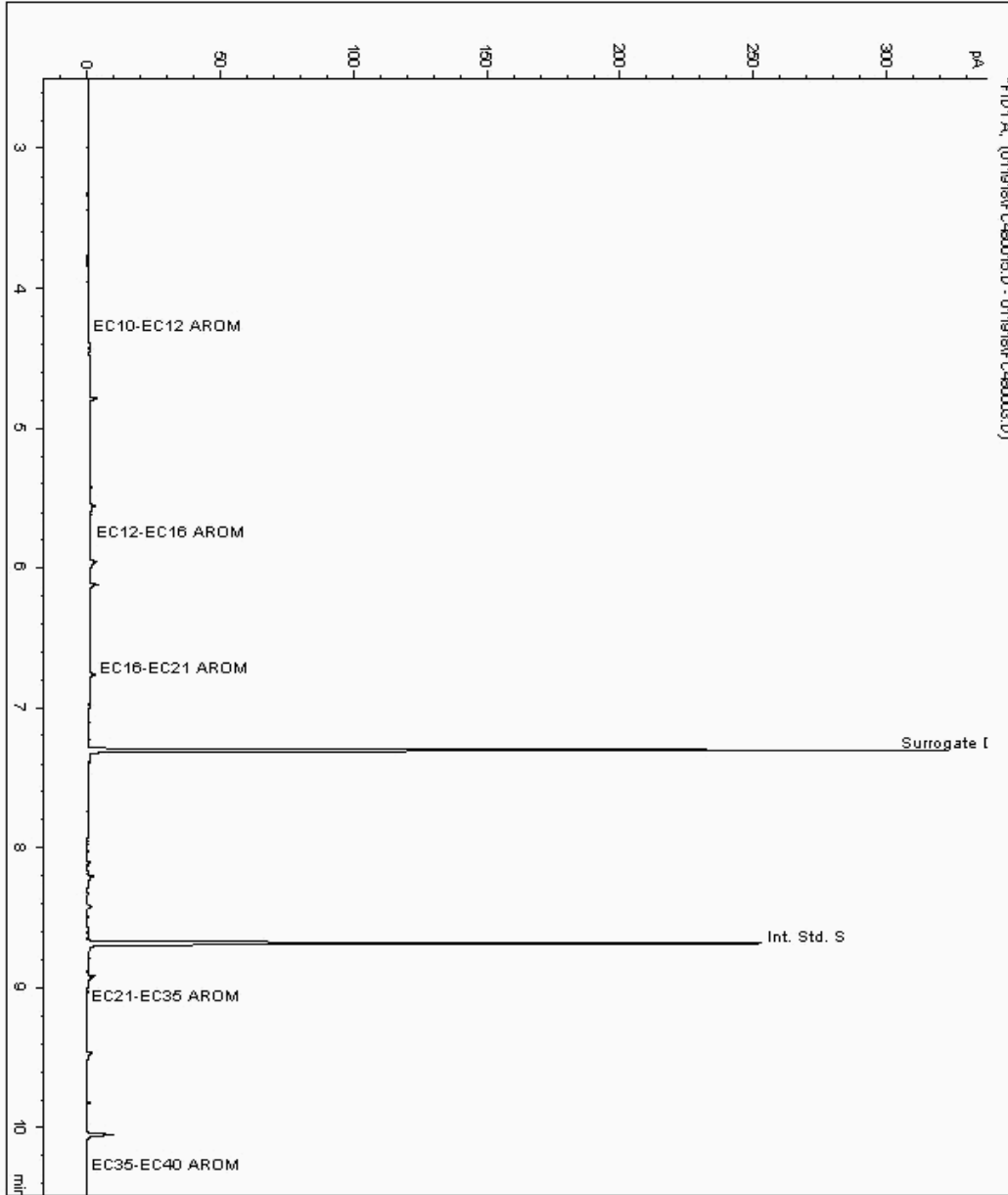
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 16890764  
Sample ID : BH2/11

Depth : 4.53

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

Sample Identity: 15827485-  
Date Acquired : 19/01/2018 19:03:53 PM  
Units : ppb  
Dilution : SE BH2/11[4.53] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

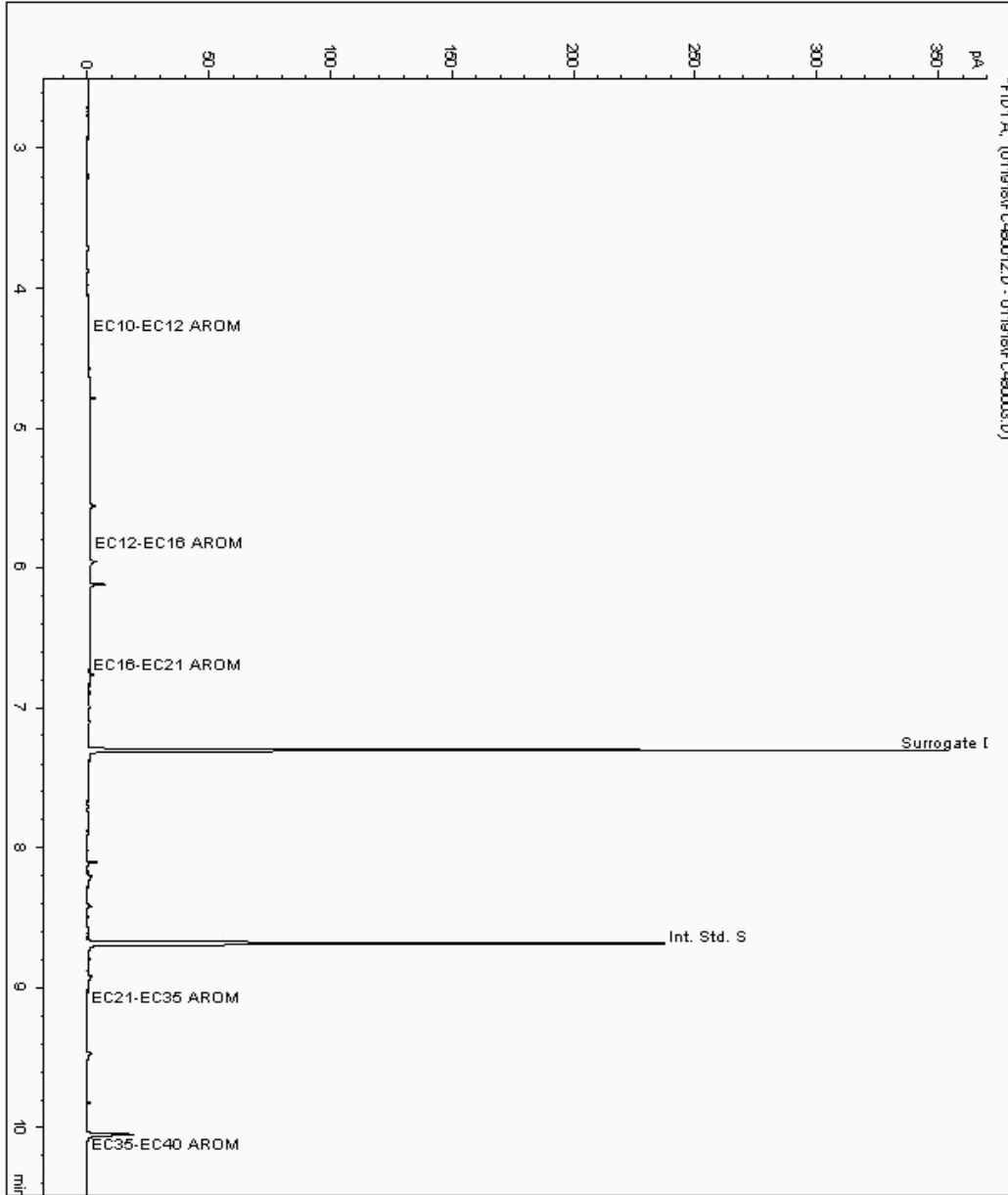
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 16890773  
Sample ID : BH2/07

Depth : 7.22

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

Sample Identity: 15827454-  
Date Acquired : 19/01/2018 17:53:46 PM  
Units : ppb  
Dilution : SE BH2/07[7.22] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

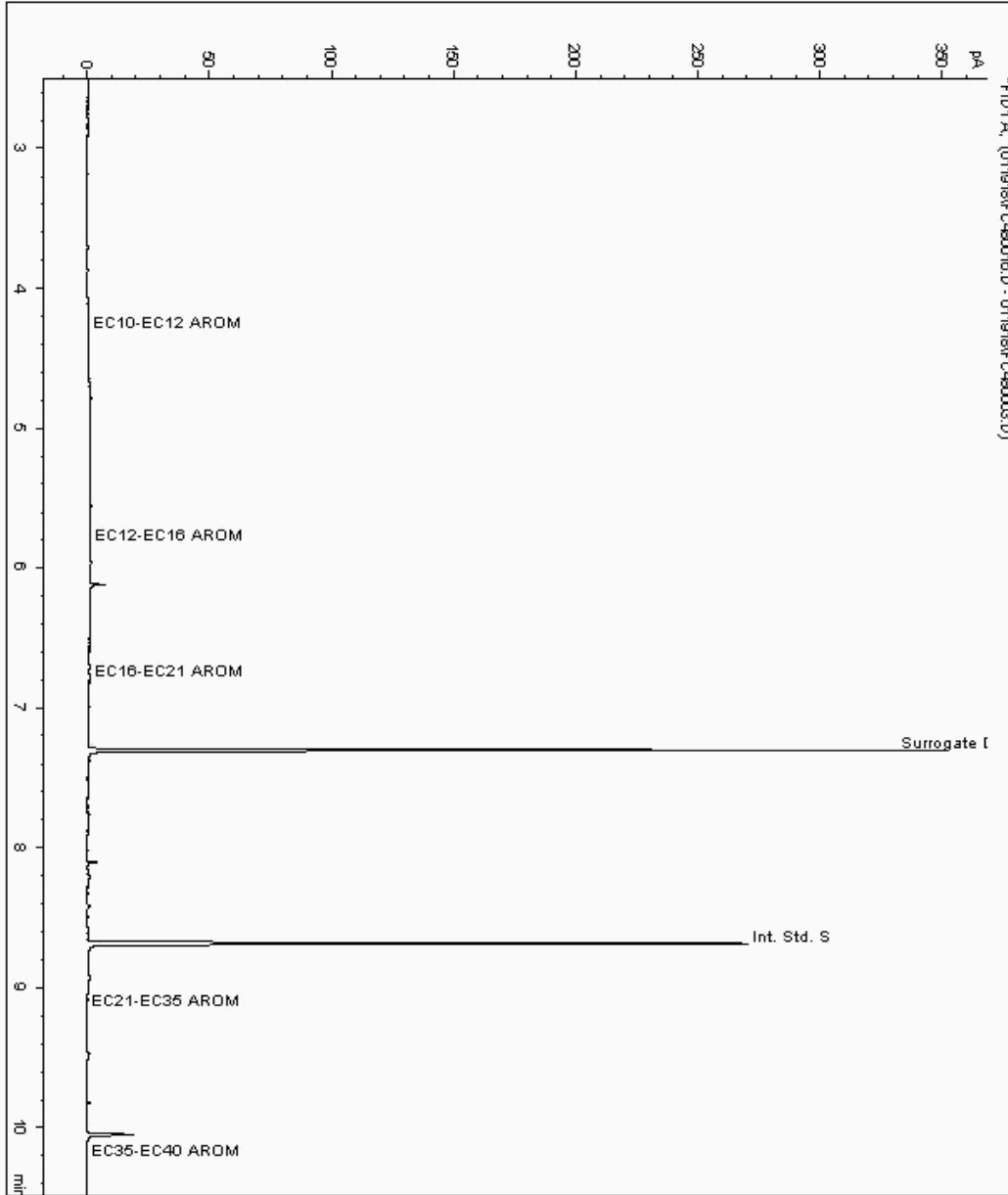
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 16890775  
Sample ID : BH2/06

Depth : 7.43

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

Sample Identity: 15827438-  
Date Acquired : 19/01/2018 19:26:47 PM  
Units : ppb  
Dilution : SE BH2/06[7.43] ->  
CF : 1  
Multiplier : 0.050





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

Report Number: 441737  
Superseded Report:

## Chromatogram

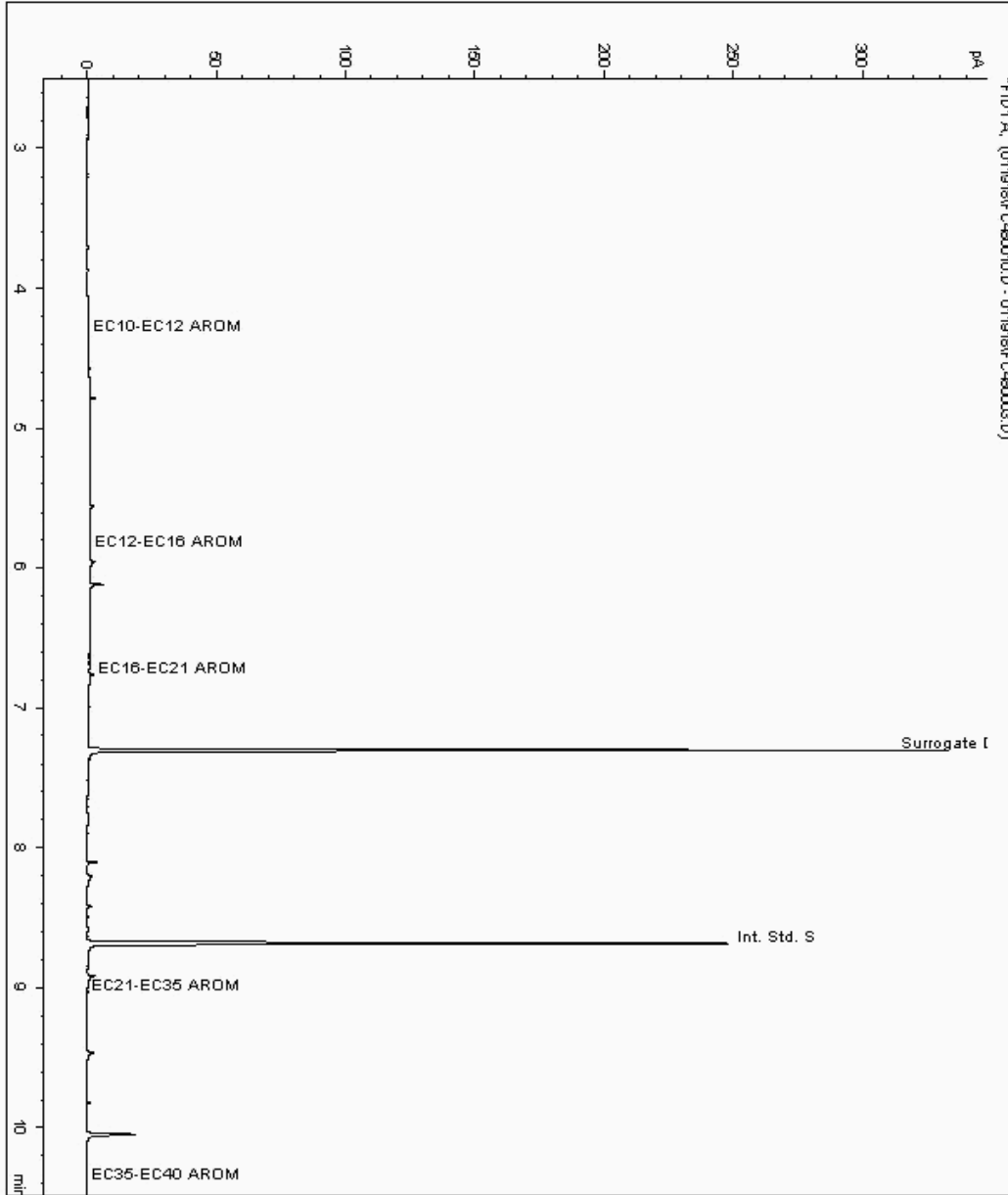
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 16890781  
Sample ID : BH2/10

Depth : 6.51

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

Sample Identity: 15827469-  
Date Acquired : 19/01/2018 17:07:06 PM  
Units : ppb  
Dilution : SE BH2/10[6.51] ->  
CF : 1  
Multiplier : 0.025





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

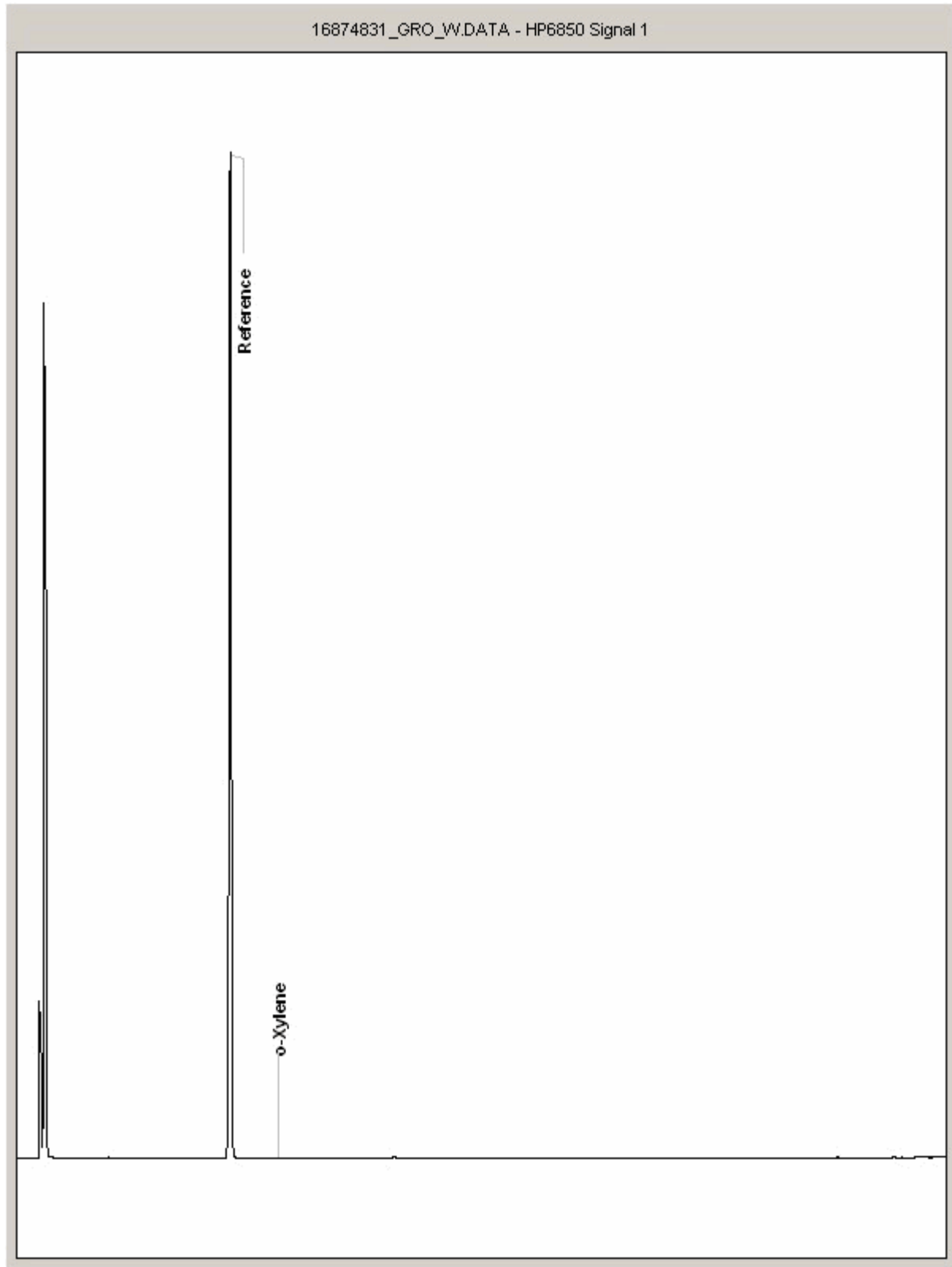
Report Number: 441737  
Superseded Report:

## Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 16874831  
Sample ID : BH2/01

Depth : 7.56





CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

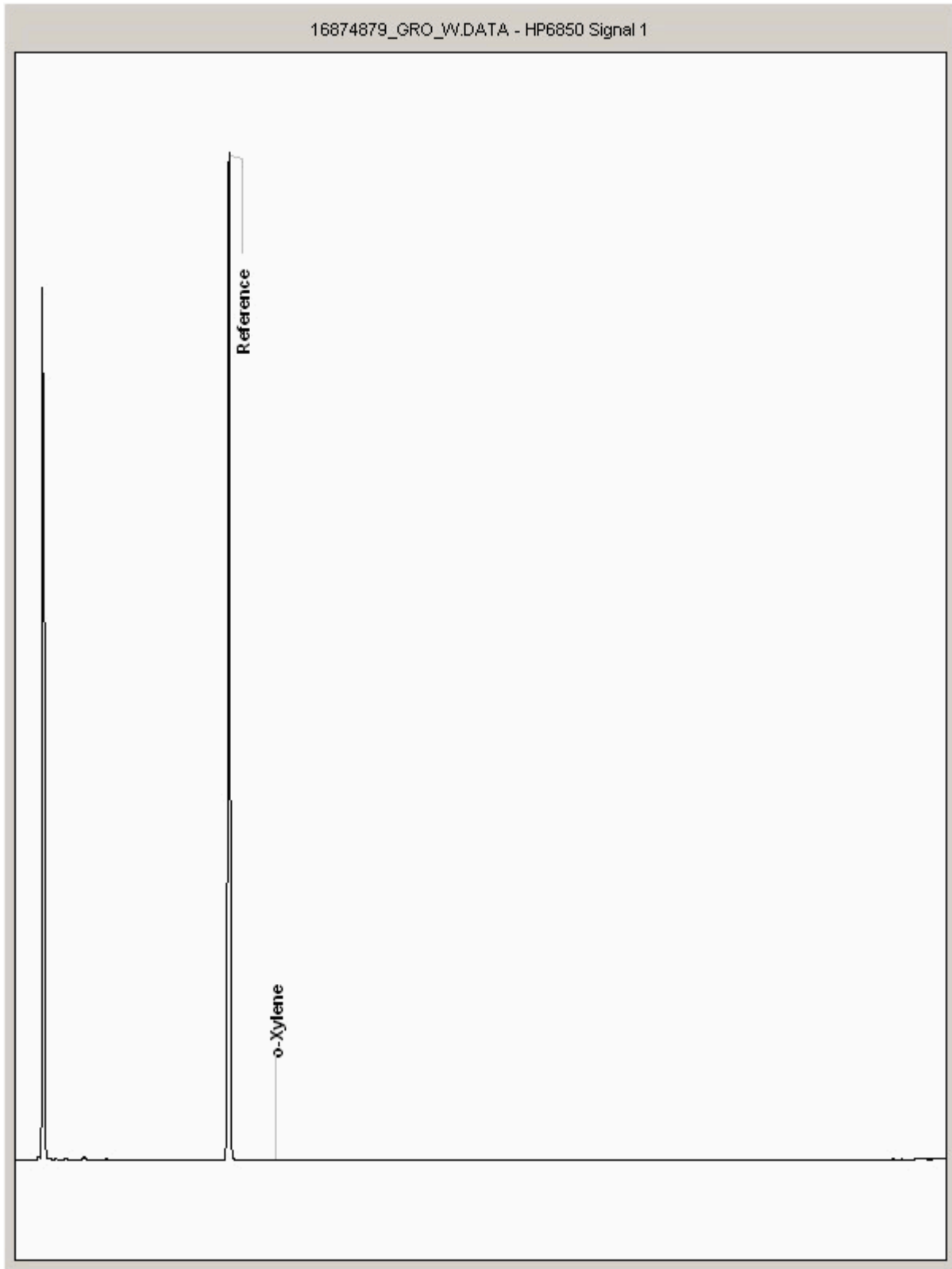
Report Number: 441737  
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 16874879  
Sample ID : BH2/04

Depth : 8.34





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

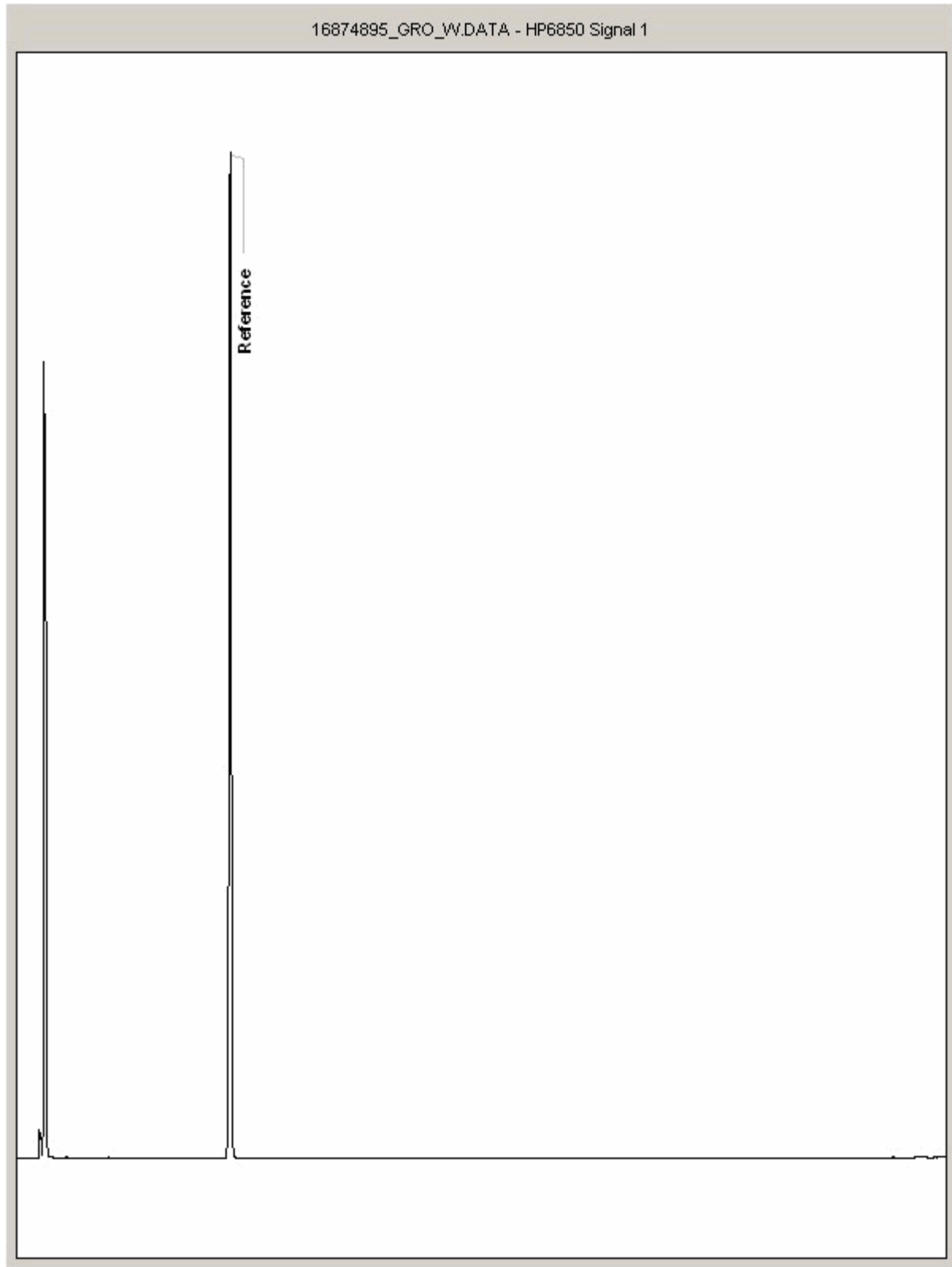
Report Number: 441737  
Superseded Report:

## Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 16874895  
Sample ID : BH2/07

Depth : 7.22





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

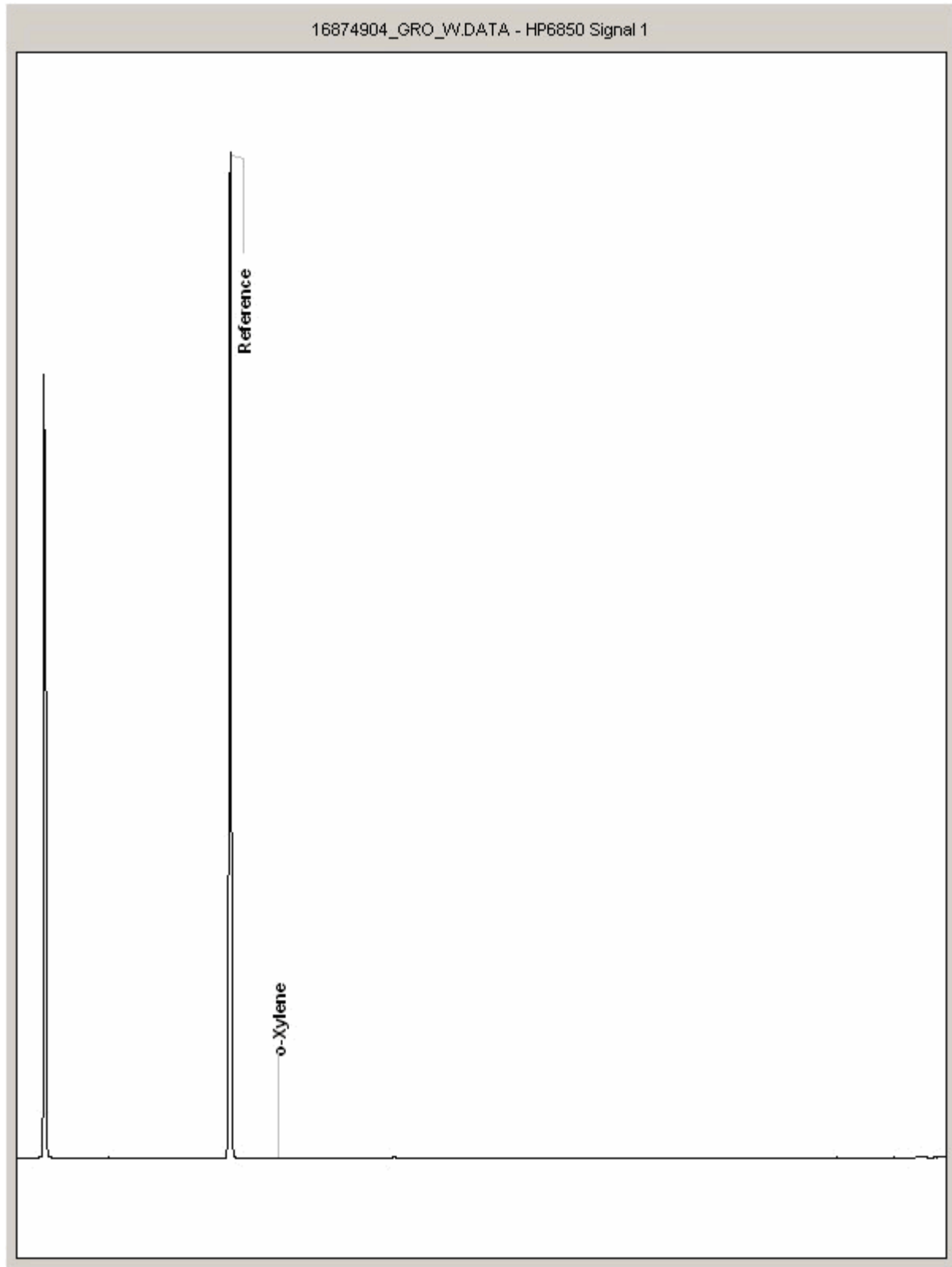
Report Number: 441737  
Superseded Report:

## Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 16874904  
Sample ID : BH2/03

Depth : 6.37







CERTIFICATE OF ANALYSIS

Validated

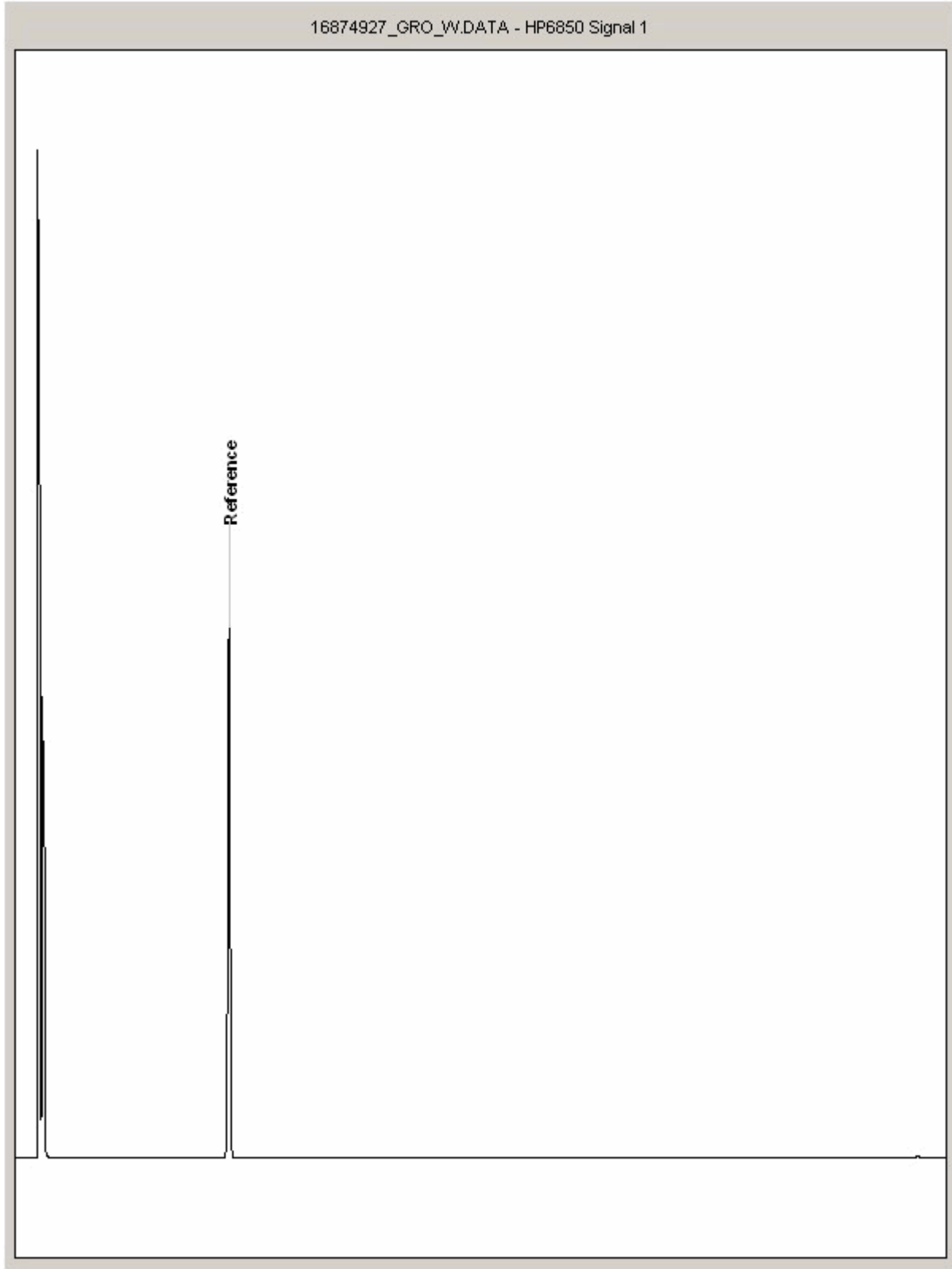
SDG: 180112-98 Client Reference: 33538 Report Number: 441737  
Location: Castle Quay, Jersey Order Number: Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 16874927  
Sample ID : BH2/11

Depth : 4.53





# CERTIFICATE OF ANALYSIS

Validated

SDG: 180112-98  
Location: Castle Quay, Jersey

Client Reference: 33538  
Order Number:

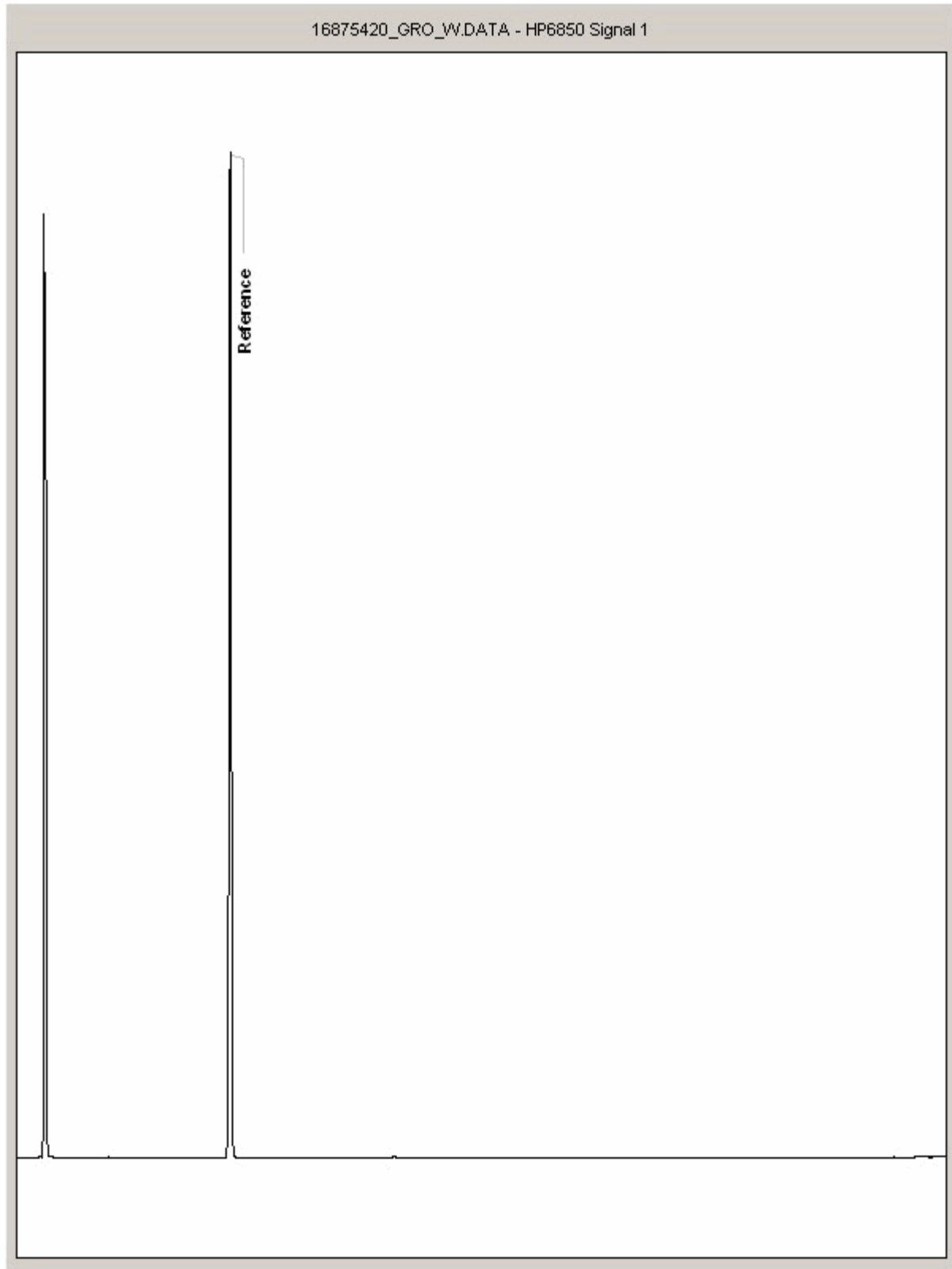
Report Number: 441737  
Superseded Report:

## Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 16875420  
Sample ID : BH2/06

Depth : 7.43





CERTIFICATE OF ANALYSIS

Validated

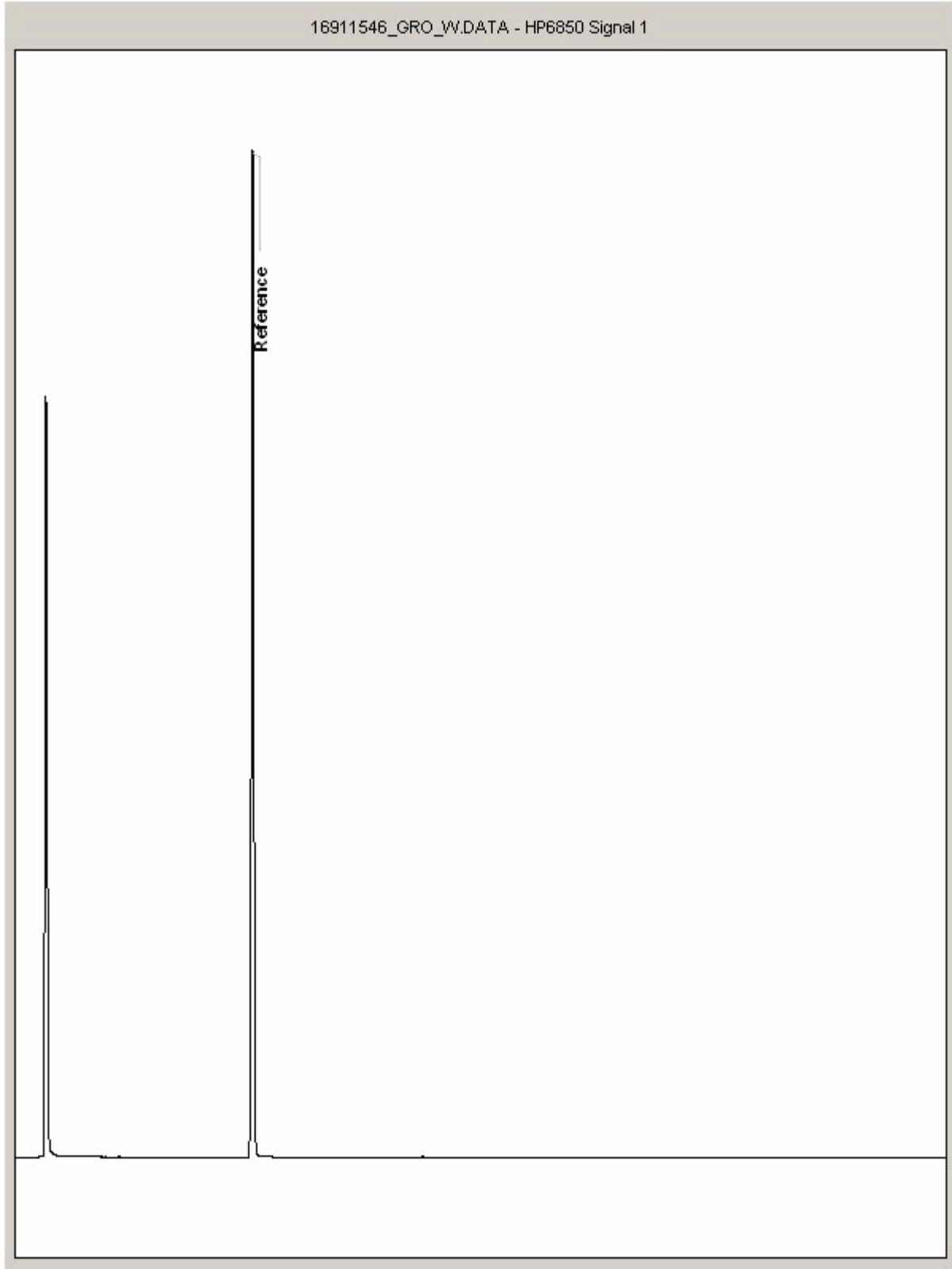
SDG: 180112-98 Client Reference: 33538 Report Number: 441737  
Location: Castle Quay, Jersey Order Number: Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 16911546  
Sample ID : BH2/10

Depth : 6.51





# CERTIFICATE OF ANALYSIS

SDG: 180112-98 Client Reference: 33538 Report Number: 441737  
 Location: Castle Quay, Jersey Order Number: 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. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

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

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11. Results relate only to the items tested.

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

13. **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%, they are generally wider for volatiles analysis, 50-150%. 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.

14. **Product analyses** - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

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

18. 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.

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

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

21. 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.

22. 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.

23. 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.

24. **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.

## 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	Holding time exceeded before sample received
5	Samples exceeded holding time before preservation was performed
§	Sampled on date not provided
◆	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

## Asbestos

### 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).

Astestost Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Coisidolite	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.

**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.**