Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US
Tel: (01244) 528700
Fax: (01244) 528701
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Newport City Council
Civic Centre
Newport
NP20 4UR

Attention: Kate Riley

CERTIFICATE OF ANALYSIS

Date of report Generation:	08 January 2019
Customer:	H_NCC_NPT
Sample Delivery Group (SDG):	181215-32
Your Reference:	
Location:	Docksway Landfill Site
Report No:	487484

This report has been revised and directly supersedes 487455 in its entirety.

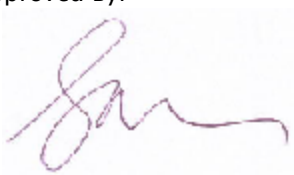
We received 14 samples on Saturday December 15, 2018 and 13 of these samples were scheduled for analysis which was completed on Tuesday January 08, 2019. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

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

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

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

Approved By:



Sonia McWhan
Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
18972309	F			
18972235	GW03_09		0.00 - 0.00	14/12/2018
18972170	GW06_13		0.00 - 0.00	14/12/2018
18972260	GW06_34		0.00 - 0.00	14/12/2018
18972283	GW06_36		0.00 - 0.00	14/12/2018
18972295	GW06_37		0.00 - 0.00	14/12/2018
18972185	GW06_39		0.00 - 0.00	14/12/2018
18972197	GW07_40		0.00 - 0.00	14/12/2018
18972210	GW09_31		0.00 - 0.00	14/12/2018
18972223	GW09_32		0.00 - 0.00	14/12/2018
18972271	GW09_35		0.00 - 0.00	14/12/2018
18972143	GW12_30		0.00 - 0.00	14/12/2018
18972247	GW12_33		0.00 - 0.00	14/12/2018
18972157	GW12_38		0.00 - 0.00	14/12/2018

Maximum Sample/Coolbox Temperature (°C) : 5.2

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

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

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

CERTIFICATE OF ANALYSIS

Validated

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

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)									18972235							18972170						18972260
Customer Sample Reference									GW03_09							GW06_13						GW06_34
AGS Reference																						
Depth (m)									0.00 - 0.00							0.00 - 0.00						0.00 - 0.00
Container									0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)
Sample Type									GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 13									X							X							X			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 13										X							X							X			
Anions by Kone (w)	All	NDPs: 0 Tests: 13									X							X							X			
BOD True Total	All	NDPs: 0 Tests: 13								X							X							X					
COD Unfiltered	All	NDPs: 0 Tests: 13								X							X							X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 13									X							X							X			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 13											X							X								X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 13									X							X							X			
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 13	X													X							X					
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 13	X													X							X					
Ionic Balance	All	NDPs: 0 Tests: 13									X							X							X			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 13											X							X								X	
pH Value	All	NDPs: 0 Tests: 13									X							X							X			
Phosphate by Kone (w)	All	NDPs: 0 Tests: 13									X							X							X			
Sulphide	All	NDPs: 0 Tests: 13													X							X						

18972185	GW06_39		0.00 - 0.00	NaOH (ALE245)	GW							X					X							
				H2SO4 (ALE244)	GW		X																		
				500ml Plastic (ALE208)	GW	X		X			X		X				X		X	X		X		
				250ml BOD (ALE212)	GW				X	X														
				0.5l glass bottle (ALE227)	GW										X	X								
18972295	GW06_37		0.00 - 0.00	ZnAc (ALE246)	GW																			X	
				Vial (ALE297)	GW																				
				NaOH (ALE245)	GW							X					X							
				H2SO4 (ALE244)	GW		X																		
				500ml Plastic (ALE208)	GW	X		X			X		X				X		X	X				
				250ml BOD (ALE212)	GW				X	X														
				0.5l glass bottle (ALE227)	GW										X	X								
18972283	GW06_36		0.00 - 0.00	ZnAc (ALE246)	GW																			X	
				Vial (ALE297)	GW																				
				NaOH (ALE245)	GW							X					X							
				H2SO4 (ALE244)	GW		X																		
				500ml Plastic (ALE208)	GW	X		X			X		X				X		X	X				
				250ml BOD (ALE212)	GW				X	X														
				0.5l glass bottle (ALE227)	GW										X	X								
18972260	GW06_34		0.00 - 0.00	ZnAc (ALE246)	GW																			X	

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

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
VOC MS (W)	All	NDPs: 0 Tests: 13	18972235	GW03_09		0.00 - 0.00	0.5l glass bottle (ALE227)	GW
							250ml BOD (ALE212)	GW
							500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
							NaOH (ALE245)	GW
							Vial (ALE297)	GW
							ZnAc (ALE246)	GW
			18972170	GW06_13		0.00 - 0.00	0.5l glass bottle (ALE227)	GW
							250ml BOD (ALE212)	GW
							500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
							NaOH (ALE245)	GW
							Vial (ALE297)	GW
							ZnAc (ALE246)	GW
			18972260	GW06_34		0.00 - 0.00	0.5l glass bottle (ALE227)	GW
							250ml BOD (ALE212)	GW
							500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
							NaOH (ALE245)	GW
							Vial (ALE297)	GW

						X								X								X

18972185	GW06_39		0.00 - 0.00	NaOH (ALE245)	GW		
				H2SO4 (ALE244)	GW		
				500ml Plastic (ALE208)	GW		
				250ml BOD (ALE212)	GW		
				0.5l glass bottle (ALE227)	GW		
18972295	GW06_37		0.00 - 0.00	ZnAc (ALE246)	GW		
				Vial (ALE297)	GW		X
				NaOH (ALE245)	GW		
				H2SO4 (ALE244)	GW		
				500ml Plastic (ALE208)	GW		
				250ml BOD (ALE212)	GW		
				0.5l glass bottle (ALE227)	GW		
18972283	GW06_36		0.00 - 0.00	ZnAc (ALE246)	GW		
				Vial (ALE297)	GW		X
				NaOH (ALE245)	GW		
				H2SO4 (ALE244)	GW		
				500ml Plastic (ALE208)	GW		
				250ml BOD (ALE212)	GW		
				0.5l glass bottle (ALE227)	GW		
18972260	GW06_34		0.00 - 0.00	ZnAc (ALE246)	GW		

CERTIFICATE OF ANALYSIS

Validated

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

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)			18972185	18972197								18972210								18972223			
Customer Sample Reference			GW06_39	GW07_40								GW09_31								GW09_32			
AGS Reference																							
Depth (m)			0.00 - 0.00	0.00 - 0.00								0.00 - 0.00								0.00 - 0.00			
Container			Vial (ALE297)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	
Alkalinity as CaCO3	All	NDPs: 0 Tests: 13				X							X								X		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 13					X							X									X
Anions by Kone (w)	All	NDPs: 0 Tests: 13				X							X								X		
BOD True Total	All	NDPs: 0 Tests: 13			X							X								X			
COD Unfiltered	All	NDPs: 0 Tests: 13			X							X								X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 13				X							X								X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 13						X								X							
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 13				X									X								
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 13		X							X								X				
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 13		X							X								X				
Ionic Balance	All	NDPs: 0 Tests: 13				X							X								X		
Nitrite by Kone (w)	All	NDPs: 0 Tests: 13						X								X							
pH Value	All	NDPs: 0 Tests: 13				X							X								X		
Phosphate by Kone (w)	All	NDPs: 0 Tests: 13				X							X								X		
Sulphide	All	NDPs: 0 Tests: 13								X								X					

18972247	GW12_33		0.00 - 0.00	250ml BOD (ALE212)	GW				X	X										
				0.5l glass bottle (ALE227)	GW									X	X					
18972143	GW12_30		0.00 - 0.00	ZnAc (ALE246)	GW															X
				Vial (ALE297)	GW															
				NaOH (ALE245)	GW							X					X			
				H2SO4 (ALE244)	GW		X													
				500ml Plastic (ALE208)	GW	X		X			X		X			X		X	X	
				250ml BOD (ALE212)	GW				X	X										
				0.5l glass bottle (ALE227)	GW									X	X					
18972271	GW09_35		0.00 - 0.00	ZnAc (ALE246)	GW															X
				Vial (ALE297)	GW															
				NaOH (ALE245)	GW							X					X			
				H2SO4 (ALE244)	GW		X													
				500ml Plastic (ALE208)	GW	X		X			X		X			X		X	X	
				250ml BOD (ALE212)	GW				X	X										
				0.5l glass bottle (ALE227)	GW									X	X					
18972223	GW09_32		0.00 - 0.00	ZnAc (ALE246)	GW															X
				Vial (ALE297)	GW															
				NaOH (ALE245)	GW							X					X			
				HNO3 Filtered (ALE204)	GW								X							

CERTIFICATE OF ANALYSIS

Validated

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

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
			18972185	GW06_39		0.00 - 0.00	Vial (ALE297)	GW
			18972197	GW07_40		0.00 - 0.00	0.5l glass bottle (ALE227)	GW
							250ml BOD (ALE212)	GW
							500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
							NaOH (ALE245)	GW
							Vial (ALE297)	GW
							ZnAc (ALE246)	GW
			18972210	GW09_31		0.00 - 0.00	0.5l glass bottle (ALE227)	GW
							250ml BOD (ALE212)	GW
							500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
							HNO3 Filtered (ALE204)	GW
							NaOH (ALE245)	GW
							Vial (ALE297)	GW
							ZnAc (ALE246)	GW
			18972223	GW09_32		0.00 - 0.00	0.5l glass bottle (ALE227)	GW
							250ml BOD (ALE212)	GW
							500ml Plastic (ALE208)	GW
							H2SO4 (ALE244)	GW
VOC MS (W)	All	NDPs: 0 Tests: 13	X					
							X	
							X	

18972247	GW12_33		0.00 - 0.00	250ml BOD (ALE212)	GW		
				0.5l glass bottle (ALE227)	GW		
18972143	GW12_30		0.00 - 0.00	ZnAc (ALE246)	GW		
				Vial (ALE297)	GW	X	
				NaOH (ALE245)	GW		
				H2SO4 (ALE244)	GW		
				500ml Plastic (ALE208)	GW		
				250ml BOD (ALE212)	GW		
				0.5l glass bottle (ALE227)	GW		
18972271	GW09_35		0.00 - 0.00	ZnAc (ALE246)	GW		
				Vial (ALE297)	GW	X	
				NaOH (ALE245)	GW		
				H2SO4 (ALE244)	GW		
				500ml Plastic (ALE208)	GW		
				250ml BOD (ALE212)	GW		
				0.5l glass bottle (ALE227)	GW		
18972223	GW09_32		0.00 - 0.00	ZnAc (ALE246)	GW		
				Vial (ALE297)	GW	X	
				NaOH (ALE245)	GW		
				HNO3 Filtered (ALE204)	GW		

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**	
Location:	Docksway Landfill Site	**Order Number:**	700124102
Report Number:	487484	**Superseded Report:**	487455

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)			18972247					18972157						
Customer Sample Reference			GW12_33					GW12_38						
AGS Reference														
Depth (m)			0.00 - 0.00					0.00 - 0.00						
Container			500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 13	X							X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 13		X							X			
Anions by Kone (w)	All	NDPs: 0 Tests: 13	X							X				
BOD True Total	All	NDPs: 0 Tests: 13							X					
COD Unfiltered	All	NDPs: 0 Tests: 13							X					
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 13	X							X				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 13			X							X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 13	X							X				
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 13						X						
EPH (DRO) (C10-C40) Aqueous (W)	All	NDPs: 0 Tests: 13						X						
Ionic Balance	All	NDPs: 0 Tests: 13	X							X				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 13			X							X		
pH Value	All	NDPs: 0 Tests: 13	X							X				
Phosphate by Kone (w)	All	NDPs: 0 Tests: 13	X							X				
Sulphide	All	NDPs: 0 Tests: 13					X							X

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

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)												
			18972247					18972157							
			Customer Sample Reference												
			GW12_33					GW12_38							
			AGS Reference												
			Depth (m)												
			0.00 - 0.00					0.00 - 0.00							
			Container	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)	0.5l glass bottle (ALE227)	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	ZnAc (ALE246)
			Sample Type	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
VOC MS (W)	All	NDPs: 0 Tests: 13					X							X	

Validated

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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	Customer Sample Ref.	GW03_09	GW06_13	GW06_34	GW06_36	GW06_37	GW06_39
			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
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/12/2018	14/12/2018	14/12/2018	14/12/2018	14/12/2018	14/12/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	15/12/2018	15/12/2018	15/12/2018	15/12/2018	15/12/2018	15/12/2018
			SDG Ref	181215-32	181215-32	181215-32	181215-32	181215-32	181215-32
			Lab Sample No.(s)	18972235	18972170	18972260	18972283	18972295	18972185
			AGS Reference						
Ionic balance	% Diff	Calulation		0.293	-6.78	2.25	-7.55	0.688	-1.38
Alkalinity, Total as CaCO3	<2 mg/l	TM043		215 #	1020 #	550 #	895 #	1120 #	1060 #
BOD, unfiltered	<1 mg/l	TM045		<1 #	<1 #	5.78 #	2.19 ♦ #	9.46 #	<1 ♦ #
Carbon, Organic (diss.filt)	<3 mg/l	TM090		10.7	15.8	13.4	13.5	33.4	20.2
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		<0.2 #	15.5 #	1.57 #	6.85 #	39.7 #	20.5 #
Sulphide	<0.01 mg/l	TM101		0.0263	0.127	0.821	0.586	2.56 ♦ #	<0.01 2
COD, unfiltered	<7 mg/l	TM107		30.4 ♦ #	120 ♦ #	55.1 ♦ #	139 ♦ #	198 ♦ #	78.6 ♦ #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		1.35 #	8.68 #	1.16 #	8.8 #	13.8 #	5.54 #
Arsenic (diss.filt)	<0.5 µg/l	TM152		1.69 2 #	2.19 2 #	2.99 2 #	3.1 2 #	49.8 2 #	8.35 2 #
Boron (diss.filt)	<10 µg/l	TM152		217 2 #	1640 2 #	602 2 #	1160 2 #	2930 2 #	1180 2 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		0.144 2 #	<0.08 2 #	<0.08 2 #	<0.08 2 #	<0.48 2 #	<0.08 2 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 2 #	<1 2 #	<1 2 #	<6 2 #	<1 2 #
Copper (diss.filt)	<0.3 µg/l	TM152		7.44 2 #	<0.3 2 #	<0.3 2 #	<0.3 2 #	<1.8 2 #	<0.3 2 #
Lead (diss.filt)	<0.2 µg/l	TM152		0.256 2 #	<0.2 2 #	<0.2 2 #	<0.2 2 #	<1.2 2 #	<0.2 2 #
Manganese (diss.filt)	<3 µg/l	TM152		176 2 #	585 2 #	1620 2 #	293 2 #	448 2 #	523 2 #
Nickel (diss.filt)	<0.4 µg/l	TM152		6.69 2 #	0.887 2 #	1.74 2 #	1.28 2 #	<2.4 2 #	4.1 2 #
Selenium (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 2 #	<1 2 #	<1 2 #	<6 2 #	<1 2 #
Zinc (diss.filt)	<1 µg/l	TM152		78.1 2 #	1.5 2 #	4.4 2 #	3.3 2 #	<6 2 #	2.69 2 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		20 2 #	60.1 2 #	17.5 2 #	53.7 2 #	83.6 2 #	46.9 2 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019 2 #	0.0233 2 #	0.0614 2 #	0.0225 2 #	0.129 2 #	0.0395 2 #
Hardness, Total as CaCO3	<0.65 mg/l	TM152		729 2	1230 2	564 2	1250 2	1520 2	978 2
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172		<100	<100	<100	107	134	<100
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		0.061 #	6.22 #	<0.05 #	5.74 #	6.11 #	0.159 #
Sulphate	<2 mg/l	TM184		589 #	90.3 #	94.2 #	172 #	<2 #	72.3 #
Chloride	<2 mg/l	TM184		36.4 #	2840 #	65.7 #	2970 #	4930 #	1480 #
Nitrate as NO3	<0.3 mg/l	TM184		2.78	<0.3	<0.3	<0.3	<0.3	<0.3
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		0.631 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Cyanide, Total	<0.05 mg/l	TM227		<0.05 ♦ #	<0.05 ♦ #	<0.05	<0.05	<0.05 ♦ #	<0.05 ♦ #
pH	<1 pH Units	TM256		7.05 #	7.53 #	7.28 #	7.83 #	8.49 #	8.24 #

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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	Customer Sample Ref.	GW07_40	GW09_31	GW09_32	GW09_35	GW12_30	GW12_33
			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
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	14/12/2018	14/12/2018	14/12/2018	14/12/2018	14/12/2018	14/12/2018
			Sampled Time	.	.	.	.	.	.
			Date Received	15/12/2018	15/12/2018	15/12/2018	15/12/2018	15/12/2018	15/12/2018
			SDG Ref	181215-32	181215-32	181215-32	181215-32	181215-32	181215-32
			Lab Sample No.(s)	18972197	18972210	18972223	18972271	18972143	18972247
			AGS Reference						
Ionic balance	% Diff	Calulation		-2.22	-0.683	4.66	-7.17	-2.05	0.236
Alkalinity, Total as CaCO3	<2 mg/l	TM043		675 #	390 #	350 #	885 #	765 #	344 #
BOD, unfiltered	<1 mg/l	TM045		3.46 #	<1 #	11.6 #	<1 #	2.86 #	2.91 ♦ #
Carbon, Organic (diss.filt)	<3 mg/l	TM090		20	13.1	26.3	12.2	24.4 ♦	13.5
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		10.8 #	1.47 #	7.02 #	8.7 #	0.993 #	5.36 #
Sulphide	<0.01 mg/l	TM101		0.0177	<0.01	0.217	0.0568	<0.01	0.239
COD, unfiltered	<7 mg/l	TM107		68.3 ♦ #	31.7 ♦ #	83.3 ♦ #	150 ♦ #	75.2 ♦ #	41.5 ♦ #
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		1.79 #	1.71 #	1.85 #	11.7 #	2.39 #	1.73 #
Arsenic (diss.filt)	<0.5 µg/l	TM152		27.8 2 #	3.28 #	8.27 #	2.37 2 #	2.27 2 #	2.58 2 #
Boron (diss.filt)	<10 µg/l	TM152		1470 2 #	583 #	370 #	1200 2 #	639 2 #	752 2 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 2 #	<0.08 #	<0.08 #	<0.08 2 #	<0.08 2 #	<0.08 2 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 #	1.05 #	<1 2 #	<1 2 #	<1 2 #
Copper (diss.filt)	<0.3 µg/l	TM152		<0.3 2 #	0.471 #	1.56 #	<0.3 2 #	<0.3 2 #	<0.3 2 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 2 #	<0.2 #	1.06 #	<0.2 2 #	<0.2 2 #	<0.2 2 #
Manganese (diss.filt)	<3 µg/l	TM152		234 2 #	816 #	532 #	409 2 #	2910 2 #	895 2 #
Nickel (diss.filt)	<0.4 µg/l	TM152		1.8 2 #	3.47 #	3.86 #	0.943 2 #	4.14 2 #	2.03 2 #
Selenium (diss.filt)	<1 µg/l	TM152		<1 2 #	<1 #	<1 #	<1 2 #	<1 2 #	<1 2 #
Zinc (diss.filt)	<1 µg/l	TM152		1.94 2 #	13.2 #	16.7 #	1.59 2 #	2.21 2 #	4.02 2 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		33.1 2 #	25.6 #	25.8 #	66.9 2 #	11.6 2 #	25.2 2 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		0.0729 2 #	0.289 #	2.79 #	<0.019 2 #	0.169 2 #	3.58 2 #
Hardness, Total as CaCO3	<0.65 mg/l	TM152		305 2	704	451	1710 2	589 2	806 2
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172		<100	<100	188	<100	<100	<100
Nitrite as NO2	<0.05 mg/l	TM184		<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184		7.09 #	0.054 #	0.053 #	7.49 #	<0.05 #	<0.05 #
Sulphate	<2 mg/l	TM184		13.4 #	465 #	336 #	144 #	133 #	544 #
Chloride	<2 mg/l	TM184		242 #	143 #	246 #	4150 #	368 #	134 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #	<0.1 #
Cyanide, Total	<0.05 mg/l	TM227		<0.05 ♦ #	<0.05	<0.05 ♦	<0.05	<0.05	<0.05
pH	<1 pH Units	TM256		7.95 #	7.49 #	8.16 #	7.73 #	7.43 #	7.65 #

Validated

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	GW12_38							
Depth (m)	0.00 - 0.00							
Sample Type	Ground Water (GW)							
Date Sampled	14/12/2018							
Sampled Time	.							
Date Received	15/12/2018							
SDG Ref	181215-32							
Lab Sample No.(s)	18972157							
AGS Reference								
Component	**LOD/Units**	**Method**						
Ionic balance	% Diff	Calulation	-1.36					
Alkalinity, Total as CaCO3	<2 mg/l	TM043	445 #					
BOD, unfiltered	<1 mg/l	TM045	2.08 #					
Carbon, Organic (diss.filt)	<3 mg/l	TM090	16.7					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2 #					
Sulphide	<0.01 mg/l	TM101	<0.01					
COD, unfiltered	<7 mg/l	TM107	67.2 ♦ #					
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	4.9 #					
Arsenic (diss.filt)	<0.5 µg/l	TM152	2.59 2 #					
Boron (diss.filt)	<10 µg/l	TM152	687 2 #					
Cadmium (diss.filt)	<0.08 µg/l	TM152	<0.08 2 #					
Chromium (diss.filt)	<1 µg/l	TM152	<1 2 #					
Copper (diss.filt)	<0.3 µg/l	TM152	2.59 2 #					
Lead (diss.filt)	<0.2 µg/l	TM152	<0.2 2 #					
Manganese (diss.filt)	<3 µg/l	TM152	755 2 #					
Nickel (diss.filt)	<0.4 µg/l	TM152	4.67 2 #					
Selenium (diss.filt)	<1 µg/l	TM152	<1 2 #					
Zinc (diss.filt)	<1 µg/l	TM152	4.47 2 #					
Potassium (Dis.Filt)	<0.2 mg/l	TM152	40.6 2 #					
Iron (Dis.Filt)	<0.019 mg/l	TM152	<0.019 2 #					
Hardness, Total as CaCO3	<0.65 mg/l	TM152	1310 2					
EPH Range >C10 - C40 (aq)	<100 µg/l	TM172	<100					
Nitrite as NO2	<0.05 mg/l	TM184	<0.05 #					
Phosphate (Ortho as PO4)	<0.05 mg/l	TM184	0.157 #					
Sulphate	<2 mg/l	TM184	658 #					
Chloride	<2 mg/l	TM184	1240 #					
Nitrate as NO3	<0.3 mg/l	TM184	2.79					
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184	0.634 #					
Cyanide, Total	<0.05 mg/l	TM227	<0.05					
pH	<1 pH Units	TM256	9.06 #					

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted 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	Customer Sample Ref.	Depth (m) / Sample Type / Date Sampled / Sampled Time / Date Received / SDG Ref / Lab Sample No.(s) / AGS Reference					
			GW03_09	GW06_13	GW06_34	GW06_36	GW06_37	GW06_39
			0.00 - 0.00 / Ground Water (GW) / 14/12/2018 / . / 15/12/2018 / 181215-32 / 18972235	0.00 - 0.00 / Ground Water (GW) / 14/12/2018 / . / 15/12/2018 / 181215-32 / 18972170	0.00 - 0.00 / Ground Water (GW) / 14/12/2018 / . / 15/12/2018 / 181215-32 / 18972260	0.00 - 0.00 / Ground Water (GW) / 14/12/2018 / . / 15/12/2018 / 181215-32 / 18972283	0.00 - 0.00 / Ground Water (GW) / 14/12/2018 / . / 15/12/2018 / 181215-32 / 18972295	0.00 - 0.00 / Ground Water (GW) / 14/12/2018 / . / 15/12/2018 / 181215-32 / 18972185
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted 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	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			GW07_40	0.00 - 0.00	Ground Water (GW)	14/12/2018	.	15/12/2018	181215-32	18972197	
			GW09_31	0.00 - 0.00	Ground Water (GW)	14/12/2018	.	15/12/2018	181215-32	18972210	
			GW09_32	0.00 - 0.00	Ground Water (GW)	14/12/2018	.	15/12/2018	181215-32	18972223	
			GW09_35	0.00 - 0.00	Ground Water (GW)	14/12/2018	.	15/12/2018	181215-32	18972271	
			GW12_30	0.00 - 0.00	Ground Water (GW)	14/12/2018	.	15/12/2018	181215-32	18972143	
			GW12_33	0.00 - 0.00	Ground Water (GW)	14/12/2018	.	15/12/2018	181215-32	18972247	
Benzene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208	<1 #	<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

VOC MS (W)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS accredited.
aq	Aqueous / settled sample.
diss.filt	Dissolved / filtered sample.
tot.unfilt	Total / unfiltered sample.
*	Subcontracted 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)

Customer Sample Ref.	GW12_38							
Depth (m)	0.00 - 0.00							
Sample Type	Ground Water (GW)							
Date Sampled	14/12/2018							
Sampled Time	.							
Date Received	15/12/2018							
SDG Ref	181215-32							
Lab Sample No.(s)	18972157							
AGS Reference								
Component	**LOD/Units**	**Method**						
Benzene	<1 µg/l	TM208	<1 #					
m,p-Xylene	<1 µg/l	TM208	<1 #					
o-Xylene	<1 µg/l	TM208	<1 #					
Naphthalene	<1 µg/l	TM208	<1 #					

Table of Results - Appendix

Method No	Reference	Description
Calulation		
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
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)
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

SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Test Completion Dates

Lab Sample No(s)	18972235	18972170	18972260	18972283	18972295	18972185	18972197	18972210	18972223	18972271
Customer Sample Ref.	GW03_09	GW06_13	GW06_34	GW06_36	GW06_37	GW06_39	GW07_40	GW09_31	GW09_32	GW09_35
AGS Ref.										
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	31-Dec-2018	31-Dec-2018	31-Dec-2018	31-Dec-2018	31-Dec-2018	31-Dec-2018	31-Dec-2018	31-Dec-2018	31-Dec-2018	31-Dec-2018
Alkalinity Filtered as CaCO3	02-Jan-2019	02-Jan-2019	20-Dec-2018	02-Jan-2019	02-Jan-2019	20-Dec-2018	02-Jan-2019	02-Jan-2019	02-Jan-2019	02-Jan-2019
Ammoniacal Nitrogen	29-Dec-2018	29-Dec-2018	29-Dec-2018	29-Dec-2018	29-Dec-2018	29-Dec-2018	29-Dec-2018	29-Dec-2018	29-Dec-2018	29-Dec-2018
Anions by Kone (w)	21-Dec-2018	21-Dec-2018	21-Dec-2018	20-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018
BOD True Total	21-Dec-2018	21-Dec-2018	21-Dec-2018	08-Jan-2019	21-Dec-2018	22-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018
COD Unfiltered	03-Jan-2019	07-Jan-2019	03-Jan-2019	04-Jan-2019	05-Jan-2019	07-Jan-2019	05-Jan-2019	04-Jan-2019	04-Jan-2019	04-Jan-2019
Conductivity (at 20 deg.C)	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018
Cyanide Comp/Free/Total/Thiocyanate	04-Jan-2019	04-Jan-2019	21-Dec-2018	21-Dec-2018	04-Jan-2019	04-Jan-2019	04-Jan-2019	21-Dec-2018	04-Jan-2019	21-Dec-2018
Dissolved Metals by ICP-MS	27-Dec-2018	28-Dec-2018	27-Dec-2018	28-Dec-2018	28-Dec-2018	27-Dec-2018	27-Dec-2018	28-Dec-2018	27-Dec-2018	27-Dec-2018
Dissolved Organic/Inorganic Carbon	19-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018	19-Dec-2018	21-Dec-2018	19-Dec-2018	19-Dec-2018	21-Dec-2018
EPH (DRO) (C10-C40) Aqueous (W)	21-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018	19-Dec-2018	21-Dec-2018	21-Dec-2018	19-Dec-2018	21-Dec-2018
Ionic Balance	03-Jan-2019	03-Jan-2019	03-Jan-2019	03-Jan-2019	03-Jan-2019	03-Jan-2019	03-Jan-2019	03-Jan-2019	03-Jan-2019	03-Jan-2019
Nitrite by Kone (w)	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018
pH Value	27-Dec-2018	28-Dec-2018	28-Dec-2018	27-Dec-2018	28-Dec-2018	27-Dec-2018	27-Dec-2018	27-Dec-2018	27-Dec-2018	28-Dec-2018
Phosphate by Kone (w)	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	20-Dec-2018	21-Dec-2018	21-Dec-2018	21-Dec-2018
Sulphide	28-Dec-2018	28-Dec-2018	28-Dec-2018	28-Dec-2018	07-Jan-2019	28-Dec-2018	28-Dec-2018	28-Dec-2018	28-Dec-2018	28-Dec-2018
VOC MS (W)	04-Jan-2019	04-Jan-2019	04-Jan-2019	04-Jan-2019	04-Jan-2019	04-Jan-2019	04-Jan-2019	04-Jan-2019	04-Jan-2019	04-Jan-2019

Lab Sample No(s)	18972143	18972247	18972157
Customer Sample Ref.	GW12_30	GW12_33	GW12_38
AGS Ref.			
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	31-Dec-2018	31-Dec-2018	31-Dec-2018
Alkalinity Filtered as CaCO3	02-Jan-2019	02-Jan-2019	02-Jan-2019
Ammoniacal Nitrogen	29-Dec-2018	29-Dec-2018	29-Dec-2018
Anions by Kone (w)	21-Dec-2018	21-Dec-2018	21-Dec-2018
BOD True Total	21-Dec-2018	08-Jan-2019	21-Dec-2018
COD Unfiltered	04-Jan-2019	05-Jan-2019	03-Jan-2019
Conductivity (at 20 deg.C)	20-Dec-2018	20-Dec-2018	20-Dec-2018
Cyanide Comp/Free/Total/Thiocyanate	21-Dec-2018	21-Dec-2018	21-Dec-2018
Dissolved Metals by ICP-MS	27-Dec-2018	27-Dec-2018	27-Dec-2018
Dissolved Organic/Inorganic Carbon	03-Jan-2019	19-Dec-2018	21-Dec-2018
EPH (DRO) (C10-C40) Aqueous (W)	21-Dec-2018	19-Dec-2018	21-Dec-2018
Ionic Balance	03-Jan-2019	03-Jan-2019	03-Jan-2019
Nitrite by Kone (w)	20-Dec-2018	20-Dec-2018	20-Dec-2018
pH Value	28-Dec-2018	27-Dec-2018	28-Dec-2018
Phosphate by Kone (w)	20-Dec-2018	21-Dec-2018	20-Dec-2018
Sulphide	28-Dec-2018	28-Dec-2018	28-Dec-2018
VOC MS (W)	04-Jan-2019	04-Jan-2019	04-Jan-2019

CERTIFICATE OF ANALYSIS

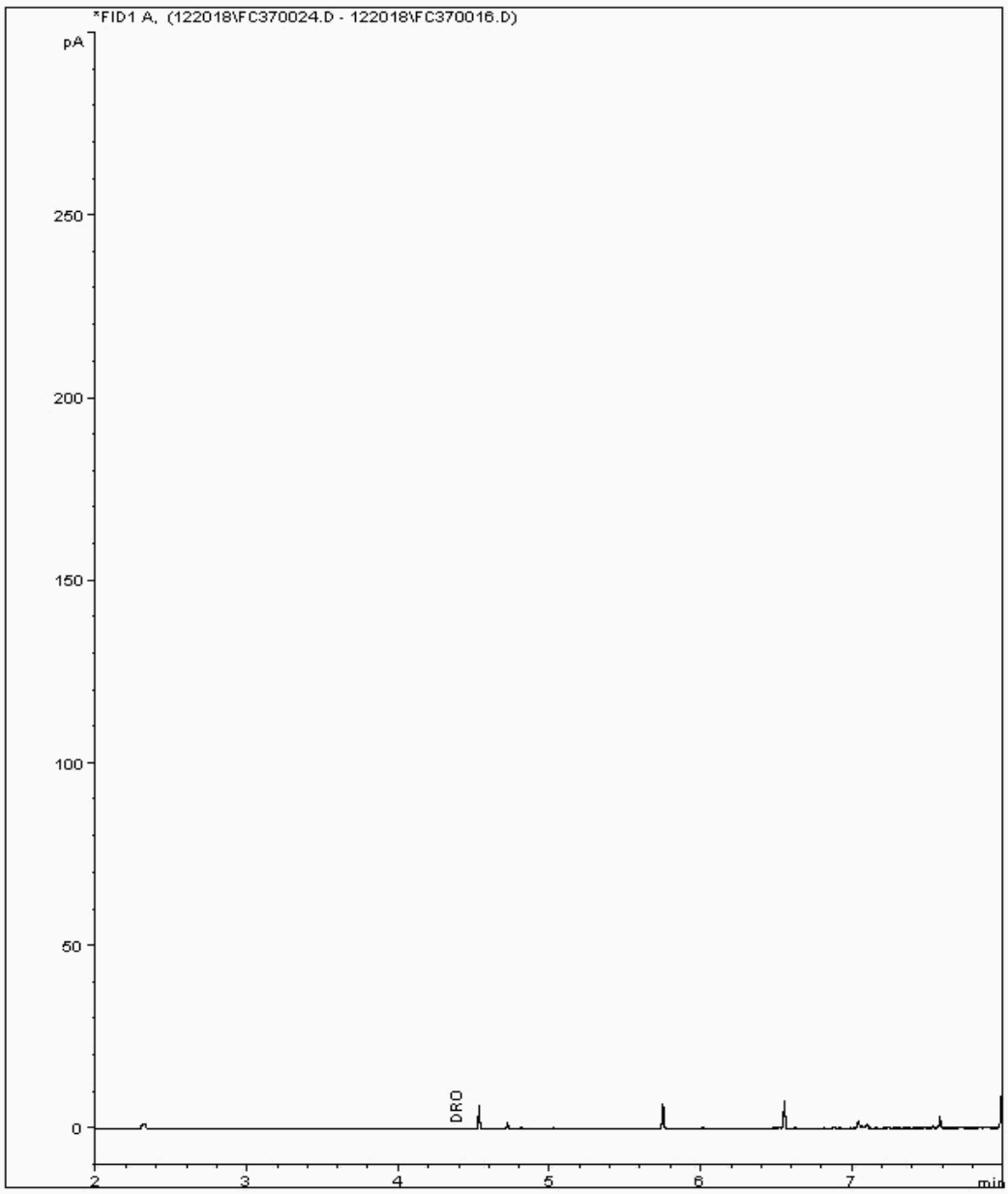
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18978882 **Sample ID :** GW12_38 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826507-
Date Acquired : 20/12/2018 23:32:22 PM
Units : ppm



CERTIFICATE OF ANALYSIS

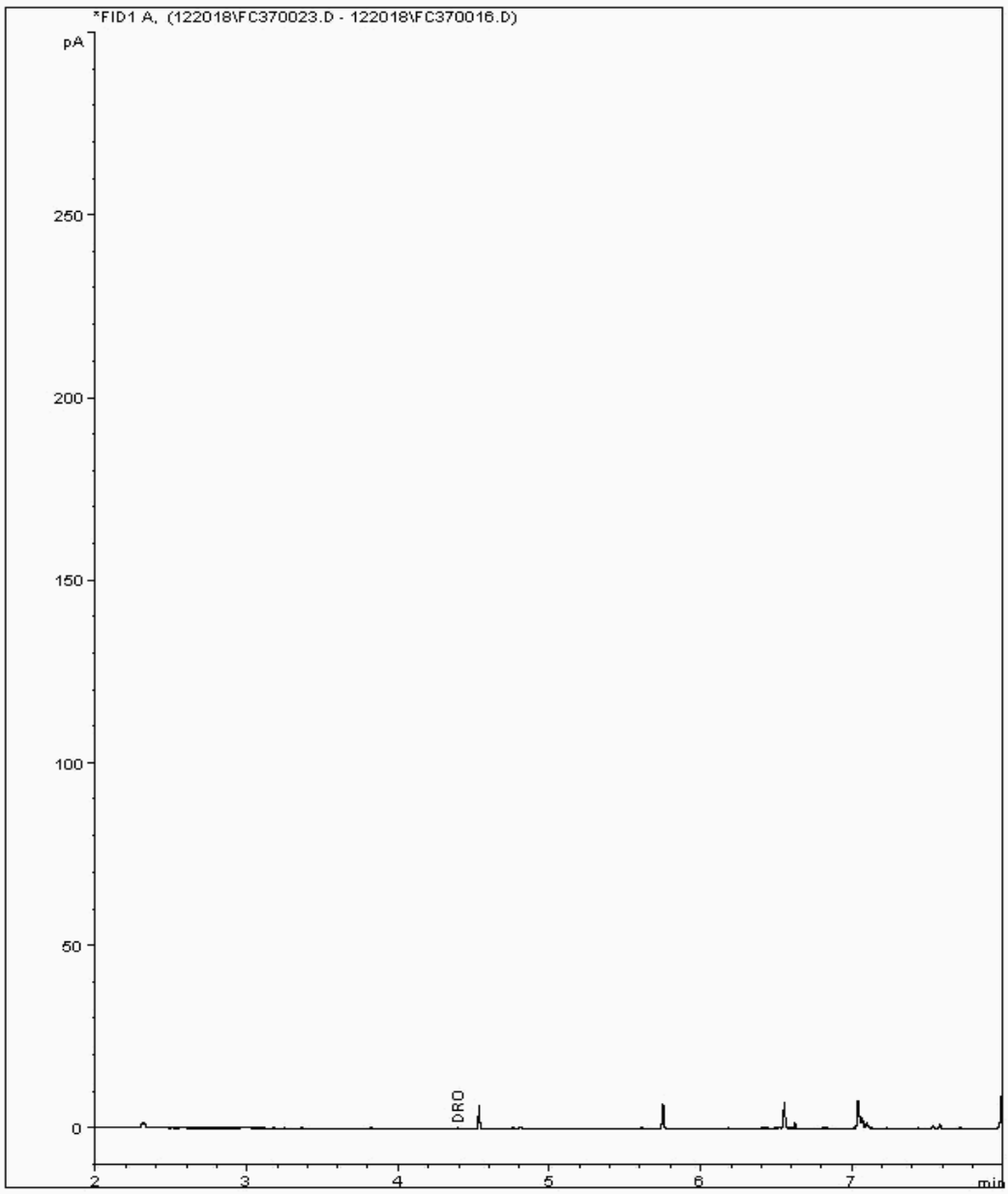
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18978891 **Sample ID :** GW12_30 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826484-
Date Acquired : 20/12/2018 23:08:25 PM
Units : ppm



CERTIFICATE OF ANALYSIS

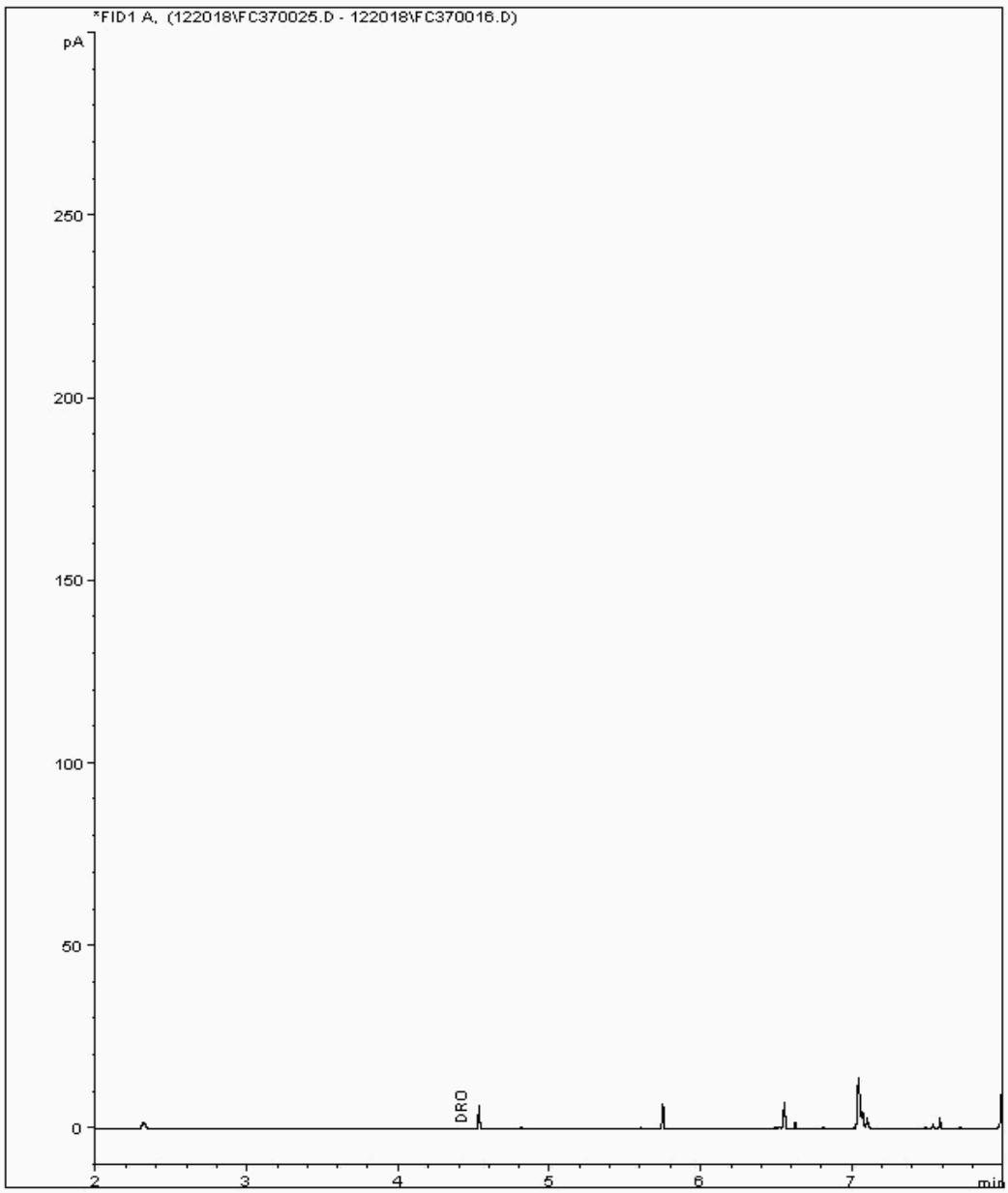
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18978895 **Sample ID :** GW07_40 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826600-
Date Acquired : 20/12/2018 23:56:09 PM
Units : ppm



CERTIFICATE OF ANALYSIS

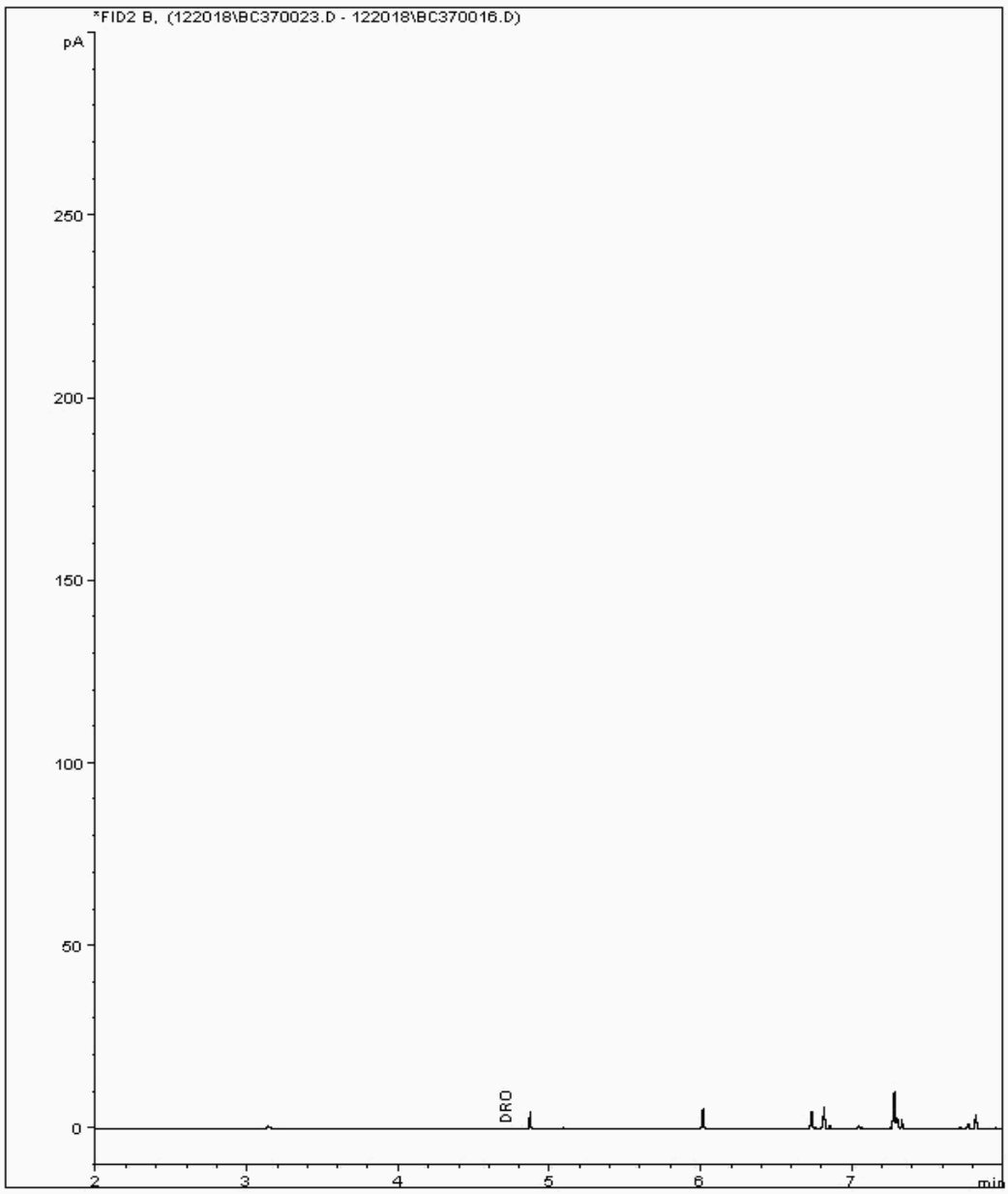
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18978902 **Sample ID :** GW06_34 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826792-
Date Acquired : 20/12/2018 23:08:25 PM
Units : mg/l



CERTIFICATE OF ANALYSIS

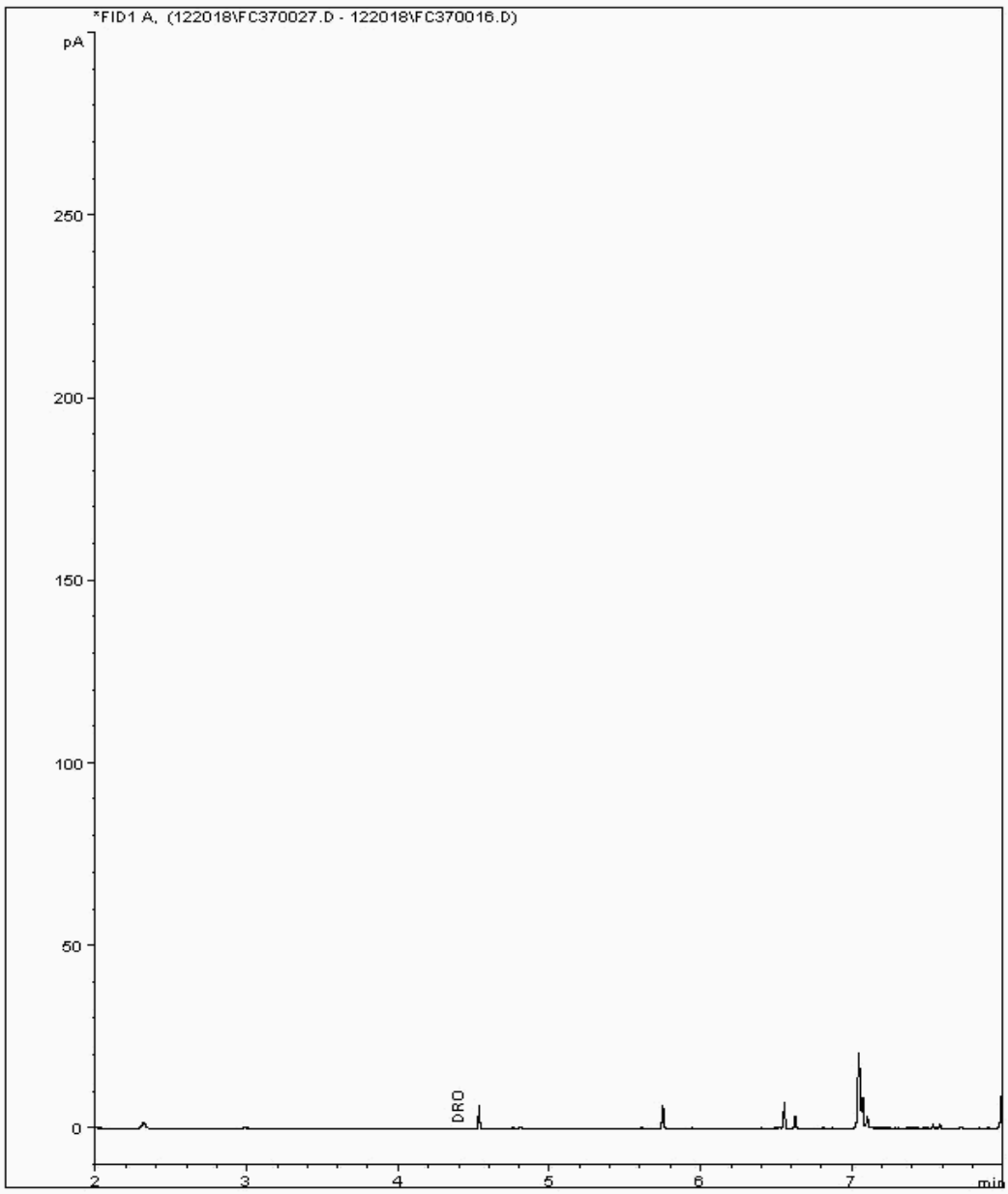
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18978906 **Sample ID :** GW06_36 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826865-
Date Acquired : 21/12/2018 00:43:46 PM
Units : ppm



CERTIFICATE OF ANALYSIS

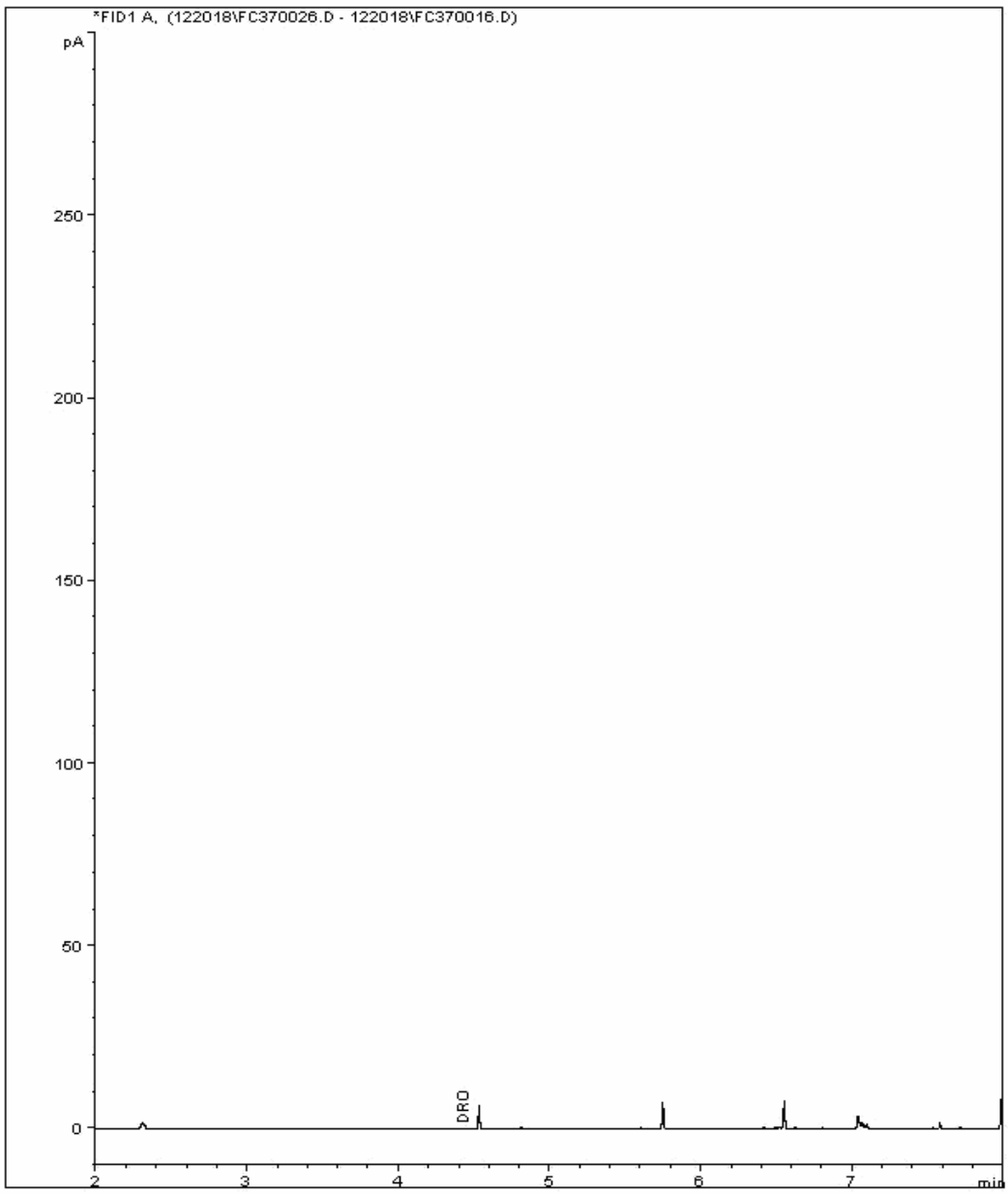
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18978914 **Sample ID :** GW06_13 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826531-
Date Acquired : 21/12/2018 00:19:51 PM
Units : ppm



CERTIFICATE OF ANALYSIS

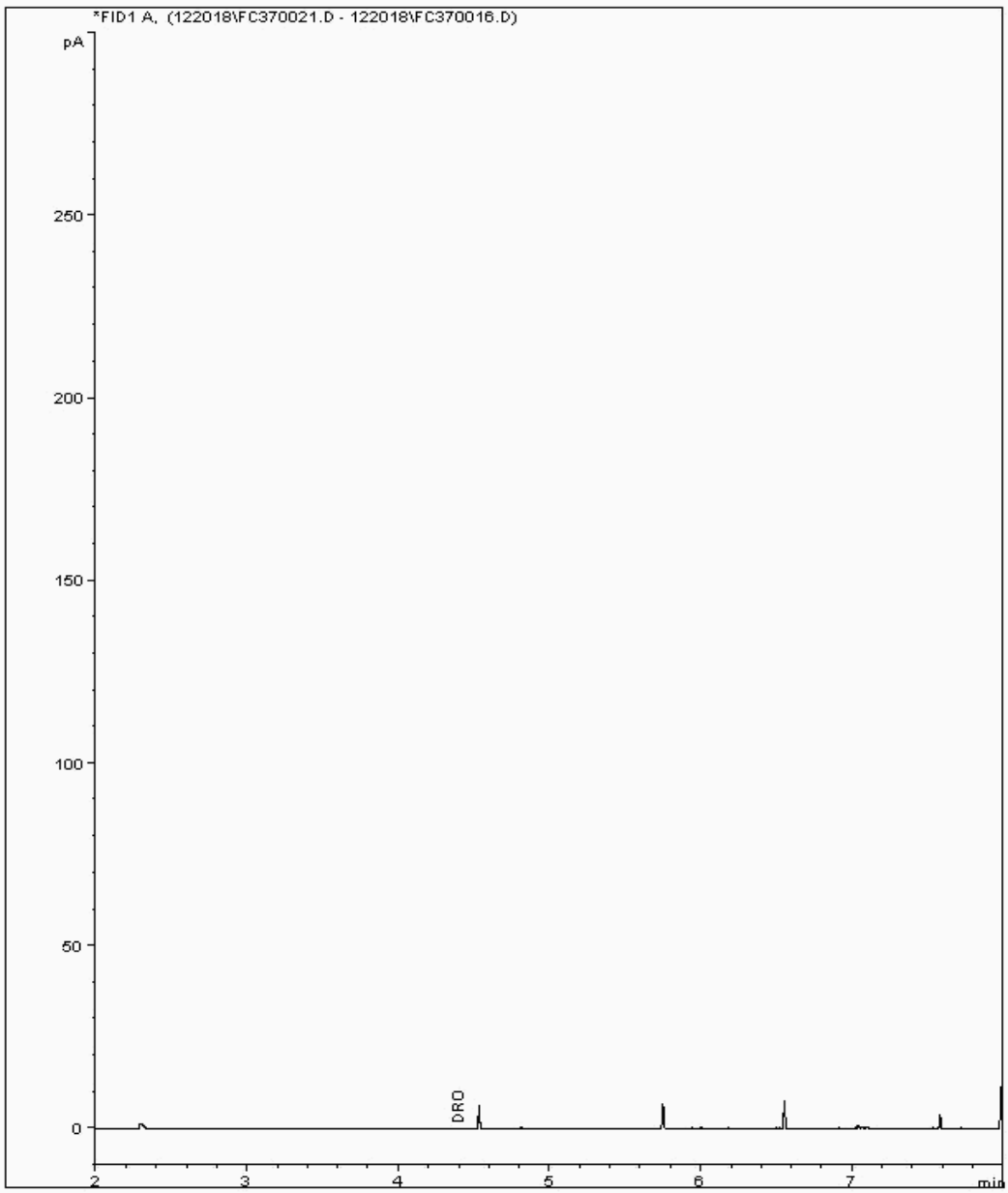
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18978948 **Sample ID :** GW09_35 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826812-
Date Acquired : 20/12/2018 22:20:56 PM
Units : ppm



CERTIFICATE OF ANALYSIS

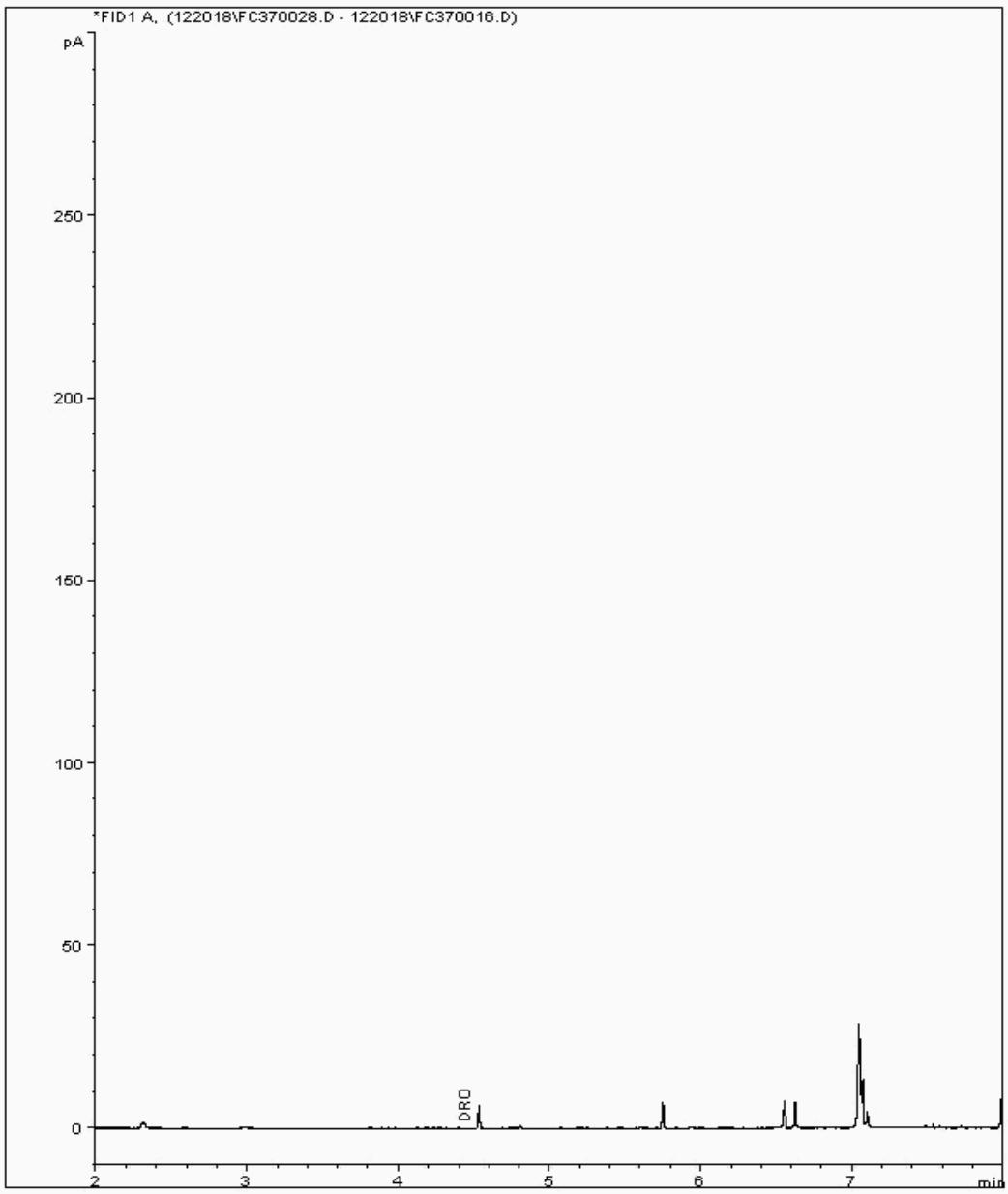
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18978962 **Sample ID :** GW06_37 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826892-
Date Acquired : 21/12/2018 01:07:28 PM
Units : ppm



CERTIFICATE OF ANALYSIS

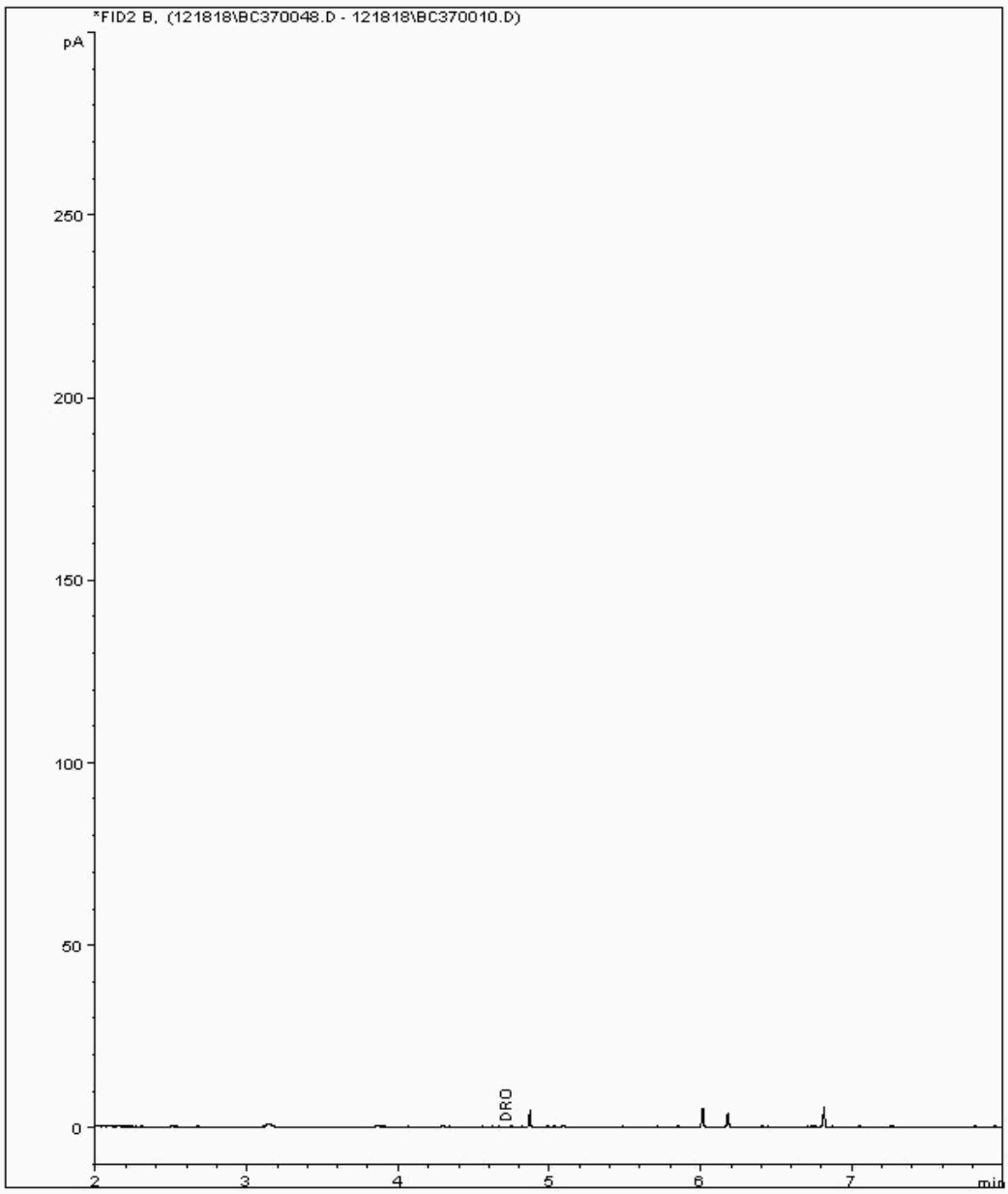
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18985507 **Sample ID :** GW06_39 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826555-
Date Acquired : 19/12/2018 11:13:21 PM
Units : mg/l



CERTIFICATE OF ANALYSIS

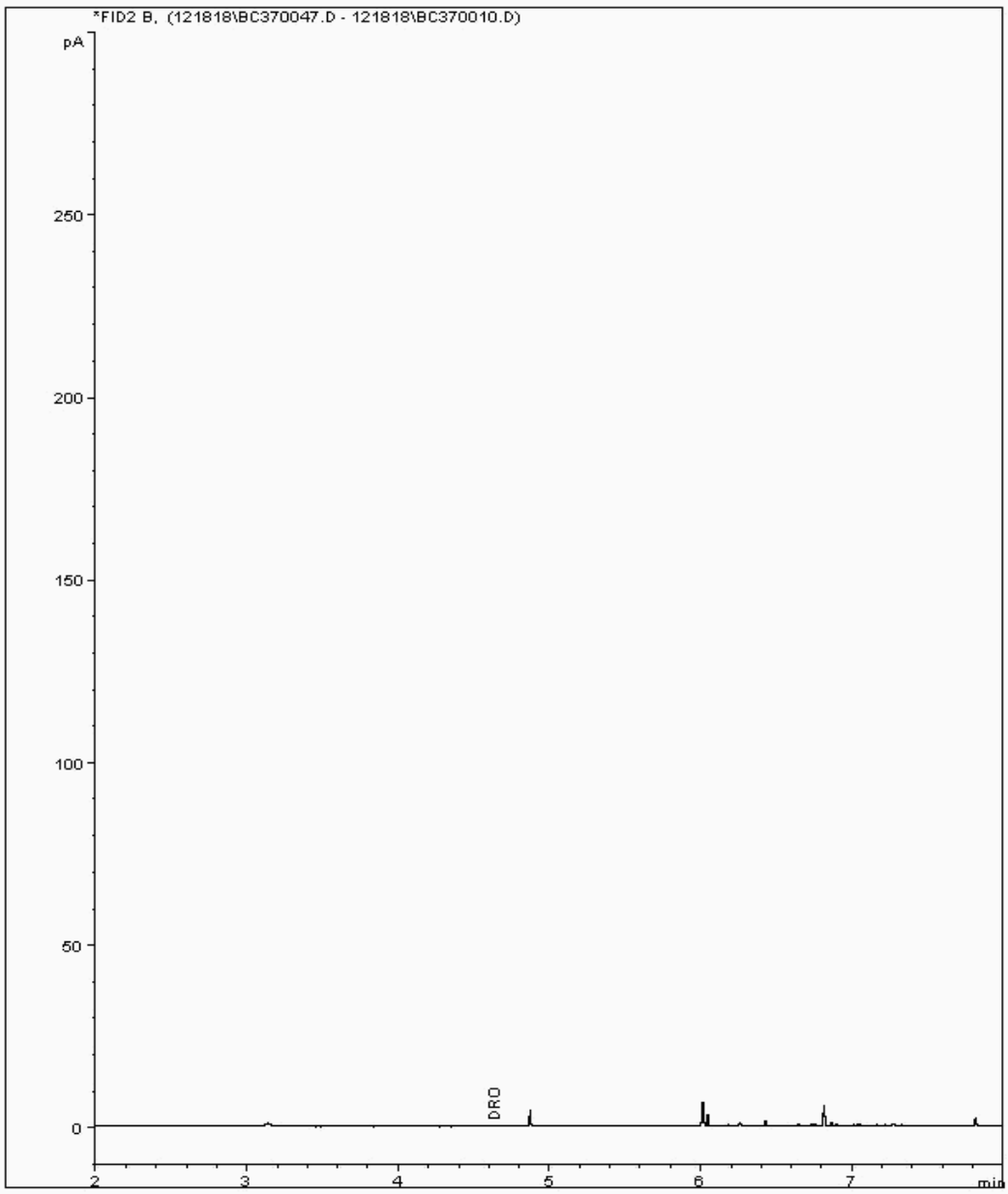
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18985514 **Sample ID :** GW09_32 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826670-
Date Acquired : 19/12/2018 10:51:12 PM
Units : mg/l



CERTIFICATE OF ANALYSIS

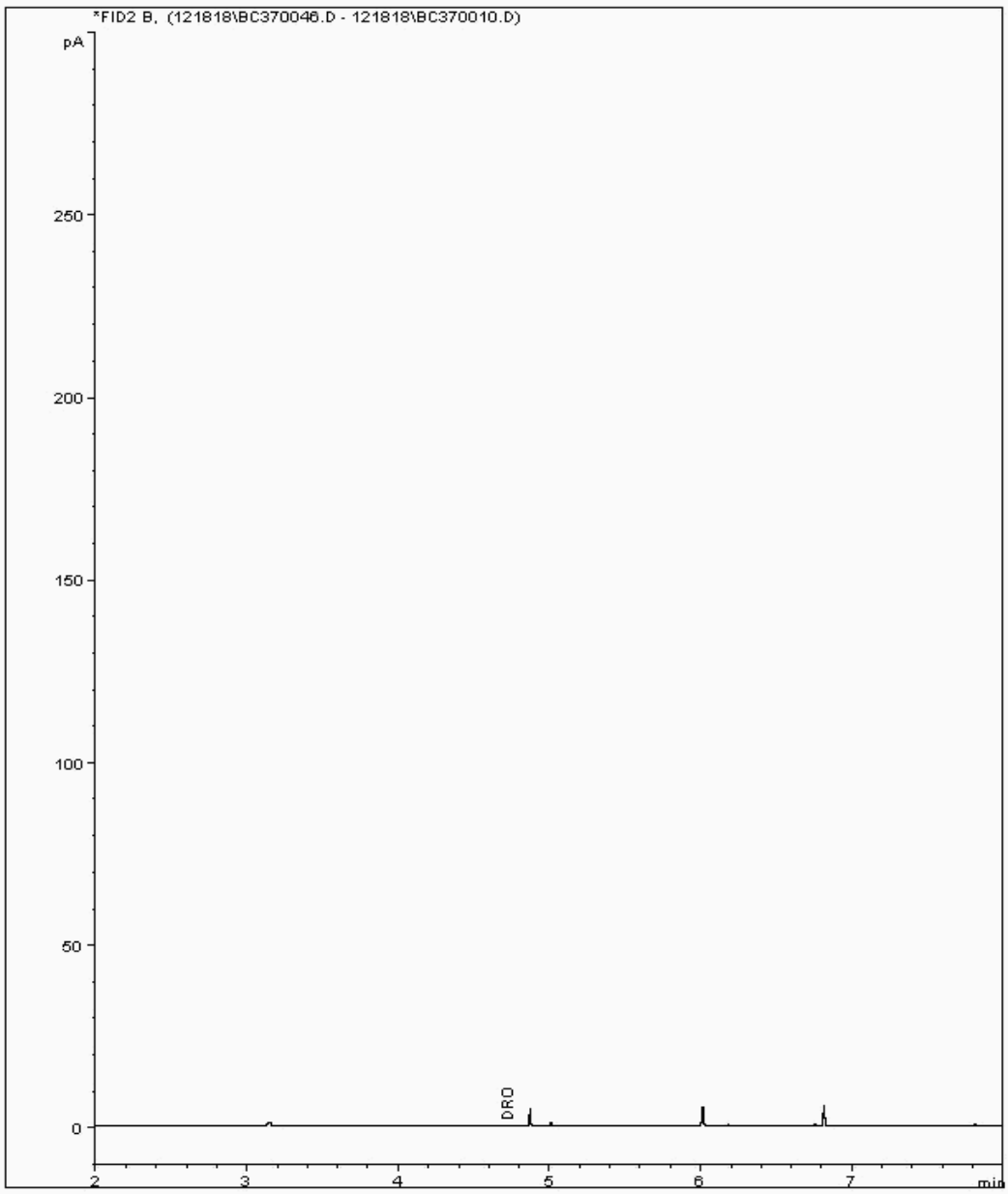
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18985527 **Sample ID :** GW12_33 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826739-
Date Acquired : 19/12/2018 10:29:02 PM
Units : mg/l



CERTIFICATE OF ANALYSIS

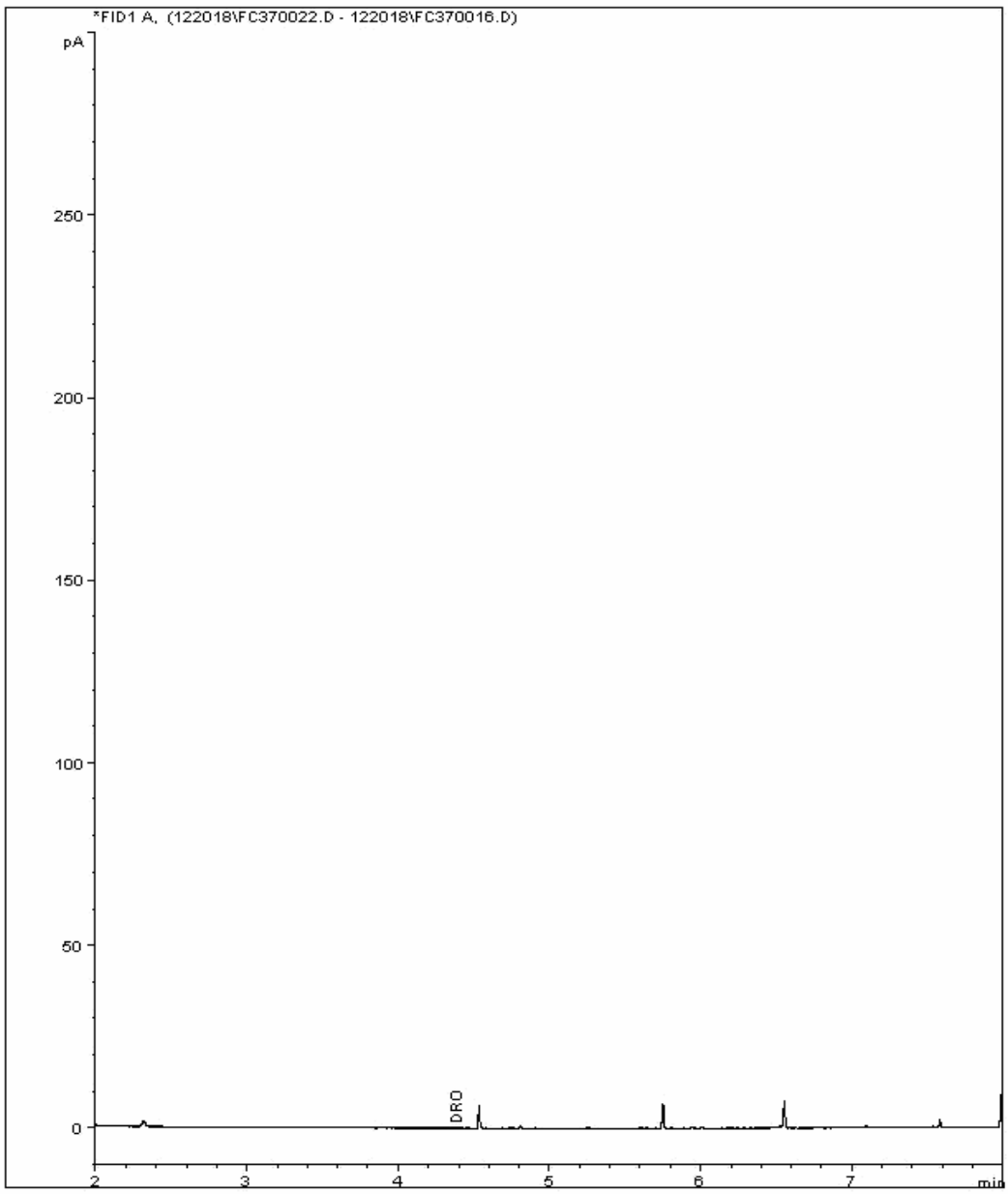
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18985535 **Sample ID :** GW03_09 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826707-
Date Acquired : 20/12/2018 22:44:40 PM
Units : ppm



CERTIFICATE OF ANALYSIS

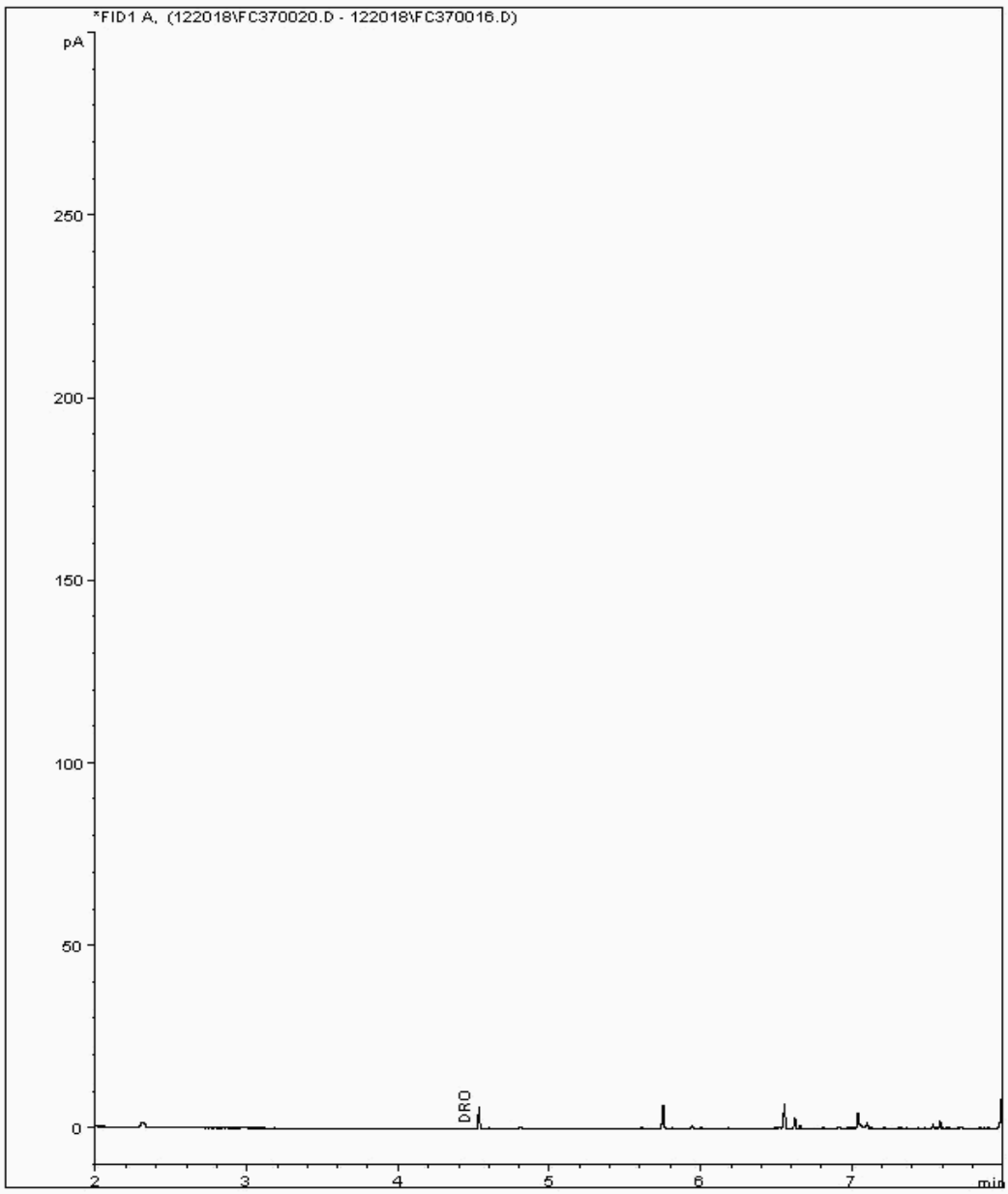
SDG:	181215-32	**Client Reference:**		**Report Number:**	487484
Location:	Docksway Landfill Site	**Order Number:**	700124102	**Superseded Report:**	487455

Chromatogram

Analysis: EPH (DRO) (C10-C40) Aqueous (W) **Sample No :** 18985539 **Sample ID :** GW09_31 **Depth :** 0.00 - 0.00

EPH Range Organics (C10 - C40)

Sample Identity: 17826627-
Date Acquired : 20/12/2018 21:57:04 PM
Units : ppm



Appendix

General

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

2. 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%. 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 Dimethyphenol, 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 subjecte 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 presevation 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).

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.

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.