ALcontrol Laboratories

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Royal Haskoning
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Attention: Darren Banner-Perry

CERTIFICATE OF ANALYSIS

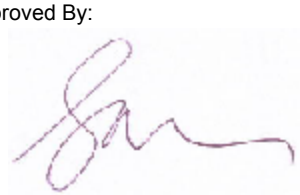
Date:	29 December 2015
Customer:	H_RHASKON_PTB
Sample Delivery Group (SDG):	151205-23
Your Reference:	9Y0074
Location:	Cole Green Inert Landfill
Report No:	343577

We received 3 samples on Saturday December 05, 2015 and 3 of these samples were scheduled for analysis which was completed on Tuesday December 29, 2015. 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.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Approved By:



Sonia McWhan

Operations Manager

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
12581290	BHIL01		5.48	04/12/2015
12581286	TPIL01		0.50	03/12/2015
12581288	TPIL06		0.50	03/12/2015

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

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container				
			12581290	BHIL01		5.48	1000ml glass bottle	1lplastic (ALE221)	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)
Alkalinity as CaCO3	All	NDPs: 0 Tests: 1						X				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 1								X		
Anions by Kone (w)	All	NDPs: 0 Tests: 1						X				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 1						X				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1									X	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1					X					
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 1					X					
GRO by GC-FID (W)	All	NDPs: 0 Tests: 1										X
Mercury Dissolved	All	NDPs: 0 Tests: 1							X			
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 1									X	
PAH Spec MS - Aqueous (W)	All	NDPs: 0 Tests: 1					X					
pH Value	All	NDPs: 0 Tests: 1						X				
Phenols by HPLC (W)	All	NDPs: 0 Tests: 1								X		
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 1					X					
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 1					X					

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

LIQUID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container				
			12581290	BHIL01		5.48	1000ml glass bottle	1lplastic (ALE221)	Dissolved Metals Pr	H2SO4 (ALE244)	HNO3 Filtered (ALE	Vial (ALE297)
TPH CWG (W)	All	NDPs: 0 Tests: 1					X					
VOC MS (W)	All	NDPs: 0 Tests: 1										X

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

SOLID

Results Legend

X **Test**

N **No Determination Possible**

			Lab Sample No(s)	12581286			12581288		
			Customer Sample Reference	TPIL01			TPIL06		
			AGS Reference						
			Depth (m)	0.50			0.50		
			Container	1kg TUB	250g Amber Jar (AL	60g VOC (ALE215)	1kg TUB	250g Amber Jar (AL	60g VOC (ALE215)
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 2		X			X		
Boron Water Soluble	All	NDPs: 0 Tests: 2			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 2		X			X		
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 2			X			X	
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 2			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 2				X			X
Metals in solid samples by OES	All	NDPs: 0 Tests: 2			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 2			X			X	
pH	All	NDPs: 0 Tests: 2		X			X		
Phenols by HPLC (S)	All	NDPs: 0 Tests: 2		X			X		
Sample description	All	NDPs: 0 Tests: 2			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 2			X			X	
Total Organic Carbon	All	NDPs: 0 Tests: 2			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 2			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 2				X			X

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
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Sample Descriptions

Grain Sizes

very fine	<0.063mm	fine	0.063mm - 0.1mm	medium	0.1mm - 2mm	coarse	2mm - 10mm	very coarse	>10mm

Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
12581286	TPIL01	0.50	Light Brown	Clay	0.063 - 0.1 mm	Stones	None
12581288	TPIL06	0.50	Light Brown	Clay	0.063 - 0.1 mm	Stones	Crushed Brick

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

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Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

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 R	BHIL01	TPIL01	TPIL06			
			Depth (m)	5.48	0.50	0.50			
			Sample Type	Water(GW/SW)	Soil/Solid	Soil/Solid			
			Date Sampled	04/12/2015	03/12/2015	03/12/2015			
			Sampled Time	.	.	.			
			Date Received	05/12/2015	05/12/2015	05/12/2015			
			SDG Ref	151205-23	151205-23	151205-23			
			Lab Sample No.(s)	12581290	12581286	12581288			
			AGS Reference						
Alkalinity, Total as CaCO3	<2 mg/l	TM043		2030 #					
Organic Carbon, Total	<3 mg/l	TM090		61.8 & #					
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		138 #					
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120		3.4 #					
Arsenic (diss.filt)	<0.12 µg/l	TM152		5.03 #					
Barium (diss.filt)	<0.03 µg/l	TM152		713 #					
Beryllium (diss.filt)	<0.07 µg/l	TM152		<0.07 #					
Boron (diss.filt)	<9.4 µg/l	TM152		4280 #					
Cadmium (diss.filt)	<0.1 µg/l	TM152		<0.1 #					
Chromium (diss.filt)	<0.22 µg/l	TM152		8.1 #					
Copper (diss.filt)	<0.85 µg/l	TM152		1.56 #					
Lead (diss.filt)	<0.02 µg/l	TM152		0.615 #					
Manganese (diss.filt)	<0.04 µg/l	TM152		649 #					
Nickel (diss.filt)	<0.15 µg/l	TM152		14.9 #					
Selenium (diss.filt)	<0.39 µg/l	TM152		7.87 #					
Vanadium (diss.filt)	<0.24 µg/l	TM152		5.78 #					
Zinc (diss.filt)	<0.41 µg/l	TM152		6.15 #					
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 #					
Sulphate	<2 mg/l	TM184		43.9 #					
Chloride	<2 mg/l	TM184		234 #					
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		<0.1 #					
Calcium (diss.filt)	<0.012 mg/l	TM228		330 #					
Sodium (diss.filt)	<0.076 mg/l	TM228		193 #					
Magnesium (diss.filt)	<0.036 mg/l	TM228		89.9 #					
Potassium (diss.filt)	<1 mg/l	TM228		83.7 #					
Iron (diss.filt)	<0.019 mg/l	TM228		18 #					
pH	<1 pH Units	TM256		7.34 & #					
Phenol	<0.002 mg/l	TM259		<0.002 #					
Cresols	<0.006 mg/l	TM259		<0.006 #					
Xylenols	<0.008 mg/l	TM259		0.01 #					
Phenols, Total Detected monohydric	<0.016 mg/l	TM259		<0.016 #					
Moisture Content Ratio (% of as received sample)	%	PM024			15	12			

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Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

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 R	BHIL01	TPIL01	TPIL06			
			Depth (m)	5.48	0.50	0.50			
			Sample Type	Water(GW/SW)	Soil/Solid	Soil/Solid			
			Date Sampled	04/12/2015	03/12/2015	03/12/2015			
			Sampled Time	.	.	.			
			Date Received	05/12/2015	05/12/2015	05/12/2015			
			SDG Ref	151205-23	151205-23	151205-23			
			Lab Sample No.(s)	12581290	12581286	12581288			
			AGS Reference						
Phenol	<0.01 mg/kg	TM062 (S)			<0.01 M	<0.01 M			
Cresols	<0.01 mg/kg	TM062 (S)			<0.01 M	<0.01 M			
Xylenols	<0.015 mg/kg	TM062 (S)			<0.015 M	<0.015 M			
Phenols, Total Detected monohydric	<0.035 mg/kg	TM062 (S)			<0.035 M	<0.035 M			
Organic Carbon, Total	<0.2 %	TM132			0.419 M	0.708 M			
pH	1 pH Units	TM133			8.42 M	8.4 M			
Cyanide, Total	<1 mg/kg	TM153			<1 M	2.67 M			
Cyanide, Free	<1 mg/kg	TM153			<1 M	<1 M			
PCB congener 118	<3 µg/kg	TM168			<3 M	17.7 M			
PCB congener 81	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 77	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 123	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 114	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 105	<3 µg/kg	TM168			<3 M	7.59 M			
PCB congener 126	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 167	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 156	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 157	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 169	<3 µg/kg	TM168			<3 M	<3 M			
PCB congener 189	<3 µg/kg	TM168			<3 M	<3 M			
Sum of detected WHO 12 PCBs	<36 µg/kg	TM168			<36	<36			
Arsenic	<0.6 mg/kg	TM181			13.9 M	17.9 M			
Barium	<0.6 mg/kg	TM181			63 #	108 #			
Beryllium	<0.01 mg/kg	TM181			0.808 M	1.19 M			
Cadmium	<0.02 mg/kg	TM181			0.199 M	0.441 M			
Chromium	<0.9 mg/kg	TM181			29.4 M	33.6 M			
Copper	<1.4 mg/kg	TM181			14 M	31.4 M			
Lead	<0.7 mg/kg	TM181			32.8 M	72.5 M			
Mercury	<0.14 mg/kg	TM181			<0.14 M	<0.14 M			
Nickel	<0.2 mg/kg	TM181			24.8 M	38.7 M			
Selenium	<1 mg/kg	TM181			<1 #	<1 #			
Vanadium	<0.2 mg/kg	TM181			47.6 #	55.4 #			

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

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 R	BHIL01	TPIL01	TPIL06			
			Depth (m)	5.48	0.50	0.50			
			Sample Type	Water(GW/SW)	Soil/Solid	Soil/Solid			
			Date Sampled	04/12/2015	03/12/2015	03/12/2015			
			Sampled Time	.	.	.			
			Date Received	05/12/2015	05/12/2015	05/12/2015			
			SDG Ref	151205-23	151205-23	151205-23			
			Lab Sample No.(s)	12581290	12581286	12581288			
			AGS Reference						
Zinc	<1.9 mg/kg	TM181			71.9 M	150 M			
Boron, water soluble	<1 mg/kg	TM222			<1 M	<1 M			

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PAH Spec MS - Aqueous (W)

Results Legend

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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 R	BHIL01
			Depth (m)	5.48
			Sample Type	Water(GW/SW)
			Date Sampled	04/12/2015
			Sampled Time	.
			Date Received	05/12/2015
			SDG Ref	151205-23
			Lab Sample No.(s)	12581290
			AGS Reference	
Naphthalene (aq)	<0.1 µg/l	TM178		<0.1 & #
Acenaphthene (aq)	<0.015 µg/l	TM178		0.029 & #
Acenaphthylene (aq)	<0.011 µg/l	TM178		<0.011 & #
Fluoranthene (aq)	<0.017 µg/l	TM178		0.688 & #
Anthracene (aq)	<0.015 µg/l	TM178		0.0764 & #
Phenanthrene (aq)	<0.022 µg/l	TM178		0.263 & #
Fluorene (aq)	<0.014 µg/l	TM178		0.055 & #
Chrysene (aq)	<0.013 µg/l	TM178		0.307 & #
Pyrene (aq)	<0.015 µg/l	TM178		0.569 & #
Benzo(a)anthracene (aq)	<0.017 µg/l	TM178		0.378 & #
Benzo(b)fluoranthene (aq)	<0.023 µg/l	TM178		0.837 & #
Benzo(k)fluoranthene (aq)	<0.027 µg/l	TM178		0.321 & #
Benzo(a)pyrene (aq)	<0.009 µg/l	TM178		0.647 & #
Dibenzo(a,h)anthracene (aq)	<0.016 µg/l	TM178		0.103 & #
Benzo(g,h,i)perylene (aq)	<0.016 µg/l	TM178		0.438 & #
Indeno(1,2,3-cd)pyrene (aq)	<0.014 µg/l	TM178		0.208 & #
PAH, Total Detected USEPA 16 (aq)	<0.344 µg/l	TM178		4.92 &

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Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Semi Volatile Organic Compounds

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 R	TPIL01	TPIL06				
			Depth (m)	0.50	0.50				
			Sample Type	Soil/Solid	Soil/Solid				
			Date Sampled	03/12/2015	03/12/2015				
			Sampled Time	.	.				
			Date Received	05/12/2015	05/12/2015				
			SDG Ref	151205-23	151205-23				
			Lab Sample No.(s)	12581286	12581288				
			AGS Reference						
Phenol	<100 µg/kg	TM157		<100	<100				
Pentachlorophenol	<100 µg/kg	TM157		<100	<100				
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100				
Nitrobenzene	<100 µg/kg	TM157		<100	<100				
Isophorone	<100 µg/kg	TM157		<100	<100				
Hexachloroethane	<100 µg/kg	TM157		<100	<100				
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100				
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100				
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100				
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100				
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100				
Diethyl phthalate	<100 µg/kg	TM157		<100	<100				
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100				
Dibenzofuran	<100 µg/kg	TM157		<100	<100				
Carbazole	<100 µg/kg	TM157		<100	<100				
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100				
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100				
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100				
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100				
Azobenzene	<100 µg/kg	TM157		<100	<100				
4-Nitrophenol	<100 µg/kg	TM157		<100	<100				
4-Nitroaniline	<100 µg/kg	TM157		<100	<100				
4-Methylphenol	<100 µg/kg	TM157		<100	<100				
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100				
4-Chloroaniline	<100 µg/kg	TM157		<100	<100				
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100				
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100				
3-Nitroaniline	<100 µg/kg	TM157		<100	<100				
2-Nitrophenol	<100 µg/kg	TM157		<100	<100				
2-Nitroaniline	<100 µg/kg	TM157		<100	<100				
2-Methylphenol	<100 µg/kg	TM157		<100	<100				
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100				

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Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Semi Volatile Organic Compounds

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 R	TPIL01	TPIL06				
			Depth (m)	0.50	0.50				
			Sample Type	Soil/Solid	Soil/Solid				
			Date Sampled	03/12/2015	03/12/2015				
			Sampled Time	.	.				
			Date Received	05/12/2015	05/12/2015				
			SDG Ref	151205-23	151205-23				
			Lab Sample No.(s)	12581286	12581288				
			AGS Reference						
2-Chlorophenol	<100 µg/kg	TM157		<100	<100				
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100				
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100				
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100				
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100				
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100				
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100				
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100				
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100				
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100				
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100				
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100				
Acenaphthylene	<100 µg/kg	TM157		<100	<100				
Acenaphthene	<100 µg/kg	TM157		<100	<100				
Anthracene	<100 µg/kg	TM157		<100	<100				
Benzo(a)anthracene	<100 µg/kg	TM157		<100	215				
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	172				
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	242				
Benzo(a)pyrene	<100 µg/kg	TM157		<100	268				
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	180				
Chrysene	<100 µg/kg	TM157		<100	235				
Fluoranthene	<100 µg/kg	TM157		<100	376				
Fluorene	<100 µg/kg	TM157		<100	<100				
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	194				
Phenanthrene	<100 µg/kg	TM157		<100	153				
Pyrene	<100 µg/kg	TM157		<100	378				
Naphthalene	<100 µg/kg	TM157		<100	<100				
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100				

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

SVOC MS (W) - Aqueous

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 R	BHIL01
Depth (m)	5.48
Sample Type	Water(GW/SW)
Date Sampled	04/12/2015
Sampled Time	.
Date Received	05/12/2015
SDG Ref	151205-23
Lab Sample No.(s)	12581290
AGS Reference	

Component	LOD/Units	Method	
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<1 #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<1 #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	1.05
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<1 #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<1 #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<1 #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<1 #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<1 #
2-Chlorophenol (aq)	<1 µg/l	TM176	<1 #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<1 #
2-Methylphenol (aq)	<1 µg/l	TM176	<1 #
2-Nitroaniline (aq)	<1 µg/l	TM176	<1 #
2-Nitrophenol (aq)	<1 µg/l	TM176	<1 #
3-Nitroaniline (aq)	<1 µg/l	TM176	<1 #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<1 #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<1 #
4-Chloroaniline (aq)	<1 µg/l	TM176	<1
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<1 #
4-Methylphenol (aq)	<1 µg/l	TM176	<1 #
4-Nitroaniline (aq)	<1 µg/l	TM176	<1 #
4-Nitrophenol (aq)	<1 µg/l	TM176	<1
Azobenzene (aq)	<1 µg/l	TM176	<1 #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<1 #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<1 #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	2.28 #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<1 #
Carbazole (aq)	<1 µg/l	TM176	<1 #
Dibenzofuran (aq)	<1 µg/l	TM176	<1 #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176	<1 #

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

SVOC MS (W) - Aqueous

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 R			BHIL01						
Depth (m)			5.48						
Sample Type			Water(GW/SW)						
Date Sampled			04/12/2015						
Sampled Time			.						
Date Received			05/12/2015						
SDG Ref			151205-23						
Lab Sample No.(s)			12581290						
AGS Reference									
Component	**LOD/Units**	**Method**							
Diethyl phthalate (aq)	<1 µg/l	TM176	<1 #						
Dimethyl phthalate (aq)	<1 µg/l	TM176	<1 #						
n-Dioctyl phthalate (aq)	<5 µg/l	TM176	<5 #						
Hexachlorobenzene (aq)	<1 µg/l	TM176	<1 #						
Hexachlorobutadiene (aq)	<1 µg/l	TM176	<1 #						
Pentachlorophenol (aq)	<1 µg/l	TM176	<1						
Phenol (aq)	<1 µg/l	TM176	<1						
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176	<1 #						
Hexachloroethane (aq)	<1 µg/l	TM176	<1 #						
Nitrobenzene (aq)	<1 µg/l	TM176	<1 #						
Isophorone (aq)	<1 µg/l	TM176	<1 #						
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176	<1						

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

TPH CWG (S)

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 R	TPIL01	TPIL06				
			Depth (m)	0.50	0.50				
			Sample Type	Soil/Solid	Soil/Solid				
			Date Sampled	03/12/2015	03/12/2015				
			Sampled Time	.	.				
			Date Received	05/12/2015	05/12/2015				
			SDG Ref	151205-23	151205-23				
			Lab Sample No.(s)	12581286	12581288				
			AGS Reference						
GRO Surrogate % recovery**	%	TM089		69	76				
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089		<44 M	<44 M				
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089		<5 #	<5 #				
Benzene	<10 µg/kg	TM089		<10 M	<10 M				
Toluene	<2 µg/kg	TM089		<2 M	<2 M				
Ethylbenzene	<3 µg/kg	TM089		<3 M	<3 M				
m,p-Xylene	<6 µg/kg	TM089		<6 M	<6 M				
o-Xylene	<3 µg/kg	TM089		<3 M	<3 M				
sum of detected mpo xylene by GC	<9 µg/kg	TM089		<9	<9				
sum of detected BTEX by GC	<24 µg/kg	TM089		<24	<24				
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10				
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10				
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10				
Aliphatics >C10-C12	<10 µg/kg	TM089		<10	<10				
Aliphatics >C12-C16	<100 µg/kg	TM173		<100	990				
Aliphatics >C16-C21	<100 µg/kg	TM173		1830	5190				
Aliphatics >C21-C35	<100 µg/kg	TM173		18700	33500				
Aliphatics >C35-C44	<100 µg/kg	TM173		2970	9630				
Total Aliphatics >C12-C44	<100 µg/kg	TM173		23500	49300				
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10				
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10				
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10				
Aromatics >EC10-EC12	<10 µg/kg	TM089		<10	<10				
Aromatics >EC12-EC16	<100 µg/kg	TM173		<100	2320				
Aromatics >EC16-EC21	<100 µg/kg	TM173		1900	23800				
Aromatics >EC21-EC35	<100 µg/kg	TM173		11300	70800				
Aromatics >EC35-EC44	<100 µg/kg	TM173		3130	21100				
Aromatics >EC40-EC44	<100 µg/kg	TM173		1150	7960				
Total Aromatics >EC12-EC44	<100 µg/kg	TM173		16300	118000				
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173		39800	167000				

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

TPH CWG (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 R	BHIL01
Depth (m)	5.48
Sample Type	Water(GW/SW)
Date Sampled	04/12/2015
Sampled Time	.
Date Received	05/12/2015
SDG Ref	151205-23
Lab Sample No.(s)	12581290
AGS Reference	

Component	LOD/Units	Method	
GRO Surrogate % recovery**	%	TM245	80
GRO >C5-C12	<50 µg/l	TM245	90 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3 #
Benzene	<7 µg/l	TM245	<7 #
Toluene	<4 µg/l	TM245	<4 #
Ethylbenzene	<5 µg/l	TM245	<5 #
m,p-Xylene	<8 µg/l	TM245	<8 #
o-Xylene	<3 µg/l	TM245	<3 #
Sum of detected Xylenes	<11 µg/l	TM245	<11
Sum of detected BTEX	<28 µg/l	TM245	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10
Aliphatics >C6-C8	<10 µg/l	TM245	12
Aliphatics >C8-C10	<10 µg/l	TM245	13
Aliphatics >C10-C12	<10 µg/l	TM245	26
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	16
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	117
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	133
Aromatics >EC5-EC7	<10 µg/l	TM245	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	17
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	39
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	18
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	13
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	70
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	293

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

VOC MS (S)

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 R	TPIL01	TPIL06				
			Depth (m)	0.50	0.50				
			Sample Type	Soil/Solid	Soil/Solid				
			Date Sampled	03/12/2015	03/12/2015				
			Sampled Time	.	.				
			Date Received	05/12/2015	05/12/2015				
			SDG Ref	151205-23	151205-23				
			Lab Sample No.(s)	12581286	12581288				
			AGS Reference						
Dibromofluoromethane**	%	TM116		97	102				
Toluene-d8**	%	TM116		97.7	97.8				
4-Bromofluorobenzene**	%	TM116		71.1	82.9				
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M				
Chloromethane	<7 µg/kg	TM116		<7 #	<7 #				
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M				
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M				
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M				
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M				
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #				
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7 M				
Dichloromethane	<10 µg/kg	TM116		<10 #	<10 #				
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M				
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M				
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M				
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M				
2,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M				
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M				
Chloroform	<8 µg/kg	TM116		<8 M	<8 M				
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M				
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M				
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M				
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M				
Benzene	<9 µg/kg	TM116		<9 M	<9 M				
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #				
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M				
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M				
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M				
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M				
Toluene	<7 µg/kg	TM116		<7 M	<7 M				
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10				
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M				

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

VOC MS (S)

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 R	TPIL01	TPIL06				
			Depth (m)	0.50	0.50				
			Sample Type	Soil/Solid	Soil/Solid				
			Date Sampled	03/12/2015	03/12/2015				
			Sampled Time	.	.				
			Date Received	05/12/2015	05/12/2015				
			SDG Ref	151205-23	151205-23				
			Lab Sample No.(s)	12581286	12581288				
			AGS Reference						
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M				
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M				
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M				
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M				
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M				
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M				
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M				
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #				
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M				
Styrene	<10 µg/kg	TM116		<10 #	<10 #				
Bromoform	<10 µg/kg	TM116		<10 M	<10 M				
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #				
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M				
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M				
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M				
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M				
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M				
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M				
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M				
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M				
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #				
sec-Butylbenzene	<10 µg/kg	TM116		<10 M	<10 M				
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M				
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M				
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M				
n-Butylbenzene	<11 µg/kg	TM116		<11	<11				
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M				
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M				
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #				
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20				
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20				
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M				

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

VOC MS (S)

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 R	TPIL01	TPIL06				
			Depth (m)	0.50	0.50				
			Sample Type	Soil/Solid	Soil/Solid				
			Date Sampled	03/12/2015	03/12/2015				
			Sampled Time	.	.				
			Date Received	05/12/2015	05/12/2015				
			SDG Ref	151205-23	151205-23				
			Lab Sample No.(s)	12581286	12581288				
			AGS Reference						
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #				

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

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 R	BHIL01
Depth (m)	5.48
Sample Type	Water(GW/SW)
Date Sampled	04/12/2015
Sampled Time	.
Date Received	05/12/2015
SDG Ref	151205-23
Lab Sample No.(s)	12581290
AGS Reference	

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM208	112
Toluene-d8**	%	TM208	97.2
4-Bromofluorobenzene**	%	TM208	92.6
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	5.27 #
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

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

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 R	BHIL01
Depth (m)	5.48
Sample Type	Water(GW/SW)
Date Sampled	04/12/2015
Sampled Time	.
Date Received	05/12/2015
SDG Ref	151205-23
Lab Sample No.(s)	12581290
AGS Reference	

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	4.63 #
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 #
1,1,2,2-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

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

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 R	BHIL01
Depth (m)	5.48
Sample Type	Water(GW/SW)
Date Sampled	04/12/2015
Sampled Time	.
Date Received	05/12/2015
SDG Ref	151205-23
Lab Sample No.(s)	12581290
AGS Reference	

Component	LOD/Units	Method	
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Asbestos Identification - Soil

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TPIL01 0.50 SOLID 03/12/2015 00:00:00 15/12/2015 10:08:53 151205-23 12581286 TM048	16/12/2015	Renata Hatos	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	**Detected**
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TPIL06 0.50 SOLID 03/12/2015 00:00:00 15/12/2015 10:03:26 151205-23 12581288 TM048	16/12/2015	Renata Hatos	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	**Detected**

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample [1]	Surrogate Corrected
ASB_PREP				
PM001		Preparation of Samples for Metals Analysis		
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM062 (S)	National Grid Property Holdings Methods for the Collection & Analysis of Samples from National Grid Sites version 1 Sec 3.9	Determination of Phenols in Soils by HPLC		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
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		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM132	In - house Method	ELTRA CS800 Operators Guide		
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser		
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone		
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils		
TM173	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GC-FID		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES		
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		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
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		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		

[1] Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	12581290	12581286	12581288
Customer Sample Ref.	BHIL01	TPIL01	TPIL06
AGS Ref.			
Depth	5.48	0.50	0.50
Type	LIQUID	SOLID	SOLID
Alkalinity as CaCO3	24-Dec-2015		
Ammoniacal Nitrogen	22-Dec-2015		
Anions by Kone (w)	23-Dec-2015		
Asbestos ID in Solid Samples		16-Dec-2015	16-Dec-2015
Boron Water Soluble		17-Dec-2015	17-Dec-2015
Conductivity (at 20 deg.C)	29-Dec-2015		
Cyanide Comp/Free/Total/Thiocyanate		16-Dec-2015	16-Dec-2015
Dissolved Metals by ICP-MS	24-Dec-2015		
EPH CWG (Aliphatic) Aqueous GC (W)	24-Dec-2015		
EPH CWG (Aliphatic) GC (S)		16-Dec-2015	16-Dec-2015
EPH CWG (Aromatic) Aqueous GC (W)	24-Dec-2015		
EPH CWG (Aromatic) GC (S)		16-Dec-2015	16-Dec-2015
GRO by GC-FID (S)		16-Dec-2015	16-Dec-2015
GRO by GC-FID (W)	18-Dec-2015		
Mercury Dissolved	18-Dec-2015		
Metals by iCap-OES Dissolved (W)	21-Dec-2015		
Metals in solid samples by OES		16-Dec-2015	16-Dec-2015
PAH Spec MS - Aqueous (W)	24-Dec-2015		
PCBs by GCMS		16-Dec-2015	16-Dec-2015
pH		15-Dec-2015	15-Dec-2015
pH Value	24-Dec-2015		
Phenols by HPLC (S)		16-Dec-2015	16-Dec-2015
Phenols by HPLC (W)	19-Dec-2015		
Sample description		15-Dec-2015	15-Dec-2015
Semi Volatile Organic Compounds		16-Dec-2015	16-Dec-2015
SVOC MS (W) - Aqueous	29-Dec-2015		
Total Organic and Inorganic Carbon	23-Dec-2015		
Total Organic Carbon		16-Dec-2015	16-Dec-2015
TPH CWG (W)	24-Dec-2015		
TPH CWG GC (S)		16-Dec-2015	16-Dec-2015
VOC MS (S)		16-Dec-2015	16-Dec-2015
VOC MS (W)	17-Dec-2015		

CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

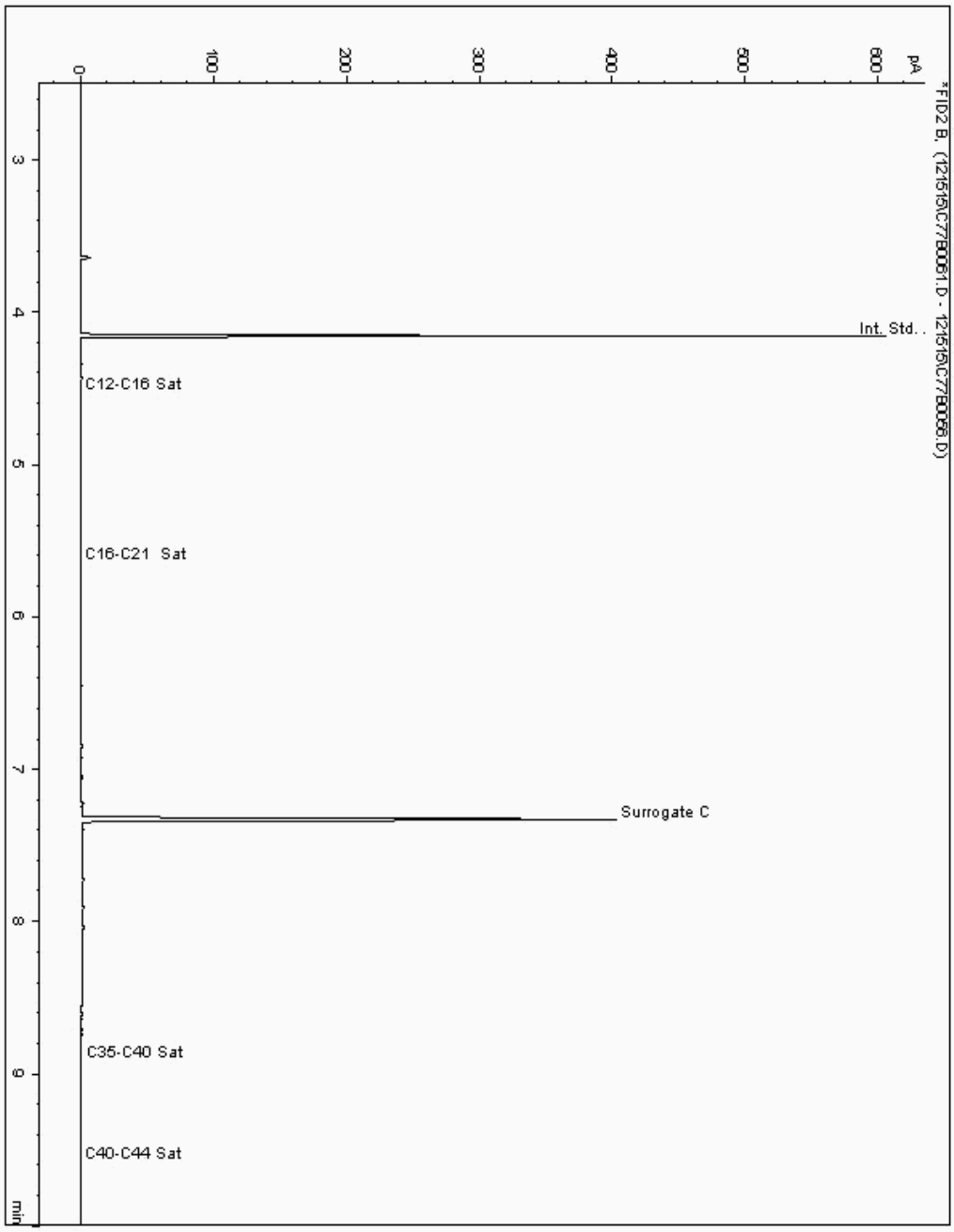
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 12643170
Sample ID : TPIL01

Depth : 0.50

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

Sample Identity: 11905252-
Date Acquired : 16/12/2015 06:10:10 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 1.020



CERTIFICATE OF ANALYSIS

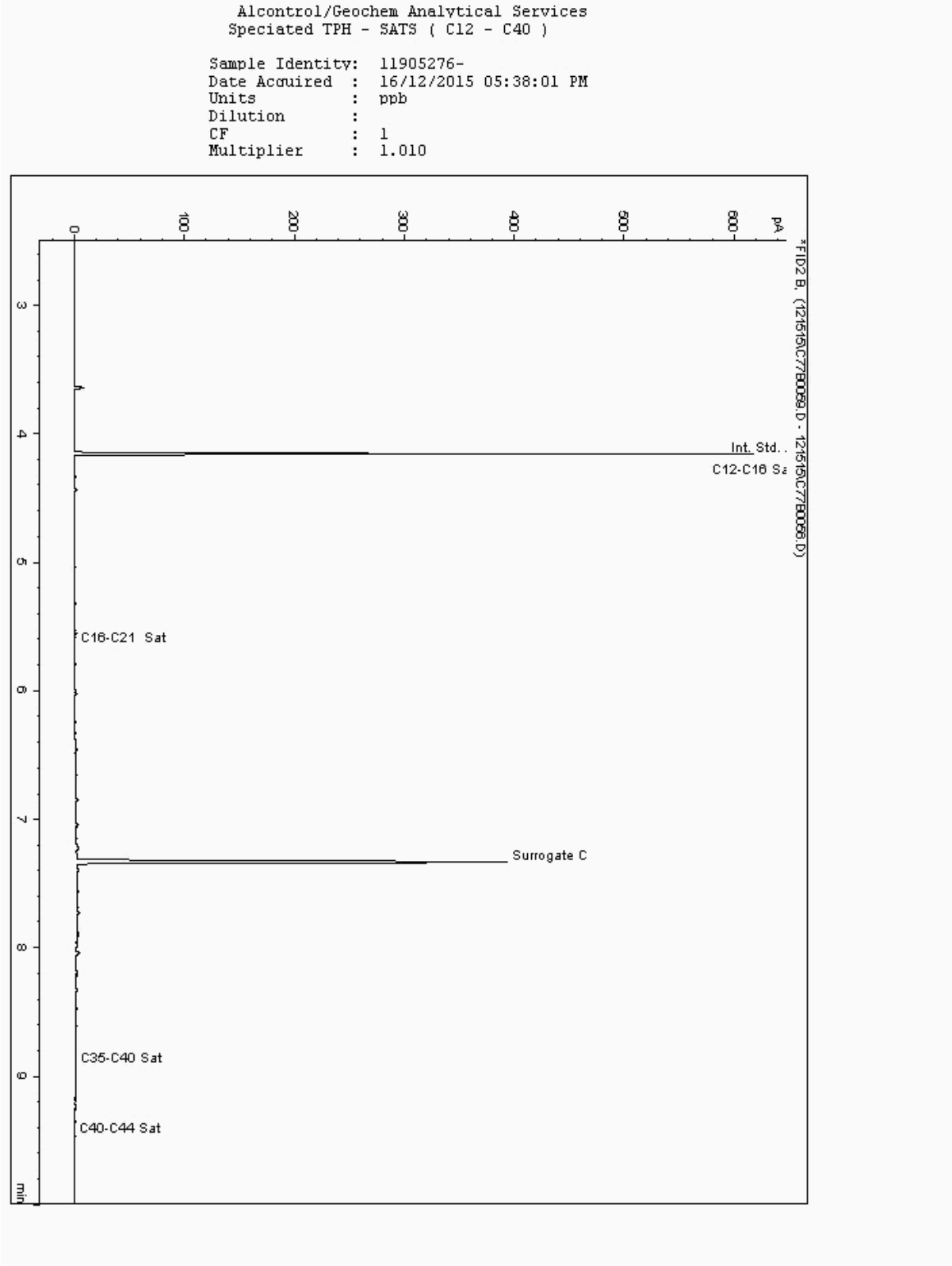
SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 12643658
Sample ID : TPIL06

Depth : 0.50

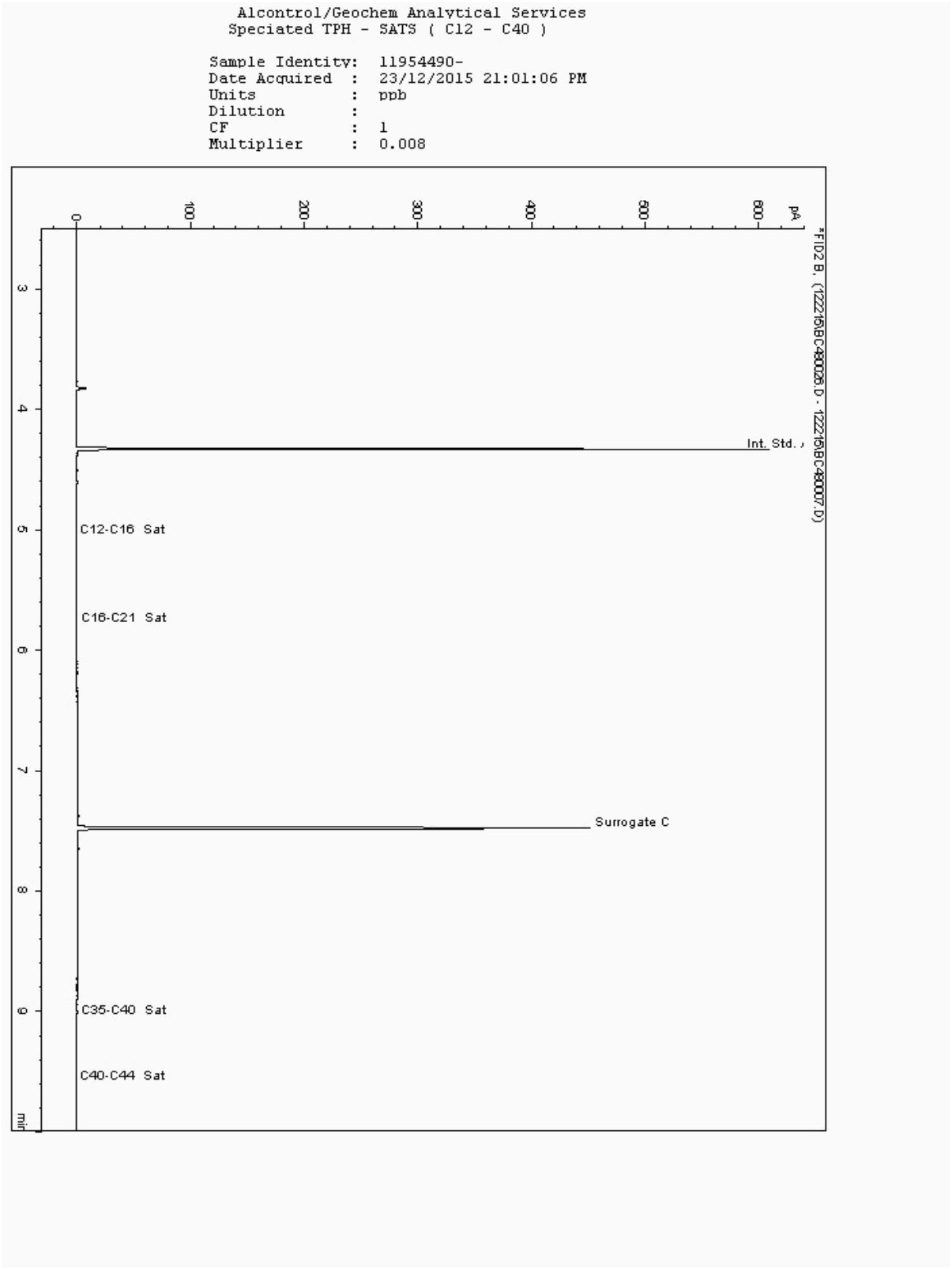


CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 12661102 **Sample ID :** BHIL01 **Depth :** 5.48



CERTIFICATE OF ANALYSIS

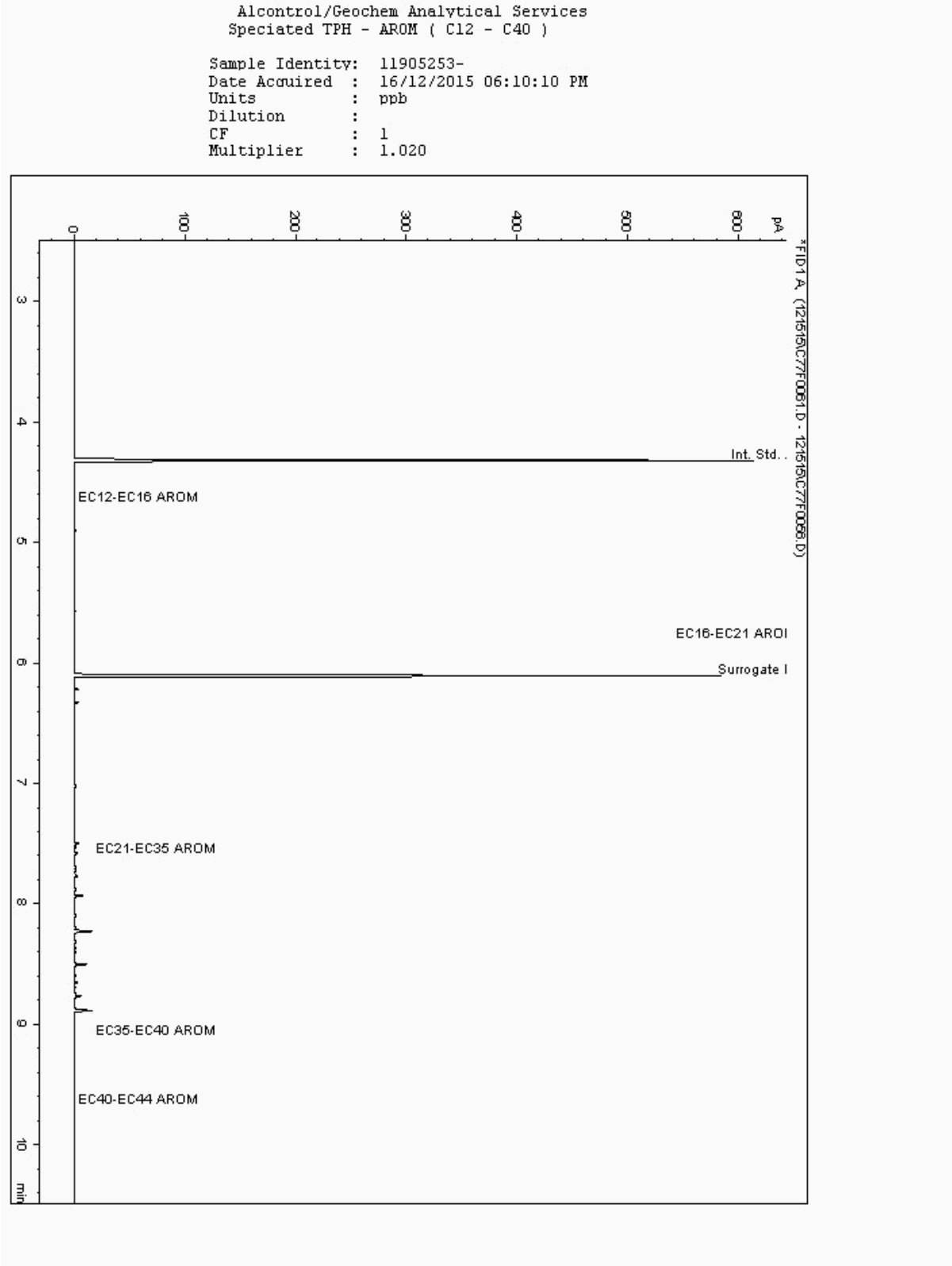
SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 12643170
Sample ID : TPIL01

Depth : 0.50



CERTIFICATE OF ANALYSIS

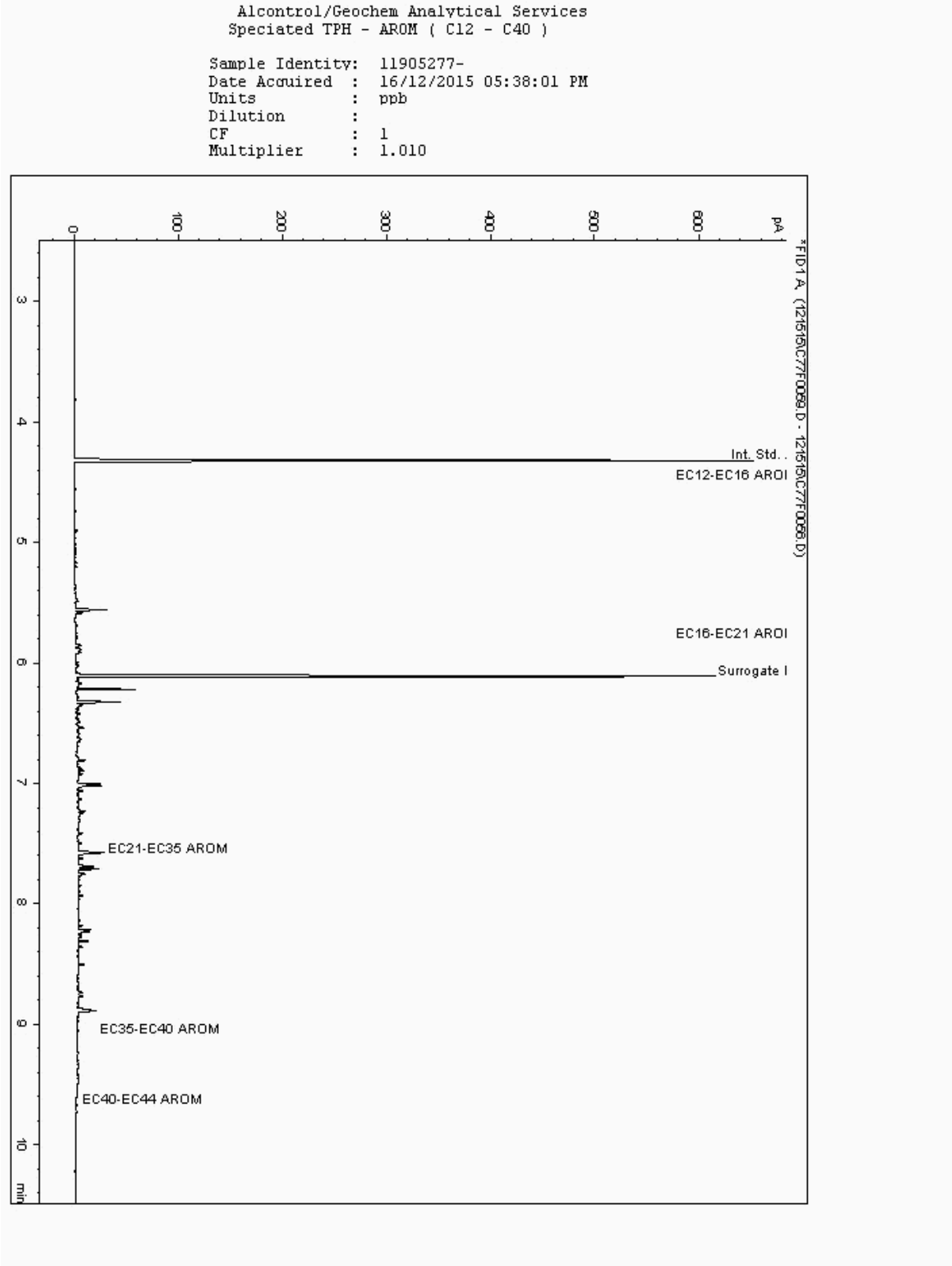
SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 12643658
Sample ID : TPIL06

Depth : 0.50

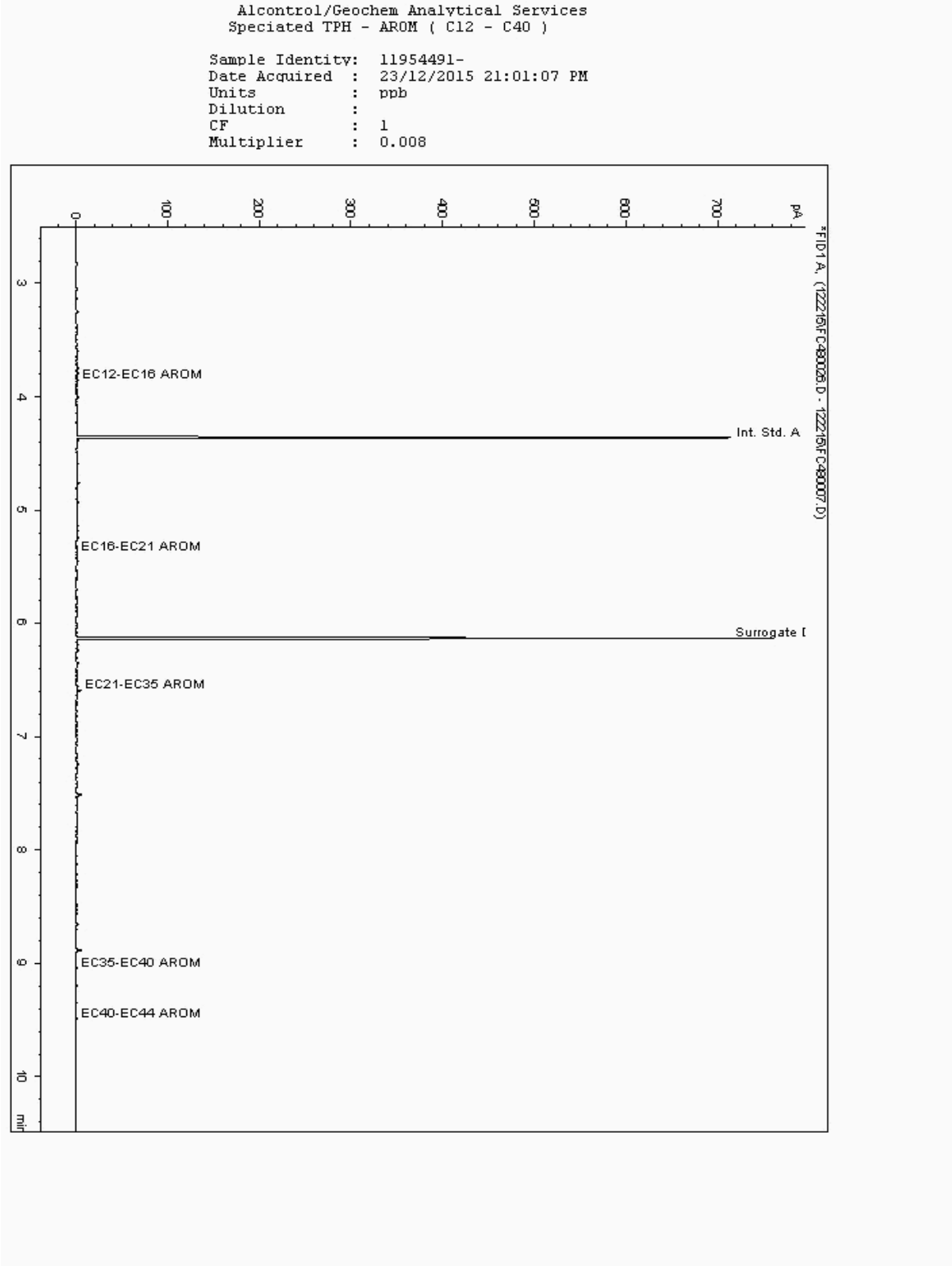


CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 12661102 **Sample ID :** BHIL01 **Depth :** 5.48



CERTIFICATE OF ANALYSIS

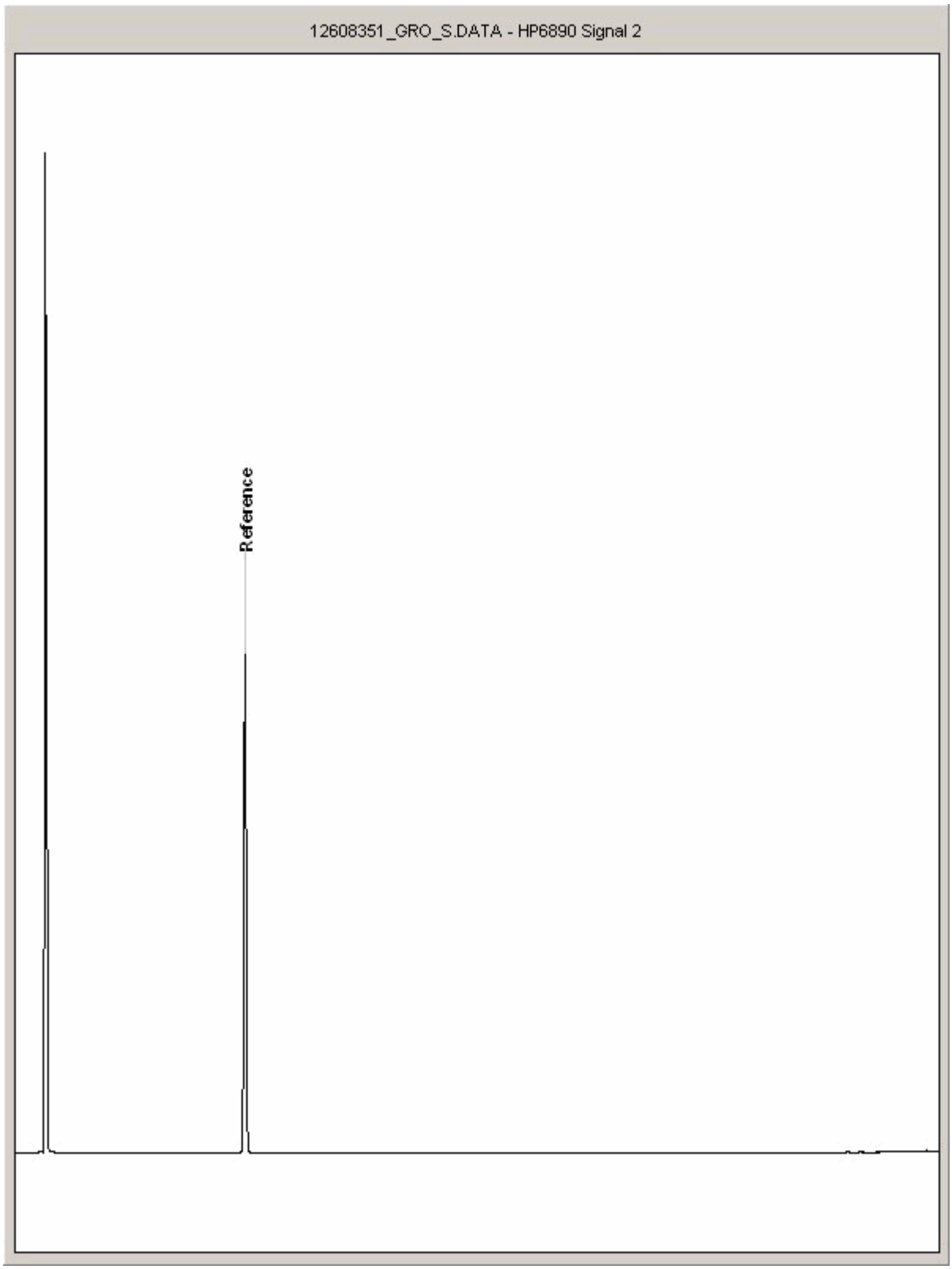
SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 12608351
Sample ID : TPIL01

Depth : 0.50



CERTIFICATE OF ANALYSIS

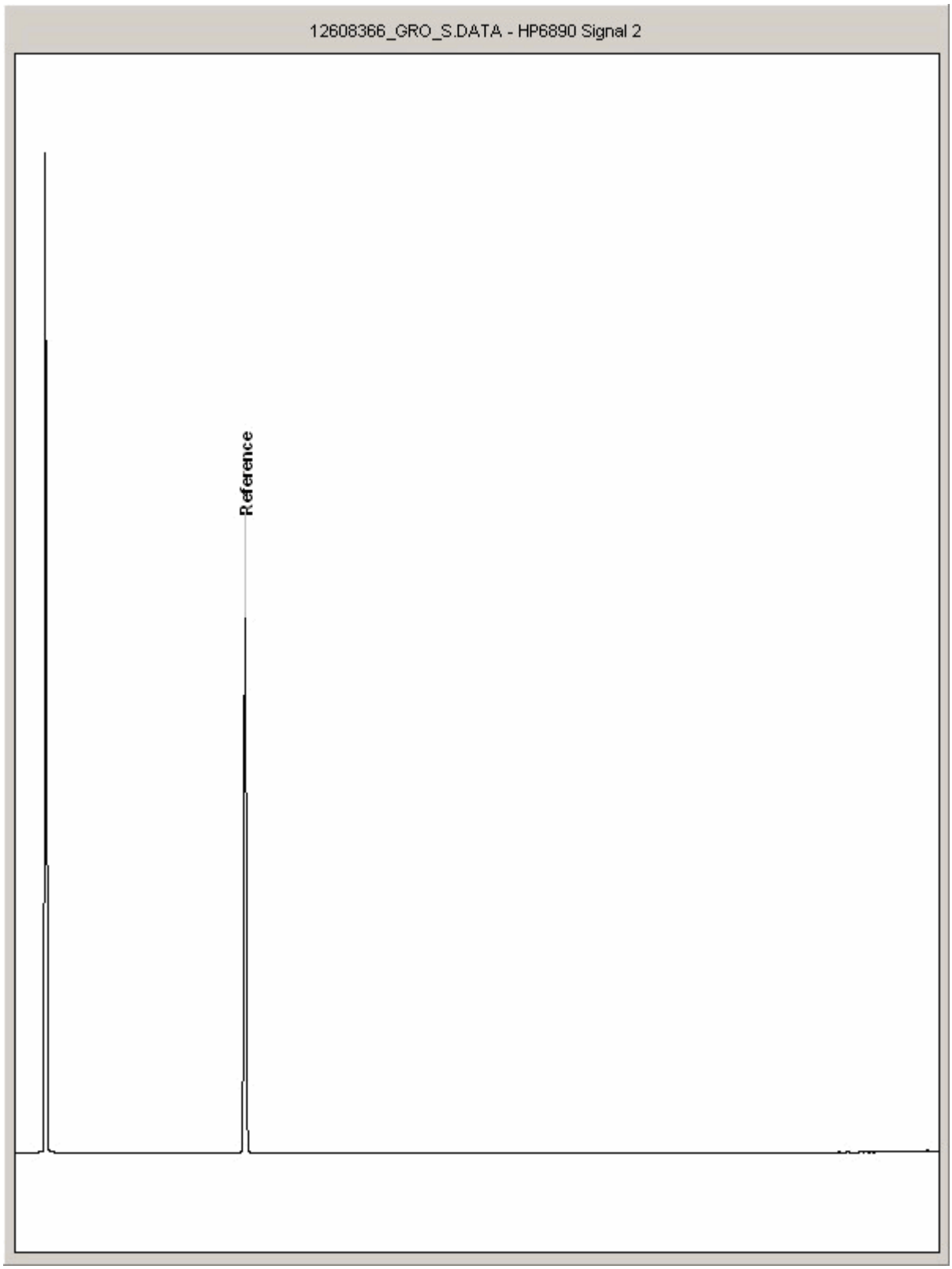
SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 12608366
Sample ID : TPIL06

Depth : 0.50



CERTIFICATE OF ANALYSIS

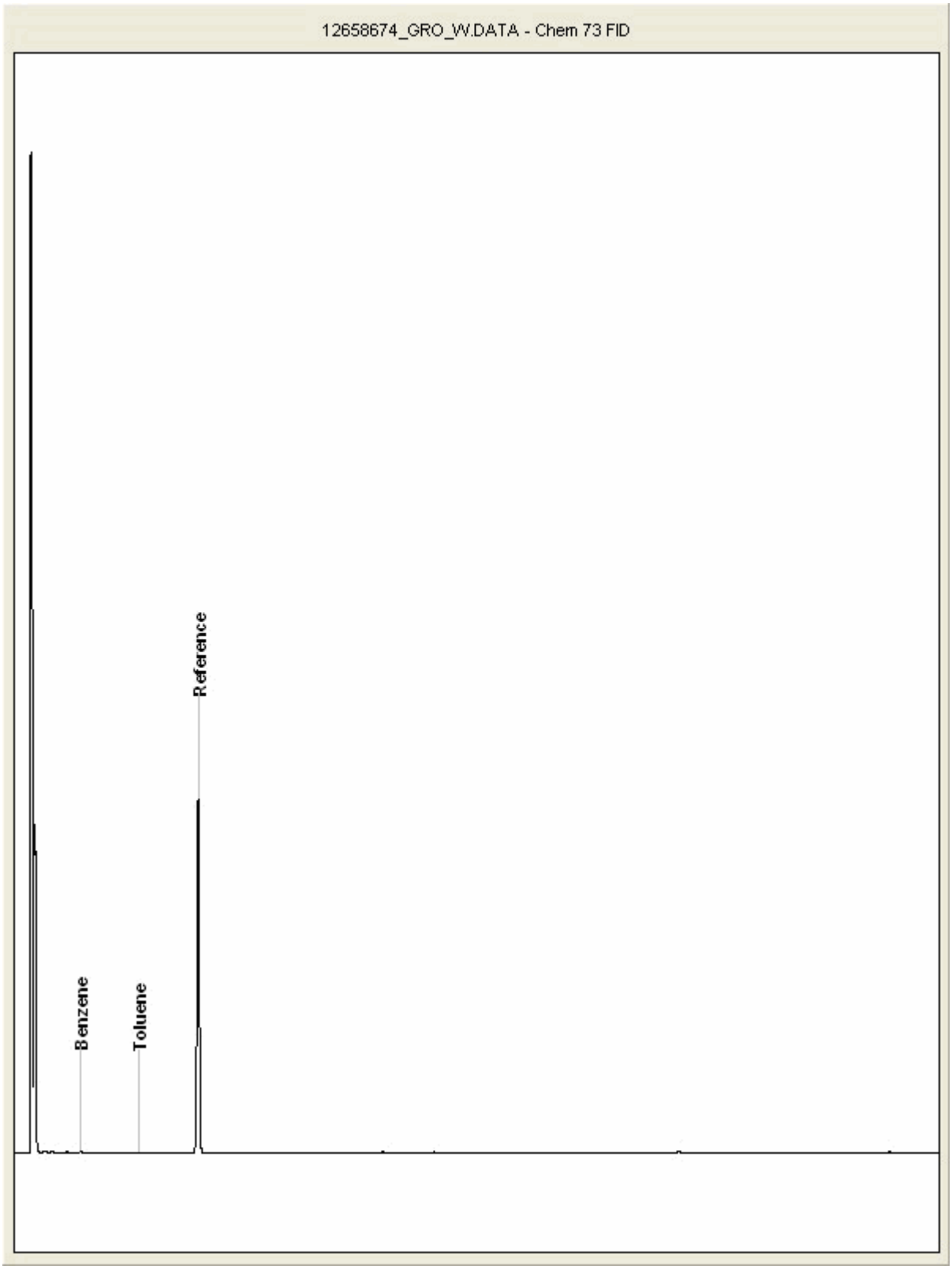
SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 12658674
Sample ID : BHIL01

Depth : 5.48



CERTIFICATE OF ANALYSIS

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH4 by the BRE method, VOC TICS, SVOC TICS, TOF-MS SCAN/SEARCH and TOF-MS 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 both soil jars, tubs and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos 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. ALcontrol Laboratories 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 screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample -similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

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. A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.

12. Results relate only to the items tested

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

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 14).

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

18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not
accredited.

19. 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.

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

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. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

23. 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 themajor 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.

24. 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 C4 -C10 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.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D/C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOXTHERM	IATROSCAN
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GCMS
HERBICIDES	D&C	HEXANE/ACETONE	SOXTHERM	GCMS
PESTICIDES	D&C	HEXANE/ACETONE	SOXTHERM	GCMS
EPH (DRO)	D&C	HEXANE/ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE/ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE/ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE/ACETONE	END OVER END	GC-FID
PCB TOT / PCB CON	D&C	HEXANE/ACETONE	END OVER END	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE/ACETONE	MICROWAVE TM218.	GCMS
C8-C40 (C8-C40) EZ FLASH	WET	HEXANE/ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE/ACETONE	SHAKER	GC-EZ
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM/ACETONE	SONICATE	GCMS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVOC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST OCP/OPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GCMS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Materials', which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (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 MDHS 100.

The identification of asbestos containing materials 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.

Last Updated : 2010/09/08

SDG:	151205-23	**Location:**	Cole Green Inert Landfill	**Order Number:**	
Job:	H_RHASKON_PTB-95	**Customer:**	Royal Haskoning	**Report Number:**	343577
Client Reference:	9Y0074	**Attention:**	Darren Banner-Perry	**Superseded Report:**	

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. ALcontrol Laboratories 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. 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 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 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 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.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

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.

Sample Deviations

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 Alcontrol Laboratories (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 Alcontrol Laboratories (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.