



Royal Haskoning  
Rightwell House  
Bretton  
Bretton  
Peterborough  
Cambridgeshire  
PE3 8DW

**Attention:** Declan Fives

## CERTIFICATE OF ANALYSIS

**Date:** 30 May 2014  
**Customer:** H\_RHASKON\_PTB  
**Sample Delivery Group (SDG):** 140510-79  
**Your Reference:** 9Y0074 103 100  
**Location:** Cole Green  
**Report No:** 271730

We received 6 samples on Saturday May 10, 2014 and 6 of these samples were scheduled for analysis which was completed on Friday May 30, 2014. 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





**SDG:** 140510-79  
**Job:** H\_RHASKON\_PTB-82  
**Client Reference:** 9Y0074 103 100

**Location:** Cole Green  
**Customer:** Royal Haskoning  
**Attention:** Declan Fives

**Order Number:** 9Y0074-103-100  
**Report Number:** 271730  
**Superseded Report:**

## Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
9267351	CGBH05		0.50	08/05/2014
9267352	CGBH05		1.00	08/05/2014
9267354	CGBH10		0.50	09/05/2014
9267355	CGBH10		2.00	09/05/2014
9267356	CGBH17		0.50	08/05/2014
9267357	CGBH17		2.00	08/05/2014



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



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SOLID Results Legend   Test   No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	
		9267351	CGRH05		0.50	600 VOC (ALE215) 250g Amber Jar 1kg TUB
		9267352	CGRH06		1.00	600 VOC (ALE215) 250g Amber Jar 600 VOC (ALE215)
		9267354	CGRH10		0.50	250g Amber Jar 600 VOC (ALE215)
		9267355	CGRH10		2.00	600 VOC (ALE215) 250g Amber Jar 600 VOC (ALE215)
	9267356	CGRH17		0.50	600 VOC (ALE215) 250g Amber Jar 1kg TUB	
	9267357	CGRH17		2.00	600 VOC (ALE215) 250g Amber Jar 1kg TUB	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 1				
Boron Water Soluble	All	NDPs: 0 Tests: 6				
CEN Readings	All	NDPs: 0 Tests: 1				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 1				
EPH CWG (Aliphatic) Filtered GC (W)	All	NDPs: 0 Tests: 1				
EPH CWG (Aliphatic) GC (S)	All	NDPs: 0 Tests: 6				
EPH CWG (Aromatic) Filtered GC (W)	All	NDPs: 0 Tests: 1				
EPH CWG (Aromatic) GC (S)	All	NDPs: 0 Tests: 6				
GRO by GC-FID (S)	All	NDPs: 0 Tests: 6				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 1				
Mercury Dissolved	All	NDPs: 0 Tests: 1				
Metals in solid samples by OES	All	NDPs: 0 Tests: 6				
PAH by GCMS	All	NDPs: 0 Tests: 6				
PAH in waters by GC-MS (diss.filt)	All	NDPs: 0 Tests: 1				
pH	All	NDPs: 0 Tests: 2				



SDG: 140510-79  
 Job: H\_RHASKON\_PT8-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

SOLID Results Legend	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container	
	X Test	N No Determination Possible								
			9267351	CGBH05			0.50	60g VOC (ALE215) 250g Amber Jar 1kg TUB		
			9267352	CGBH06			1.00	60g VOC (ALE215) 250g Amber Jar 60g VOC (ALE215) 250g Amber Jar 1kg TUB		
			9267354	CGBH10			0.50	250g Amber Jar 60g VOC (ALE215) 250g Amber Jar		
			9267355	CGBH10			2.00	60g VOC (ALE215) 250g Amber Jar		
			9267356	CGBH17			0.50	60g VOC (ALE215) 250g Amber Jar		
			9267357	CGBH17			2.00	60g VOC (ALE215) 250g Amber Jar 1kg TUB		
Sample description	All	NDPs: 0 Tests: 6	X	X	X	X	X	X	X	X
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 2			X					X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 1			X					
Total Organic Carbon	All	NDPs: 0 Tests: 2	X							X
TPH CWG Filtered (W)	All	NDPs: 0 Tests: 1			X					
TPH CWG GC (S)	All	NDPs: 0 Tests: 6	X	X	X	X	X	X	X	X
VOC MS (S)	All	NDPs: 0 Tests: 2				X				X
VOC MS (W)	All	NDPs: 0 Tests: 1			X					



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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
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Lab Sample No(s)	Customer Sample Ref.	Depth (m)	Colour	Description	Grain size	Inclusions	Inclusions 2
9267351	CGBH05	0.50	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None
9267352	CGBH05	1.00	Dark Brown	Sandy Loam	0.1 - 2 mm	Stones	None
9267354	CGBH10	0.50	Dark Brown	Sandy Silt Loam	0.1 - 2 mm	Stones	N/A
9267355	CGBH10	2.00	Light Brown	Sand	0.1 - 2 mm	None	None
9267356	CGBH17	0.50	Light Brown	Sandy Clay Loam	0.1 - 2 mm	Stones	None
9267357	CGBH17	2.00	Light Brown	Sandy Clay Loam	0.1 - 2 mm	Stones	None

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 occurring 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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Results Legend			Customer Sample Ref.	CGBH05	CGBH05	CGBH10	CGBH10	CGBH17	CGBH17
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.50	1.00	0.50	2.00	0.50	2.00
M	mCERTS accredited.			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
aq	Aqueous / settled sample.			08/05/2014	08/05/2014	09/05/2014	09/05/2014	08/05/2014	08/05/2014
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			10/05/2014	10/05/2014	10/05/2014	10/05/2014	10/05/2014	10/05/2014
(F)	Trigger breach confirmed			140510-79	140510-79	140510-79	140510-79	140510-79	140510-79
1-58*\$@	Sample deviation (see appendix)			9267351	9267352	9267354	9267355	9267356	9267357
Component	LOD/Units	Method							
Moisture Content Ratio	%	PM024	7.9	7.5	8.6	8.4	11	18	
Organic Carbon, Total	<0.2 %	TM132	<0.2					<0.2	
Fraction Organic Carbon (FOC)	<0.002 -	TM132	<0.002					<0.002	
pH	1 pH Units	TM133	8.12					8.42	
Arsenic	<0.6 mg/kg	TM181	12.2	11.9	23.4	18.5	17.3	13.8	
Barium	<0.6 mg/kg	TM181	55.3	35.8	51.6	19.1	52.2	28.6	
Beryllium	<0.01 mg/kg	TM181	0.43	0.291	0.377	0.2	0.744	0.367	
Cadmium	<0.02 mg/kg	TM181	0.473	0.287	0.38	0.22	0.457	0.325	
Chromium	<0.9 mg/kg	TM181	17.3	16.3	24	31.8	29.9	21.9	
Copper	<1.4 mg/kg	TM181	8.9	7.35	10.5	5.39	9.84	8.64	
Lead	<0.7 mg/kg	TM181	27.5	14.3	21.8	7.07	17	10.9	
Mercury	<0.14 mg/kg	TM181	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14	
Nickel	<0.2 mg/kg	TM181	16.9	15	19.1	12.3	26.1	23.1	
Selenium	<1 mg/kg	TM181	<1	<1	<1	<1	<1	<1	
Vanadium	<0.2 mg/kg	TM181	28.1	24.4	40	47.8	54.8	46.3	
Zinc	<1.9 mg/kg	TM181	44.3	32	58.4	35.9	52.6	50	
Boron, water soluble	<1 mg/kg	TM222	<1	<1	<1	<1	<1	<1	

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PAH by GCMS

Results Legend			Customer Sample Ref.	CGBH05	CGBH05	CGBH10	CGBH10	CGBH17	CGBH17
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.			0.50	1.00	0.50	2.00	0.50	2.00
aq	Aqueous / settled sample.			Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
diss.filt	Dissolved / filtered sample.			08/05/2014	08/05/2014	09/05/2014	09/05/2014	08/05/2014	08/05/2014
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			10/05/2014	10/05/2014	10/05/2014	10/05/2014	10/05/2014	10/05/2014
(F)	Trigger breach confirmed			140510-79	140510-79	140510-79	140510-79	140510-79	140510-79
1-5&#9@	Sample deviation (see appendix)			9267351	9267352	9267354	9267355	9267356	9267357
Component	LOD/Units	Method							
Naphthalene-d8 % recovery**	%	TM218	94.1	95.8	102	96.6	101	101	
Acenaphthene-d10 % recovery**	%	TM218	92.2	93.1	97.8	94.6	101	99.9	
Phenanthrene-d10 % recovery**	%	TM218	89.9	90.1	97.3	92.2	99.4	96.6	
Chrysene-d12 % recovery**	%	TM218	88.1	85.5	96.7	88.9	92.8	93.3	
Perylene-d12 % recovery**	%	TM218	89	86.6	91.4	87.4	90.9	88.8	
Naphthalene	<9 µg/kg	TM218	<9	<9	<9	<9	<9	<9	
Acenaphthylene	<12 µg/kg	TM218	20.4	<12	<12	<12	<12	<12	
Acenaphthene	<8 µg/kg	TM218	<8	<8	<8	<8	<8	<8	
Fluorene	<10 µg/kg	TM218	<10	<10	<10	<10	<10	<10	
Phenanthrene	<15 µg/kg	TM218	82	22.2	37.6	<15	<15	37.6	
Anthracene	<16 µg/kg	TM218	21.6	<16	<16	<16	<16	<16	
Fluoranthene	<17 µg/kg	TM218	247	63.4	67	<17	<17	24.3	
Pyrene	<15 µg/kg	TM218	222	53.6	59.7	<15	<15	18.5	
Benz(a)anthracene	<14 µg/kg	TM218	128	26.6	41.2	<14	<14	<14	
Chrysene	<10 µg/kg	TM218	154	35.5	40.2	<10	<10	<10	
Benzo(b)fluoranthene	<15 µg/kg	TM218	174	59.4	52.3	<15	<15	<15	
Benzo(k)fluoranthene	<14 µg/kg	TM218	70.9	21.4	<14	<14	<14	<14	
Benzo(a)pyrene	<15 µg/kg	TM218	116	45.8	42.9	<15	<15	<15	
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	77.3	33.3	25.9	<18	<18	<18	
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23	<23	<23	<23	<23	<23	
Benzo(g,h,i)perylene	<24 µg/kg	TM218	108	50.5	37.6	<24	<24	<24	
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	1420	412	404	<118	<118	<118	



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## Semi Volatile Organic Compounds

Results Legend		Customer Sample Ref.	CGBH10	CGBH17			
#	ISO17025 accredited.						
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
1-5&#x26;	Sample deviation (see appendix)						
		Depth (m)	0.50	2.00			
		Sample Type	Soil/Solid	Soil/Solid			
		Date Sampled	09/05/2014	08/05/2014			
		Sampled Time	.	.			
		Date Received	10/05/2014	10/05/2014			
		SDG Ref	140510-79	140510-79			
		Lab Sample No.(s)	9267354	9267357			
		AGS Reference					
Component	LOD/Units	Method					
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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## TPH CWG (S)

Results Legend		Customer Sample Ref.	CGBH05	CGBH05	CGBH10	CGBH10	CGBH17	CGBH17
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.50	1.00	0.50	2.00	0.50	2.00
M	mCERTS accredited.		Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid	Soil/Solid
aq	Aqueous / settled sample.		08/05/2014	08/05/2014	09/05/2014	09/05/2014	08/05/2014	08/05/2014
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&#9@	Sample deviation (see appendix)							
Component	LOD/Units		Method					
GRO Surrogate % recovery**	%	TM089	121	116	115	124	120	141
GRO TOT (Moisture Corrected)	<44 µg/kg	TM089	<44	<44	<44	<44	<44	<44
Methyl tertiary butyl ether (MTBE)	<5 µg/kg	TM089	<5	<5	<5	<5	<5	<5
Benzene	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Toluene	<2 µg/kg	TM089	<2	<2	<2	<2	<2	<2
Ethylbenzene	<3 µg/kg	TM089	<3	<3	<3	<3	<3	<3
m,p-Xylene	<6 µg/kg	TM089	<6	<6	<6	<6	<6	<6
o-Xylene	<3 µg/kg	TM089	<3	<3	<3	<3	<3	<3
sum of detected mpo xylene by GC	<9 µg/kg	TM089	<9	<9	<9	<9	<9	<9
sum of detected BTEX by GC	<24 µg/kg	TM089	<24	<24	<24	<24	<24	<24
Aliphatics >C5-C6	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16	<100 µg/kg	TM173	<100	<100	<100	<100	<100	<100
Aliphatics >C16-C21	<100 µg/kg	TM173	<100	<100	<100	<100	<100	<100
Aliphatics >C21-C35	<100 µg/kg	TM173	<100	1960	<100	<100	<100	<100
Aliphatics >C35-C44	<100 µg/kg	TM173	<100	<100	<100	<100	<100	<100
Total Aliphatics >C12-C44	<100 µg/kg	TM173	<100	1960	<100	<100	<100	<100
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/kg	TM089	<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16	<100 µg/kg	TM173	<100	<100	515	<100	<100	<100
Aromatics >EC16-EC21	<100 µg/kg	TM173	<100	<100	169	<100	<100	<100
Aromatics >EC21-EC35	<100 µg/kg	TM173	1140	1080	<100	<100	<100	<100
Aromatics >EC35-EC44	<100 µg/kg	TM173	1200	3520	475	<100	<100	<100
Aromatics >EC40-EC44	<100 µg/kg	TM173	271	1710	104	<100	<100	<100
Total Aromatics >EC12-EC44	<100 µg/kg	TM173	2340	4600	1160	<100	<100	<100
Total Aliphatics & Aromatics >C5-C44	<100 µg/kg	TM173	2340	6560	1160	<100	<100	<100



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## VOC MS (S)

Results Legend		Customer Sample Ref.	CGBH10	CGBH17				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		0.50	2.00				
aq	Aqueous / settled sample.		Soil/Solid	Soil/Solid				
diss.filt	Dissolved / filtered sample.		09/05/2014	08/05/2014				
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		10/05/2014	10/05/2014				
(F)	Trigger breach confirmed		140510-79	140510-79				
1-5&#x26;	Sample deviation (see appendix)		9267354	9267357				
Component	LOD/Units		Method					
Dibromofluoromethane**	%	TM116	103	106				
Toluene-d8**	%	TM116	99.9	101				
4-Bromofluorobenzene**	%	TM116	94.9	95.3				
Dichlorodifluoromethane	<4 µg/kg	TM116	<4	<4	#	#		
Chloromethane	<7 µg/kg	TM116	<7	<7				
Vinyl Chloride	<10 µg/kg	TM116	<10	<10				
Bromomethane	<13 µg/kg	TM116	<13	<13	#	#		
Chloroethane	<14 µg/kg	TM116	<14	<14	M	M		
Trichlorofluoromethane	<6 µg/kg	TM116	<6	<6	#	#		
1,1-Dichloroethene	<10 µg/kg	TM116	<10	<10	M	M		
Carbon Disulphide	<7 µg/kg	TM116	<7	<7	M	M		
Dichloromethane	<10 µg/kg	TM116	<10	<10	#	#		
Methyl Tertiary Butyl Ether	<11 µg/kg	TM116	<11	<11				
trans-1,2-Dichloroethene	<11 µg/kg	TM116	<11	<11	#	#		
1,1-Dichloroethane	<8 µg/kg	TM116	<8	<8	M	M		
cis-1,2-Dichloroethene	<5 µg/kg	TM116	<5	<5	M	M		
2,2-Dichloropropane	<12 µg/kg	TM116	<12	<12				
Bromochloromethane	<14 µg/kg	TM116	<14	<14	#	#		
Chloroform	<8 µg/kg	TM116	<8	<8	M	M		
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7	<7	M	M		
1,1-Dichloropropene	<11 µg/kg	TM116	<11	<11	M	M		
Carbontetrachloride	<14 µg/kg	TM116	<14	<14	M	M		
1,2-Dichloroethane	<5 µg/kg	TM116	<5	<5	#	#		
Benzene	<9 µg/kg	TM116	<9	<9	M	M		
Trichloroethene	<9 µg/kg	TM116	<9	<9	M	M		
1,2-Dichloropropane	<12 µg/kg	TM116	<12	<12	M	M		
Dibromomethane	<9 µg/kg	TM116	<9	<9	#	#		
Bromodichloromethane	<7 µg/kg	TM116	<7	<7	M	M		
cis-1,3-Dichloropropene	<14 µg/kg	TM116	<14	<14				
Toluene	<5 µg/kg	TM116	<5	<5	M	M		
trans-1,3-Dichloropropene	<100 µg/kg	TM116	<100	<100				
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10	<10	#	#		



**SDG:** 140510-79  
**Job:** H\_RHASKON\_PTB-82  
**Client Reference:** 9Y0074 103 100

**Location:** Cole Green  
**Customer:** Royal Haskoning  
**Attention:** Declan Fives

**Order Number:** 9Y0074-103-100  
**Report Number:** 271730  
**Superseded Report:**

## VOC MS (S)

Results Legend		Customer Sample Ref.	CGBH10	CGBH17			
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference					
M	mCERTS accredited.		0.50	2.00			
aq	Aqueous / settled sample.		Soil/Solid	Soil/Solid			
diss.filt	Dissolved / filtered sample.		09/05/2014	08/05/2014			
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		10/05/2014	10/05/2014			
(F)	Trigger breach confirmed		140510-79	140510-79			
1-5&#x2013;	Sample deviation (see appendix)		9267354	9267357			
Component	LOD/Units	Method					
1,3-Dichloropropane	<7 µg/kg	TM116	<7	<7			
			#	#			
Tetrachloroethene	<5 µg/kg	TM116	<5	<5			
			#	#			
Dibromochloromethane	<13 µg/kg	TM116	<13	<13			
			#	#			
1,2-Dibromoethane	<12 µg/kg	TM116	<12	<12			
			#	#			
Chlorobenzene	<5 µg/kg	TM116	<5	<5			
			M	M			
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10	<10			
			M	M			
Ethylbenzene	<4 µg/kg	TM116	<4	<4			
			#	#			
p/m-Xylene	<14 µg/kg	TM116	<14	<14			
			#	#			
o-Xylene	<10 µg/kg	TM116	<10	<10			
			#	#			
Styrene	<10 µg/kg	TM116	<10	<10			
			#	#			
Bromoform	<10 µg/kg	TM116	<10	<10			
			#	#			
Isopropylbenzene	<5 µg/kg	TM116	<5	<5			
			#	#			
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10	<10			
			#	#			
1,2,3-Trichloropropane	<17 µg/kg	TM116	<17	<17			
			#	#			
Bromobenzene	<10 µg/kg	TM116	<10	<10			
			M	M			
Propylbenzene	<11 µg/kg	TM116	<11	<11			
			#	#			
2-Chlorotoluene	<9 µg/kg	TM116	<9	<9			
			#	#			
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8	<8			
			#	#			
4-Chlorotoluene	<12 µg/kg	TM116	<12	<12			
			#	#			
tert-Butylbenzene	<12 µg/kg	TM116	<12	<12			
			#	#			
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9	<9			
			#	#			
sec-Butylbenzene	<10 µg/kg	TM116	<10	<10			
			#	#			
4-Isopropyltoluene	<11 µg/kg	TM116	<11	<11			
			#	#			
1,3-Dichlorobenzene	<6 µg/kg	TM116	<6	<6			
			#	#			
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5	<5			
			M	M			
n-Butylbenzene	<10 µg/kg	TM116	<10	<10			
			#	#			
1,2-Dichlorobenzene	<12 µg/kg	TM116	<12	<12			
			M	M			
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14	<14			
			#	#			
Tert-amyl methyl ether	<15 µg/kg	TM116	<15	<15			
			#	#			
1,2,4-Trichlorobenzene	<6 µg/kg	TM116	<6	<6			
			#	#			
Hexachlorobutadiene	<12 µg/kg	TM116	<12	<12			
			#	#			
Naphthalene	<13 µg/kg	TM116	<13	<13			
			#	#			





**SDG:** 140510-79  
**Job:** H\_RHASKON\_PT8-82  
**Client Reference:** 9Y0074 103 100

**Location:** Cole Green  
**Customer:** Royal Haskoning  
**Attention:** Declan Fives

**Order Number:** 9Y0074-103-100  
**Report Number:** 271730  
**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 Received SDG Original Sample Method Number	CGBH10 0.50 SOLID 09/05/2014 00:00:00 140510-79 9267354 TM048	15/05/14	Simon Postlewhite	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

<b>SDG:</b> 140510-79	<b>Location:</b> Cole Green	<b>Order Number:</b> 9Y0074-103-100
<b>Job:</b> H_RHASKON_PTB-82	<b>Customer:</b> Royal Haskoning	<b>Report Number:</b> 271730
<b>Client Reference:</b> 9Y0074 103 100	<b>Attention:</b> Declan Fives	<b>Superseded Report:</b>

**CEN 2:1 SINGLE STAGE LEACHATE TEST**

**CEN ANALYTICAL RESULTS**

REF : BS EN 12457/1

<b>Client Reference</b>		<b>Site Location</b>	Cole Green
<b>Mass Sample taken (kg)</b>	0.191	<b>Natural Moisture Content (%)</b>	9.41
<b>Mass of dry sample (kg)</b>	0.175	<b>Dry Matter Content (%)</b>	91.4
<b>Particle Size &lt;4mm</b>	>95%		

<b>Case</b>	
<b>SDG</b>	140510-79
<b>Lab Sample Number(s)</b>	9267354
<b>Sampled Date</b>	09-May-2014
<b>Customer Sample Ref.</b>	CGBH10
<b>Depth (m)</b>	0.50

**Solid Waste Analysis**

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

Eluate Analysis	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg		
	Result	Limit of Detection	Result	Limit of Detection			
Arsenic	0.000751	<0.00012	0.0015	<0.0012	0.5	2	25
Barium	0.00827	<0.00003	0.0165	<0.0003	20	100	300
Cadmium	<0.0001	<0.0001	<0.0002	<0.001	0.04	1	5
Chromium	0.00192	<0.00022	0.00384	<0.0022	0.5	10	70
Copper	0.00181	<0.00085	0.00362	<0.0085	2	50	100
Mercury Dissolved (CVAf)	0.0000128	<0.00001	0.0000256	<0.0001	0.01	0.2	2
Molybdenum	-	-	-	-	0.5	10	30
Nickel	0.000847	<0.00015	0.00169	<0.0015	0.4	10	40
Lead	0.000223	<0.00002	0.000446	<0.0002	0.5	10	50
Antimony	-	-	-	-	0.06	0.7	5
Selenium	0.00123	<0.00039	0.00246	<0.0039	0.1	0.5	7
Zinc	0.00128	<0.00041	0.00256	<0.0041	4	50	200
Chloride	-	-	-	-	800	15000	25000
Fluoride	-	-	-	-	10	150	500
Sulphate (soluble)	-	-	-	-	1000	20000	50000
Total Dissolved Solids	-	-	-	-	4000	60000	100000
Total Monohydric Phenols (W)	-	-	-	-	1	-	-
Dissolved Organic Carbon	-	-	-	-	500	800	1000

**Leach Test Information**

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable  
 Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation  
 Mcerts Certification does not apply to leachates

30/05/2014 12:44:04

12:43:53 30/05/2014



SDG: 140510-79  
 Job: H\_RHASKON\_PTB-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

## CEN 2:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		Site Location	
Mass Sample taken (kg)	0.191	Natural Moisture Content (%)	9.41
Mass of dry sample (kg)	0.175	Dry Matter Content (%)	91.4
Particle Size <4mm	>95%		

Case	
SDG	140510-79
Lab Sample Number(s)	9267354
Sampled Date	09-May-2014
Customer Sample Ref.	CGBH10
Depth (m)	0.50

## Solid Waste Analysis

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

Eluate Analysis	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
Aliphatics >C12-C16	<0.01	<0.01	<0.02	<0.1	-
Aliphatics >C16-C21	<0.01	<0.01	<0.02	<0.1	-
Aliphatics >C21-C35	<0.01	<0.01	<0.02	<0.1	-
Total Aliphatics >C12-C35	<0.01	<0.01	<0.02	<0.1	-
Aromatics >EC12-EC16	<0.01	<0.01	<0.02	<0.1	-
Aromatics >EC16-EC21	<0.01	<0.01	<0.02	<0.1	-
Aromatics >EC21-EC35	<0.01	<0.01	<0.02	<0.1	-
Total Aromatics >EC12-EC35	<0.01	<0.01	<0.02	<0.1	-
TPH (Total Aliphatics + Total Aromatics) >C5-C35	<0.01	<0.01	<0.02	<0.1	-
Naphthalene (diss.filt)	<0.0001	<0.0001	<0.0002	<0.001	-
Acenaphthene (diss.filt)	<0.000015	<0.000015	<0.00003	<0.00015	-
Acenaphthylene (diss.filt)	<0.000011	<0.000011	<0.000022	<0.00011	-
Beryllium	<0.00007	<0.00007	<0.00014	<0.0007	-
Fluoranthene (diss.filt)	<0.000017	<0.000017	<0.000034	<0.00017	-
Anthracene (diss.filt)	<0.000015	<0.000015	<0.00003	<0.00015	-
Boron	0.0186	<0.0094	0.0372	<0.094	-
Phenanthrene (diss.filt)	<0.000022	<0.000022	<0.000044	<0.00022	-
Fluorene (diss.filt)	<0.000014	<0.000014	<0.000028	<0.00014	-
Chrysene (diss.filt)	<0.000013	<0.000013	<0.000026	<0.00013	-
Pyrene (diss.filt)	<0.000015	<0.000015	<0.00003	<0.00015	-
Benzo(a)anthracene (diss.filt)	<0.000017	<0.000017	<0.000034	<0.00017	-
Benzo(b)fluoranthene (diss.filt)	<0.000023	<0.000023	<0.000046	<0.00023	-

## Leach Test Information

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable  
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30/05/2014 12:44:04

12:43:53 30/05/2014





SDG: 140510-79  
 Job: H\_RHASKON\_PTB-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

## CEN 2:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		Site Location	
Mass Sample taken (kg)	0.191	Natural Moisture Content (%)	9.41
Mass of dry sample (kg)	0.175	Dry Matter Content (%)	91.4
Particle Size <4mm	>95%		

Case	
SDG	140510-79
Lab Sample Number(s)	9267354
Sampled Date	09-May-2014
Customer Sample Ref.	CGBH10
Depth (m)	0.50

## Solid Waste Analysis

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

Eluate Analysis	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
Benzo(k)fluoranthene (diss.filt)	<0.000027	<0.000027	<0.000054	<0.00027	-
Benzo(a)pyrene (diss.filt)	<0.000009	<0.000009	<0.000018	<0.00009	-
Dibenzo(a,h)anthracene (diss.filt)	<0.000016	<0.000016	<0.000032	<0.00016	-
Benzo(g,h,i)perylene (diss.filt)	<0.000016	<0.000016	<0.000032	<0.00016	-
Indeno(1,2,3-cd)pyrene (diss.filt)	<0.000014	<0.000014	<0.000028	<0.00014	-
PAH 16 EPA Total by GCMS (diss.filt)	<0.000344	<0.000344	<0.000688	<0.00344	-
Vanadium	0.00129	<0.00024	0.00258	<0.0024	-
<b>SVOC MS (W) - Aqueous</b>					
1,2,4-Trichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
1,2-Dichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
1,3-Dichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
1,4-Dichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
2,4,5-Trichlorophenol	<0.001	<0.001	<0.002	<0.01	-
2,4,6-Trichlorophenol	<0.001	<0.001	<0.002	<0.01	-
2,4-Dichlorophenol	<0.001	<0.001	<0.002	<0.01	-
2,4-Dimethylphenol	<0.001	<0.001	<0.002	<0.01	-
2,4-Dinitrotoluene	<0.001	<0.001	<0.002	<0.01	-
2,6-Dinitrotoluene	<0.001	<0.001	<0.002	<0.01	-
2-Chloronaphthalene	<0.001	<0.001	<0.002	<0.01	-
2-Chlorophenol	<0.001	<0.001	<0.002	<0.01	-
2-Methylnaphthalene	<0.001	<0.001	<0.002	<0.01	-
2-Methylphenol	<0.001	<0.001	<0.002	<0.01	-
2-Nitroaniline	<0.001	<0.001	<0.002	<0.01	-

## Leach Test Information

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

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30/05/2014 12:44:04

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SDG: 140510-79  
 Job: H\_RHASKON\_PTB-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

## CEN 2:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		Site Location	
Mass Sample taken (kg)	0.191	Natural Moisture Content (%)	9.41
Mass of dry sample (kg)	0.175	Dry Matter Content (%)	91.4
Particle Size <4mm	>95%		

Case	
SDG	140510-79
Lab Sample Number(s)	9267354
Sampled Date	09-May-2014
Customer Sample Ref.	CGBH10
Depth (m)	0.50

## Solid Waste Analysis

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

## Eluate Analysis

	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
<b>SVOC MS (W) - Aqueous</b>					
2-Nitrophenol	<0.001	<0.001	<0.002	<0.01	-
3-Nitroaniline	<0.001	<0.001	<0.002	<0.01	-
4-Bromophenylphenylether	<0.001	<0.001	<0.002	<0.01	-
4-Chloro-3-methylphenol	<0.001	<0.001	<0.002	<0.01	-
4-Chloroaniline	<0.001	<0.001	<0.002	<0.01	-
4-Chlorophenylphenylether	<0.001	<0.001	<0.002	<0.01	-
4-Methylphenol	<0.001	<0.001	<0.002	<0.01	-
4-Nitroaniline	<0.001	<0.001	<0.002	<0.01	-
4-Nitrophenol	<0.001	<0.001	<0.002	<0.01	-
Azobenzene	<0.001	<0.001	<0.002	<0.01	-
Acenaphthylene	<0.001	<0.001	<0.002	<0.01	-
Acenaphthene	<0.001	<0.001	<0.002	<0.01	-
Anthracene	<0.001	<0.001	<0.002	<0.01	-
Bis(2-chloroethyl)ether	<0.001	<0.001	<0.002	<0.01	-
Bis(2-chloroethoxy)methane	<0.001	<0.001	<0.002	<0.01	-
Bis(2-ethylhexyl) phthalate	<0.002	<0.002	<0.004	<0.02	-
Butylbenzyl phthalate	<0.001	<0.001	<0.002	<0.01	-
Benzo(a)anthracene	<0.001	<0.001	<0.002	<0.01	-
Benzo(b)fluoranthene	<0.001	<0.001	<0.002	<0.01	-
Benzo(k)fluoranthene	<0.001	<0.001	<0.002	<0.01	-
Benzo(a)pyrene	<0.001	<0.001	<0.002	<0.01	-
Benzo(ghi)perylene	<0.001	<0.001	<0.002	<0.01	-

## Leach Test Information

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

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30/05/2014 12:44:04

12:43:53 30/05/2014



SDG: 140510-79  
 Job: H\_RHASKON\_PTB-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

## CEN 2:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		Site Location	
Mass Sample taken (kg)	0.191	Natural Moisture Content (%)	9.41
Mass of dry sample (kg)	0.175	Dry Matter Content (%)	91.4
Particle Size <4mm	>95%		

Case	
SDG	140510-79
Lab Sample Number(s)	9267354
Sampled Date	09-May-2014
Customer Sample Ref.	CGBH10
Depth (m)	0.50

## Solid Waste Analysis

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

## Eluate Analysis

	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
<b>SVOC MS (W) - Aqueous</b>					
Carbazole	<0.001	<0.001	<0.002	<0.01	-
Chrysene	<0.001	<0.001	<0.002	<0.01	-
Dibenzofuran	<0.001	<0.001	<0.002	<0.01	-
Di-n-butyl phthalate	<0.001	<0.001	<0.002	<0.01	-
Diethyl phthalate	<0.001	<0.001	<0.002	<0.01	-
Dibenzo(a,h)anthracene	<0.001	<0.001	<0.002	<0.01	-
Dimethyl phthalate	<0.001	<0.001	<0.002	<0.01	-
Di-n-Octyl phthalate	<0.005	<0.005	<0.01	<0.05	-
Fluoranthene	<0.001	<0.001	<0.002	<0.01	-
Fluorene	<0.001	<0.001	<0.002	<0.01	-
Hexachlorobenzene	<0.001	<0.001	<0.002	<0.01	-
Hexachlorobutadiene	<0.001	<0.001	<0.002	<0.01	-
Pentachlorophenol	<0.001	<0.001	<0.002	<0.01	-
Phenol	<0.001	<0.001	<0.002	<0.01	-
N-nitrosodi-n-propylamine	<0.001	<0.001	<0.002	<0.01	-
Hexachloroethane	<0.001	<0.001	<0.002	<0.01	-
Nitrobenzene	<0.001	<0.001	<0.002	<0.01	-
Naphthalene	<0.001	<0.001	<0.002	<0.01	-
Isophorone	<0.001	<0.001	<0.002	<0.01	-
Hexachlorocyclopentadiene	<0.001	<0.001	<0.002	<0.01	-
Phenanthrene	<0.001	<0.001	<0.002	<0.01	-
Indeno (1,2,3-cd) Pyrene	<0.001	<0.001	<0.002	<0.01	-

## Leach Test Information

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable  
 Stated limits are for guidance only and ALcontrol cannot be held responsible for any discrepancies with current legislation  
 Mcerts Certification does not apply to leachates

30/05/2014 12:44:04

12:43:53 30/05/2014



SDG: 140510-79  
 Job: H\_RHASKON\_PTB-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

## CEN 2:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		Site Location	
Mass Sample taken (kg)	0.191	Natural Moisture Content (%)	9.41
Mass of dry sample (kg)	0.175	Dry Matter Content (%)	91.4
Particle Size <4mm	>95%		

Case	
SDG	140510-79
Lab Sample Number(s)	9267354
Sampled Date	09-May-2014
Customer Sample Ref.	CGBH10
Depth (m)	0.50

## Solid Waste Analysis

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

## Eluate Analysis

	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
<b>SVOC MS (W) - Aqueous</b>					
Pyrene	<0.001	<0.001	<0.002	<0.01	-
<b>TPH CWG (W)</b>					
Surrogate Recovery	-	-	-	-	-
GRO TOT (C5-C12)	<0.05	<0.05	<0.1	<0.5	-
Aliphatics C5-C6	<0.01	<0.01	<0.02	<0.1	-
Aliphatics >C6-C8	<0.01	<0.01	<0.02	<0.1	-
Aliphatics >C8-C10	<0.01	<0.01	<0.02	<0.1	-
Aliphatics >C10-C12	<0.01	<0.01	<0.02	<0.1	-
Aromatics C6-C7	<0.01	<0.01	<0.02	<0.1	-
Aromatics >C7-C8	<0.01	<0.01	<0.02	<0.1	-
MTBE GC-FID	<0.003	<0.003	<0.006	<0.03	-
Aromatics >EC8-EC10	<0.01	<0.01	<0.02	<0.1	-
Aromatics >EC10-EC12	<0.01	<0.01	<0.02	<0.1	-
Benzene by GC	<0.007	<0.007	<0.014	<0.07	-
Toluene by GC	<0.004	<0.004	<0.008	<0.04	-
Ethylbenzene by GC	<0.005	<0.005	<0.01	<0.05	-
m & p Xylene by GC	<0.008	<0.008	<0.016	<0.08	-
o Xylene by GC	<0.003	<0.003	<0.006	<0.03	-
Sum m&p and o Xylene by GC	<0.011	<0.011	<0.022	<0.11	-
Sum of BTEX by GC	<0.028	<0.028	<0.056	<0.28	-
<b>VOC MS (W)</b>					
Dibromofluoromethane	-	-	-	-	-
Toluene-d8	-	-	-	-	-
4-Bromofluorobenzene	-	-	-	-	-

## Leach Test Information

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

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 Mcerts Certification does not apply to leachates

30/05/2014 12:44:04

12:43:53 30/05/2014



SDG: 140510-79  
 Job: H\_RHASKON\_PTB-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

## CEN 2:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		Site Location	
Mass Sample taken (kg)	0.191	Natural Moisture Content (%)	9.41
Mass of dry sample (kg)	0.175	Dry Matter Content (%)	91.4
Particle Size <4mm	>95%		

Case	
SDG	140510-79
Lab Sample Number(s)	9267354
Sampled Date	09-May-2014
Customer Sample Ref.	CGBH10
Depth (m)	0.50

## Solid Waste Analysis

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

## Eluate Analysis

	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
<b>VOC MS (W)</b>					
Dichlorodifluoromethane	<0.001	<0.001	<0.002	<0.01	-
Chloromethane	<0.001	<0.001	<0.002	<0.01	-
Vinyl Chloride	<0.001	<0.001	<0.002	<0.01	-
Bromomethane	<0.001	<0.001	<0.002	<0.01	-
Chloroethane	<0.001	<0.001	<0.002	<0.01	-
Trichlorofluoromethane	<0.001	<0.001	<0.002	<0.01	-
1,1-Dichloroethene	<0.001	<0.001	<0.002	<0.01	-
Carbon Disulphide	<0.001	<0.001	<0.002	<0.01	-
Dichloromethane	<0.003	<0.003	<0.006	<0.03	-
Tert-butyl methyl ether	<0.001	<0.001	<0.002	<0.01	-
Trans-1,2-Dichloroethene	<0.001	<0.001	<0.002	<0.01	-
1,1-Dichloroethane	<0.001	<0.001	<0.002	<0.01	-
Cis-1,2-Dichloroethene	<0.001	<0.001	<0.002	<0.01	-
2,2-Dichloropropane	<0.001	<0.001	<0.002	<0.01	-
Bromochloromethane	<0.001	<0.001	<0.002	<0.01	-
Chloroform	<0.001	<0.001	<0.002	<0.01	-
1,1,1-Trichloroethane	<0.001	<0.001	<0.002	<0.01	-
1,1-Dichloropropene	<0.001	<0.001	<0.002	<0.01	-
Carbontetrachloride	<0.001	<0.001	<0.002	<0.01	-
1,2-Dichloroethane	<0.001	<0.001	<0.002	<0.01	-
Benzene	<0.001	<0.001	<0.002	<0.01	-
Trichloroethene	<0.001	<0.001	<0.002	<0.01	-

## Leach Test Information

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

Solid Results are expressed on a dry weight basis, after correction for moisture content where applicable  
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 Mcerts Certification does not apply to leachates

30/05/2014 12:44:04

12:43:53 30/05/2014



SDG: 140510-79  
 Job: H\_RHASKON\_PTB-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

## CEN 2:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		Site Location	
Mass Sample taken (kg)	0.191	Natural Moisture Content (%)	9.41
Mass of dry sample (kg)	0.175	Dry Matter Content (%)	91.4
Particle Size <4mm	>95%		

Case	
SDG	140510-79
Lab Sample Number(s)	9267354
Sampled Date	09-May-2014
Customer Sample Ref.	CGBH10
Depth (m)	0.50

## Solid Waste Analysis

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

Eluate Analysis	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
<b>VOC MS (W)</b>					
1,2-Dichloropropane	<0.001	<0.001	<0.002	<0.01	-
Dibromomethane	<0.001	<0.001	<0.002	<0.01	-
Bromodichloromethane	<0.001	<0.001	<0.002	<0.01	-
Cis-1,3-Dichloropropene	<0.001	<0.001	<0.002	<0.01	-
Toluene	<0.001	<0.001	<0.002	<0.01	-
Trans-1,3-Dichloropropene	<0.001	<0.001	<0.002	<0.01	-
1,1,2-Trichloroethane	<0.001	<0.001	<0.002	<0.01	-
1,3-Dichloropropane	<0.001	<0.001	<0.002	<0.01	-
Tetrachloroethene	<0.001	<0.001	<0.002	<0.01	-
Dibromochloromethane	<0.001	<0.001	<0.002	<0.01	-
1,2-Dibromoethane	<0.001	<0.001	<0.002	<0.01	-
Chlorobenzene	<0.001	<0.001	<0.002	<0.01	-
1,1,1,2-Tetrachloroethane	<0.001	<0.001	<0.002	<0.01	-
Ethylbenzene	<0.001	<0.001	<0.002	<0.01	-
p/m-Xylene	<0.001	<0.001	<0.002	<0.01	-
o-Xylene	<0.001	<0.001	<0.002	<0.01	-
Styrene	<0.001	<0.001	<0.002	<0.01	-
Bromoform	<0.001	<0.001	<0.002	<0.01	-
Isopropylbenzene	<0.001	<0.001	<0.002	<0.01	-
1,1,2,2-Tetrachloroethane	<0.001	<0.001	<0.002	<0.01	-
1,2,3-Trichloropropane	<0.001	<0.001	<0.002	<0.01	-
Bromobenzene	<0.001	<0.001	<0.002	<0.01	-

## Leach Test Information

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

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30/05/2014 12:44:04

12:43:53 30/05/2014



SDG: 140510-79  
 Job: H\_RHASKON\_PTB-82  
 Client Reference: 9Y0074 103 100

Location: Cole Green  
 Customer: Royal Haskoning  
 Attention: Declan Fives

Order Number: 9Y0074-103-100  
 Report Number: 271730  
 Superseded Report:

## CEN 2:1 SINGLE STAGE LEACHATE TEST

## CEN ANALYTICAL RESULTS

REF : BS EN 12457/1

Client Reference		Site Location	
Mass Sample taken (kg)	0.191	Natural Moisture Content (%)	9.41
Mass of dry sample (kg)	0.175	Dry Matter Content (%)	91.4
Particle Size <4mm	>95%		

Case	
SDG	140510-79
Lab Sample Number(s)	9267354
Sampled Date	09-May-2014
Customer Sample Ref.	CGBH10
Depth (m)	0.50

## Solid Waste Analysis

Total Organic Carbon (%)	-	-	-
Loss on Ignition (%)	-	-	-
Sum of BTEX (mg/kg)	<0.024	-	-
Sum of 7 PCBs (mg/kg)	-	-	-
Mineral Oil (mg/kg)	-	-	-
PAH Sum of 17 (mg/kg)	-	-	-
pH (pH Units)	-	-	-
ANC to pH 6 (mol/kg)	-	-	-
ANC to pH 4 (mol/kg)	-	-	-

## Eluate Analysis

	Conc <sup>n</sup> in 2:1 eluate (mg/l)		2:1 conc <sup>n</sup> leached (mg/kg)		Limit values for compliance leaching test using BS EN 12457-3 at L/S 10 l/kg
	Result	Limit of Detection	Result	Limit of Detection	
<b>VOC MS (W)</b>					
Propylbenzene	<0.001	<0.001	<0.002	<0.01	-
2-Chlorotoluene	<0.001	<0.001	<0.002	<0.01	-
1,3,5-Trimethylbenzene	<0.001	<0.001	<0.002	<0.01	-
4-Chlorotoluene	<0.001	<0.001	<0.002	<0.01	-
Tert-Butylbenzene	<0.001	<0.001	<0.002	<0.01	-
1,2,4-Trimethylbenzene	<0.001	<0.001	<0.002	<0.01	-
Sec-Butylbenzene	<0.001	<0.001	<0.002	<0.01	-
4-Isopropyltoluene	<0.001	<0.001	<0.002	<0.01	-
1,3-Dichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
1,4-Dichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
n-Butylbenzene	<0.001	<0.001	<0.002	<0.01	-
1,2-Dichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
1,2-Dibromo-3-Chloropropane	<0.001	<0.001	<0.002	<0.01	-
1,2,4-Trichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
Hexachlorobutadiene	<0.001	<0.001	<0.002	<0.01	-
Tert-amyl methyl ether	<0.001	<0.001	<0.002	<0.01	-
Naphthalene	<0.001	<0.001	<0.002	<0.01	-
1,2,3-Trichlorobenzene	<0.001	<0.001	<0.002	<0.01	-
1,3,5-Trichlorobenzene	<0.001	<0.001	<0.002	<0.01	-

## Leach Test Information

Date Prepared	13-May-2014
pH (pH Units)	8.33
Conductivity (µS/cm)	139.00
Temperature (°C)	14.30
Volume Leachant (Litres)	0.334
Volume of Eluate VE1 (Litres)	

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**SDG:** 140510-79  
**Job:** H\_RHASKON\_PTB-82  
**Client Reference:** 9Y0074 103 100

**Location:** Cole Green  
**Customer:** Royal Haskoning  
**Attention:** Declan Fives

**Order Number:** 9Y0074-103-100  
**Report Number:** 271730  
**Superseded Report:**

## Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample <sup>1</sup>	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		
PM114		Leaching Procedure for CEN Two Stage Batch Test 2:1/8:1 Cumulative		
PM115		Leaching Procedure for CEN One Stage Leach Test 2:1 & 10:1 1 Step		
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)		
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) and BTEX (MTBE) compounds by Headspace GC-FID (C4-C12)		
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS		
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		
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		
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		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM218	Microwave extraction – EPA method 3546	Microwave extraction - EPA method 3546		
TM222	In-House Method	Determination of Hot Water Soluble Boron in Soils (10:1 Water:soil) by IRIS Emission Spectrometer		
TM245	By GC-FID	Determination of GRO by Headspace in waters		

<sup>1</sup> Applies to Solid samples only. DRY indicates samples have been dried at 35°C. NA = not applicable.





**SDG:** 140510-79  
**Job:** H\_RHASKON\_PTB-82  
**Client Reference:** 9Y0074 103 100

**Location:** Cole Green  
**Customer:** Royal Haskoning  
**Attention:** Declan Fives

**Order Number:** 9Y0074-103-100  
**Report Number:** 271730  
**Superseded Report:**

### Test Completion Dates

Lab Sample No(s)	9267351	9267352	9267354	9267355	9267356	9267357
Customer Sample Ref.	CGBH05	CGBH05	CGBH10	CGBH10	CGBH17	CGBH17
AGS Ref.						
Depth	0.50	1.00	0.50	2.00	0.50	2.00
Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID
Asbestos ID in Solid Samples			15-May-2014			
Boron Water Soluble	16-May-2014	15-May-2014	16-May-2014	15-May-2014	19-May-2014	15-May-2014
CEN 2:1 Leachate (1 Stage)			13-May-2014			
CEN Readings			14-May-2014			
Dissolved Metals by ICP-MS			16-May-2014			
EPH CWG (Aliphatic) Filtered GC (W)			19-May-2014			
EPH CWG (Aliphatic) GC (S)	14-May-2014	16-May-2014	15-May-2014	14-May-2014	14-May-2014	14-May-2014
EPH CWG (Aromatic) Filtered GC (W)			19-May-2014			
EPH CWG (Aromatic) GC (S)	14-May-2014	16-May-2014	15-May-2014	14-May-2014	14-May-2014	14-May-2014
GRO by GC-FID (S)	16-May-2014	16-May-2014	20-May-2014	16-May-2014	20-May-2014	20-May-2014
GRO by GC-FID (W)			15-May-2014			
Mercury Dissolved			16-May-2014			
Metals in solid samples by OES	15-May-2014	15-May-2014	15-May-2014	15-May-2014	15-May-2014	15-May-2014
PAH by GCMS	14-May-2014	14-May-2014	15-May-2014	14-May-2014	14-May-2014	14-May-2014
PAH in waters by GC-MS (diss.filt)			16-May-2014			
pH	15-May-2014					15-May-2014
Sample description	12-May-2014	12-May-2014	12-May-2014	12-May-2014	12-May-2014	12-May-2014
Semi Volatile Organic Compounds			16-May-2014			16-May-2014
SVOC MS (W) - Aqueous			20-May-2014			
Total Organic Carbon	16-May-2014					16-May-2014
TPH CWG Filtered (W)			19-May-2014			
TPH CWG GC (S)	17-May-2014	17-May-2014	20-May-2014	17-May-2014	20-May-2014	20-May-2014
VOC MS (S)			30-May-2014			15-May-2014
VOC MS (W)			16-May-2014			



SDG: 140510-79  
Job: H\_RHASKON\_PTB-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

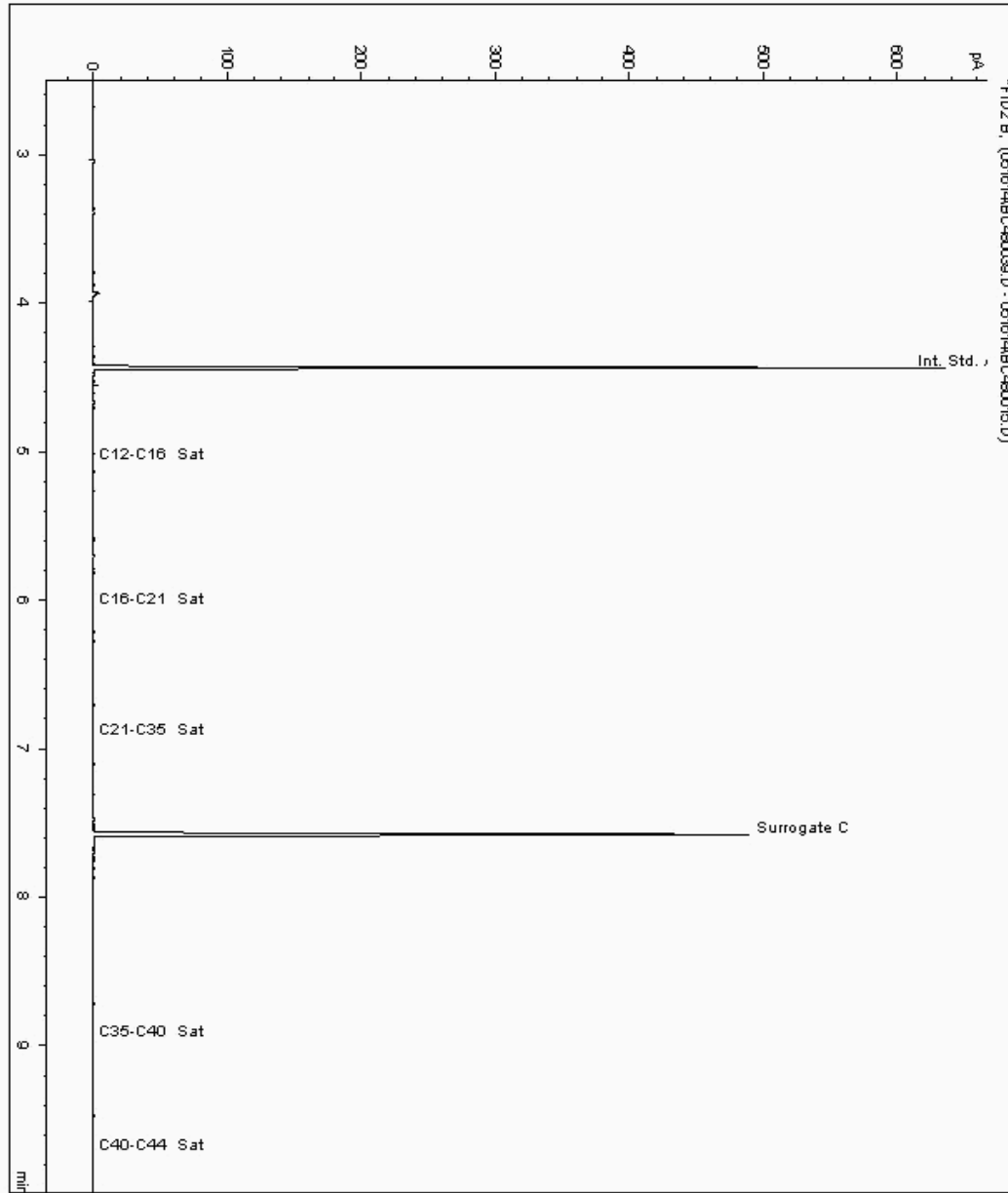
Analysis: EPH CWG (Aliphatic) Filtered GC (W)

Sample No : 9285490  
Sample ID : CGBH10

Depth : 0.50

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

Sample Identity: 8803867-9285490  
Date Acquired : 18/05/2014 19:31:57 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 0.011





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

Analysis: EPH CWG (Aliphatic) GC (S)

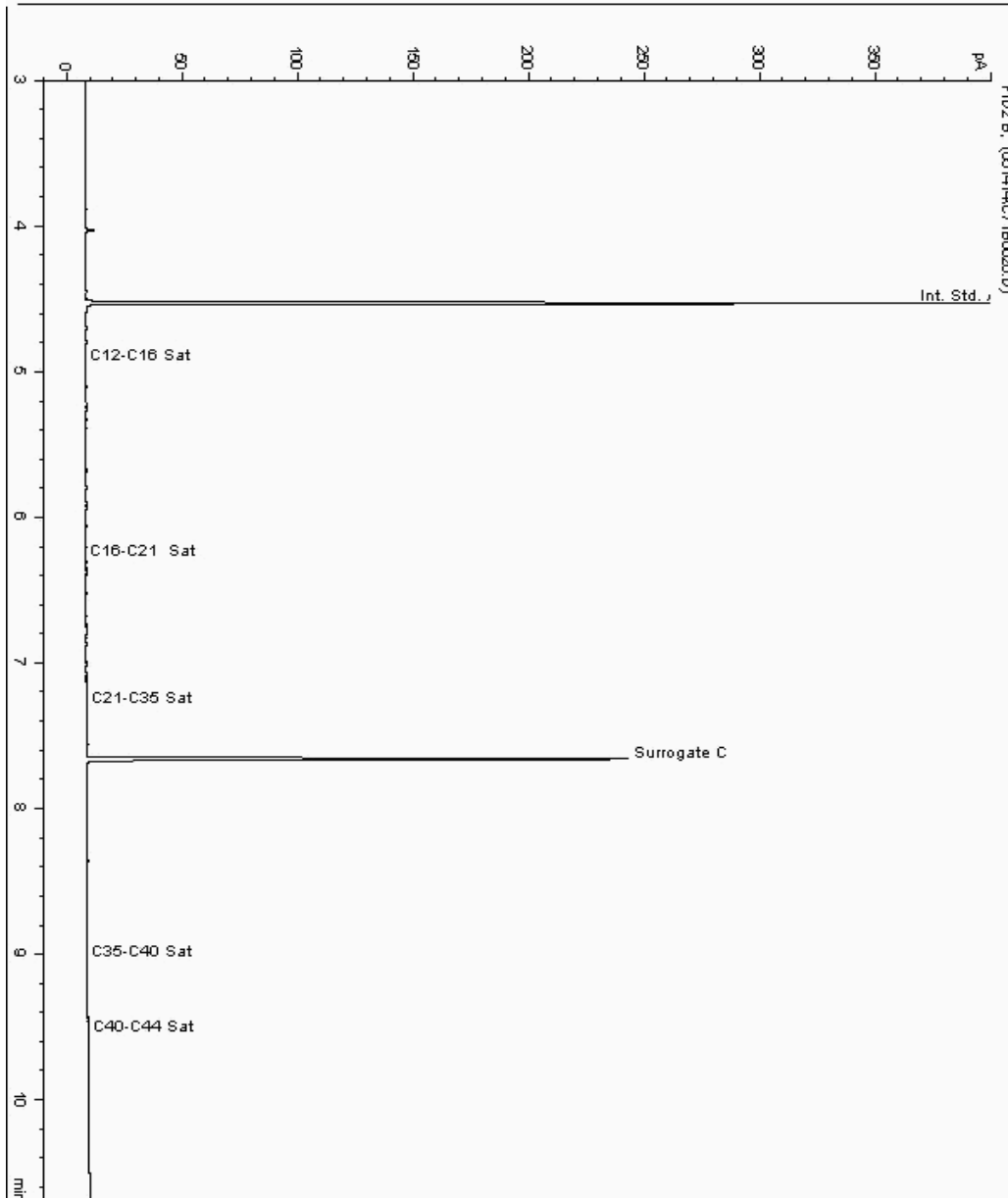
Sample No : 9271061  
Sample ID : CGBH10

Depth : 0.50

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

Sample Identity: 8803854-9271061  
Date Acquired : 14/05/2014 17:04:43 PM  
Units : ppb  
Dilution: CGBH10[0.50]

->





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

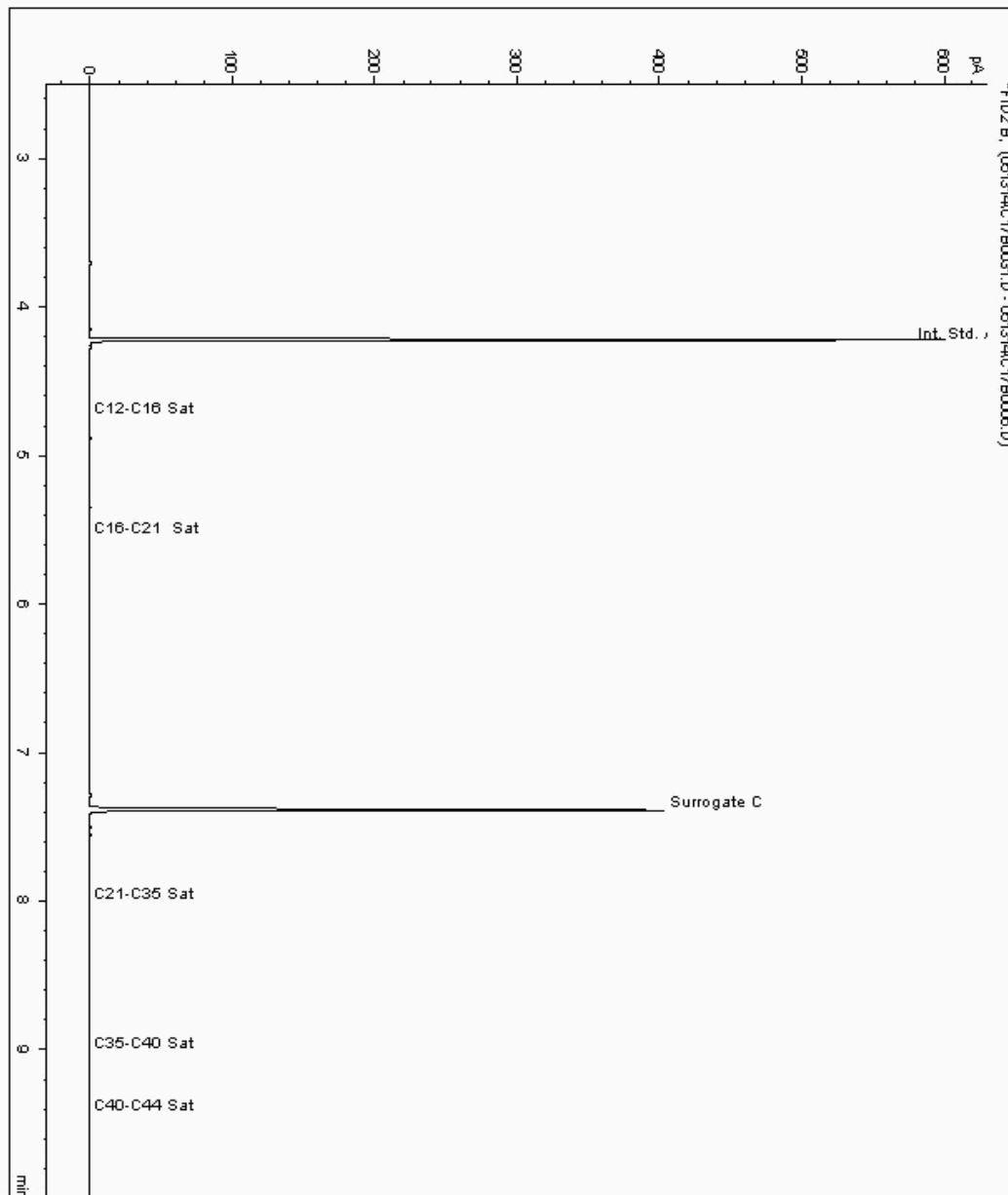
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 9272307  
Sample ID : CGBH10

Depth : 2.00

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

Sample Identity: 8803789-9272307  
Date Acquired : 14/05/2014 01:11:24 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 0.970





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

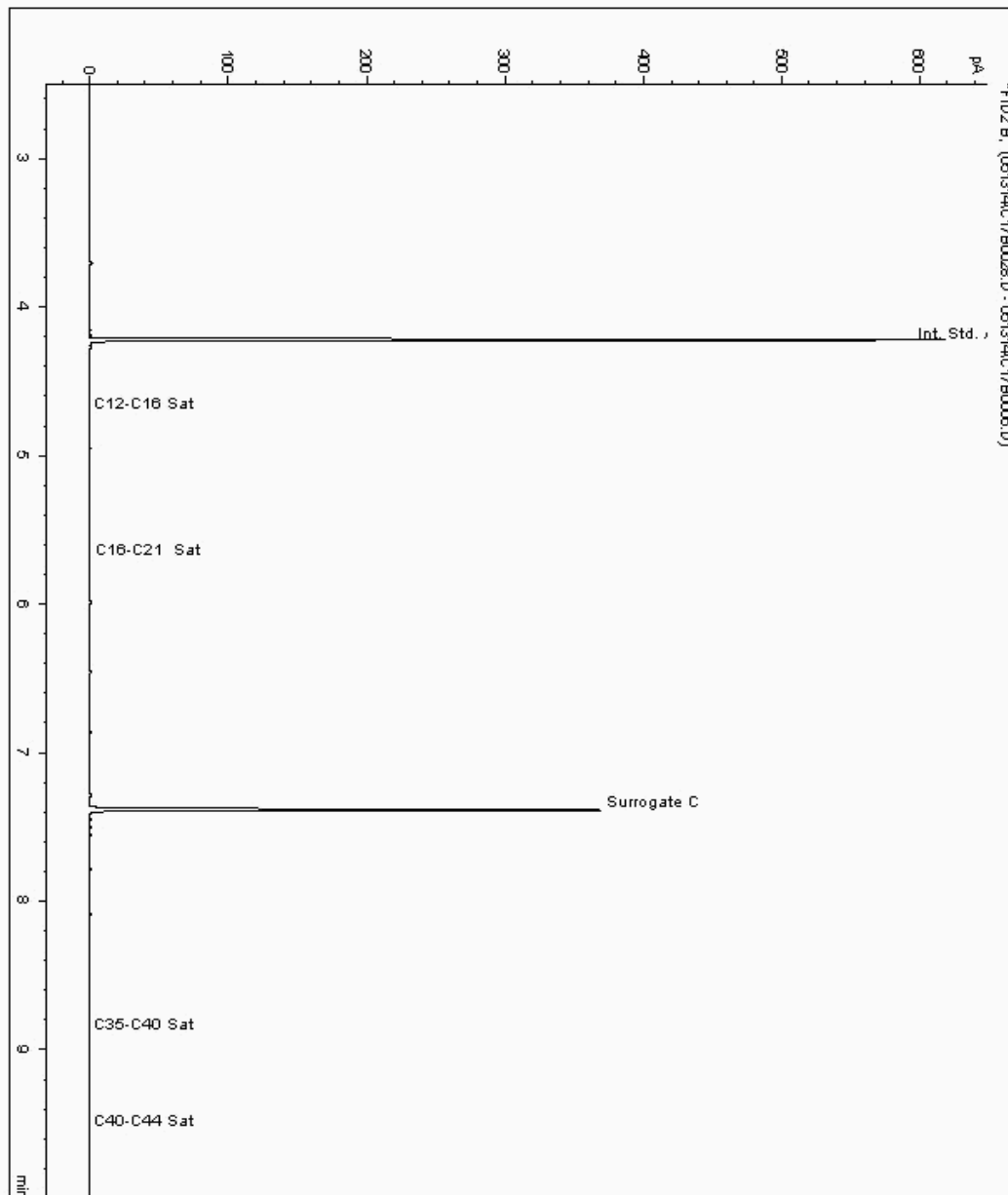
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 9272361  
Sample ID : CGBH17

Depth : 0.50

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

Sample Identity: 8803804-9272361  
Date Acquired : 14/05/2014 00:10:39 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 1.020





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

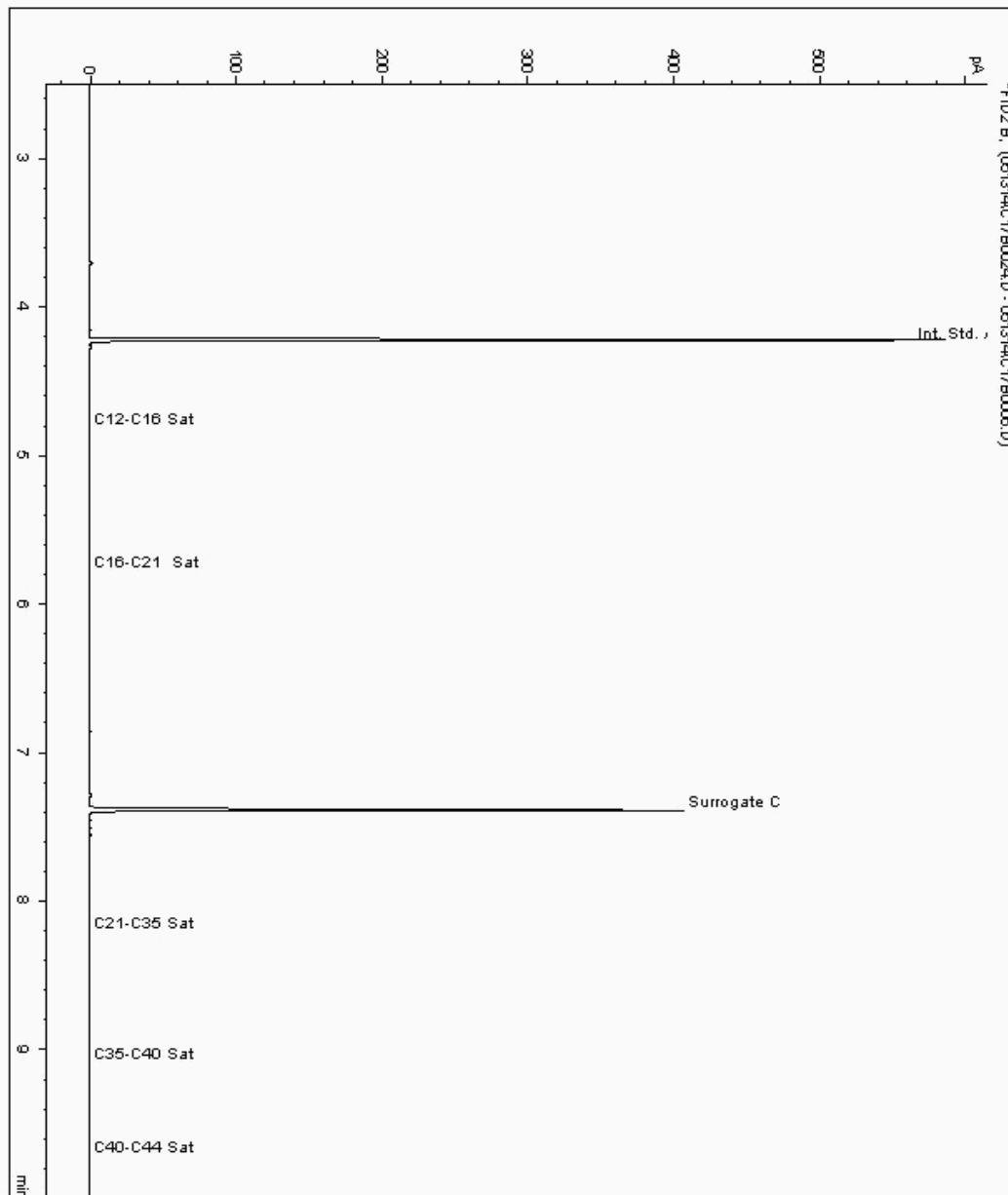
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 9272439  
Sample ID : CGBH17

Depth : 2.00

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

Sample Identity: 8803831-9272439  
Date Acquired : 13/05/2014 22:49:51 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 1.030





SDG: 140510-79  
Job: H\_RHASKON\_PTB-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

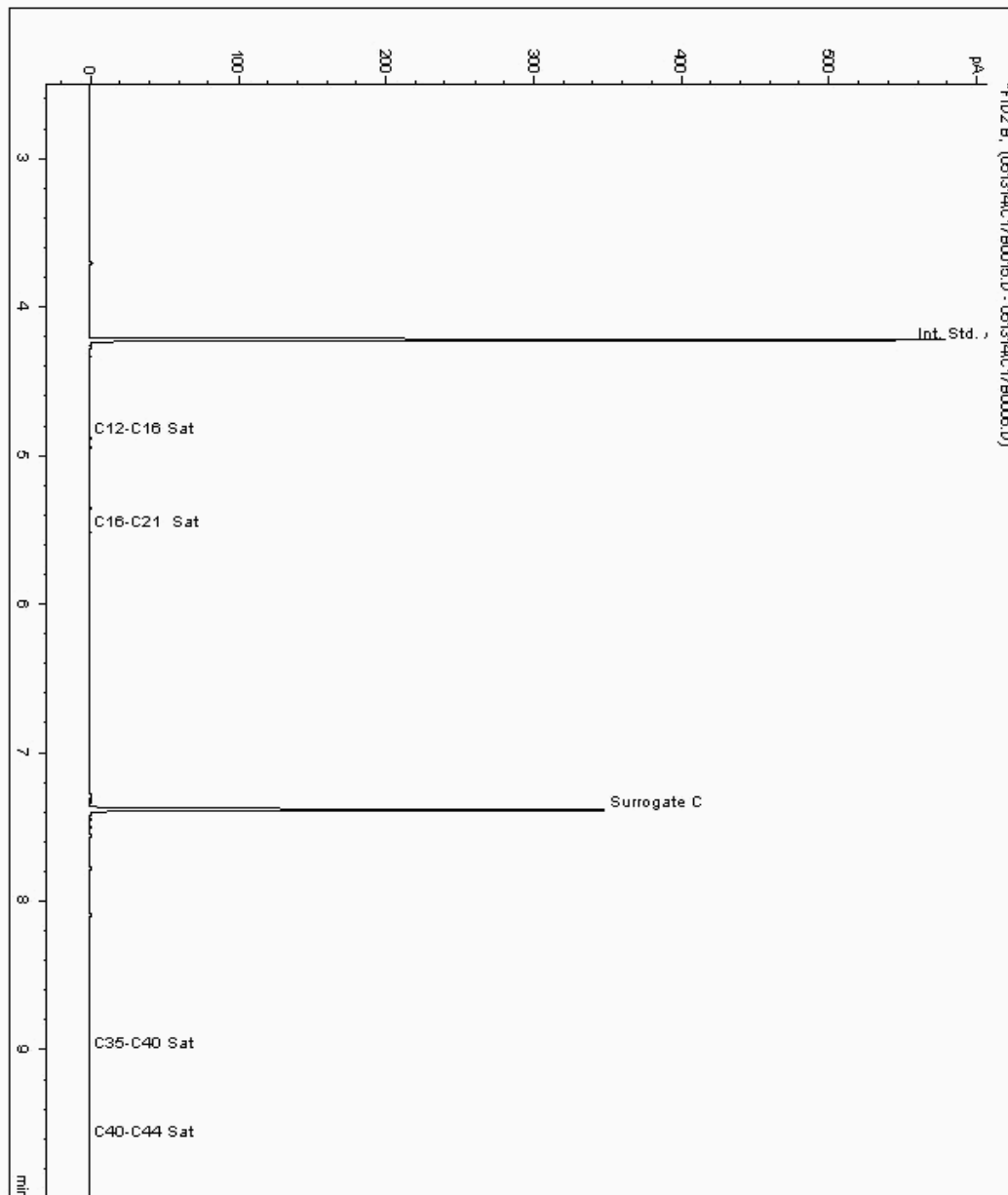
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 9272459  
Sample ID : CGBH05

Depth : 0.50

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

Sample Identity: 8803766-9272459  
Date Acquired : 13/05/2014 20:09:10 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 1.030





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

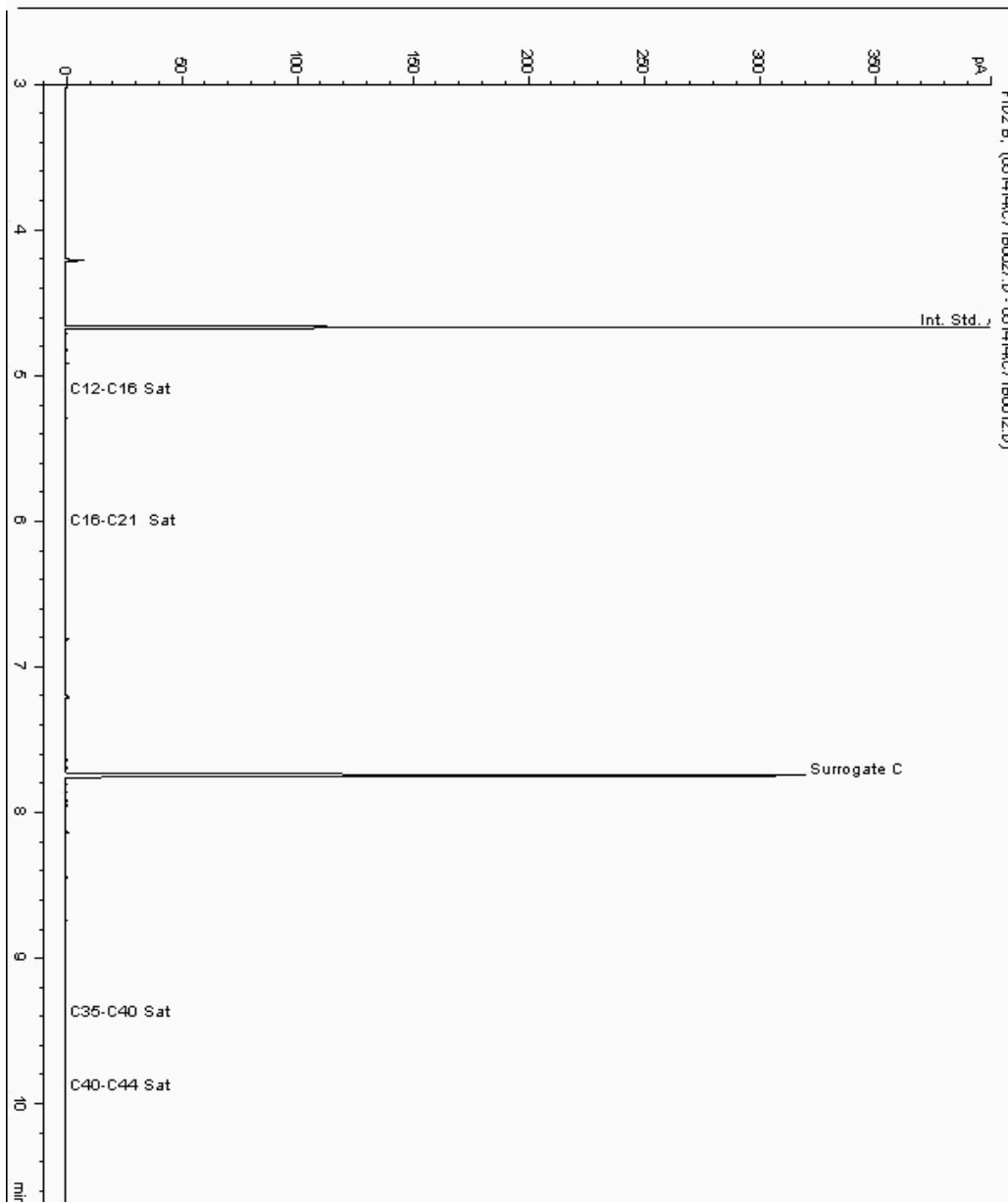
Analysis: EPH CWG (Aliphatic) GC (S)

Sample No : 9272548  
Sample ID : CGBH05

Depth : 1.00

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

Sample Identity: 8803778-9272548  
Date Acquired : 14/05/2014 22:07:54 PM  
Units : ppb  
Dilution:







SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

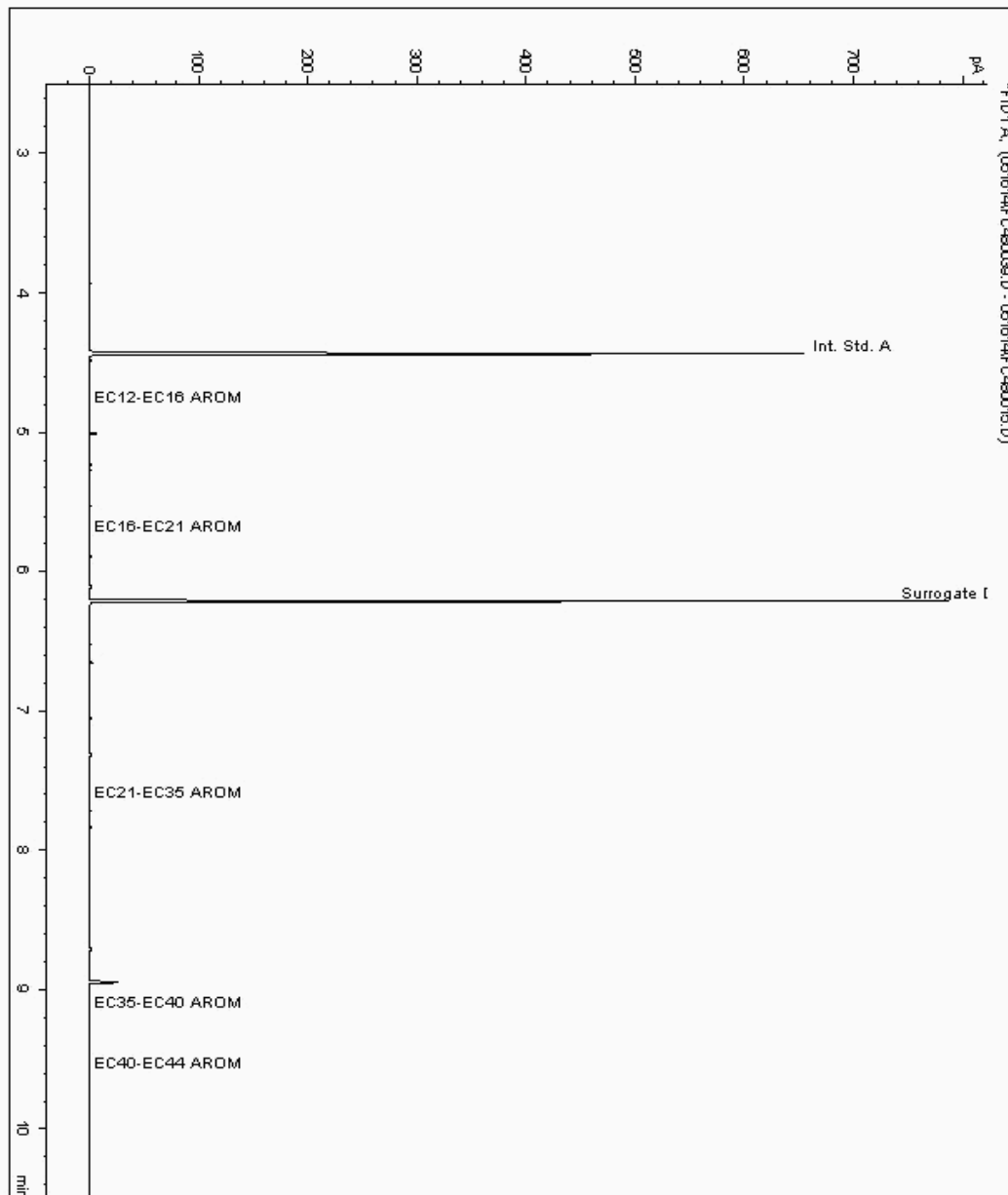
Analysis: EPH CWG (Aromatic) Filtered GC (W)

Sample No : 9285490  
Sample ID : CGBH10

Depth : 0.50

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

Sample Identity: 8803868-9285490  
Date Acquired : 18/05/2014 19:31:57 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 0.011





SDG: 140510-79  
Job: H\_RHASKON\_PTB-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

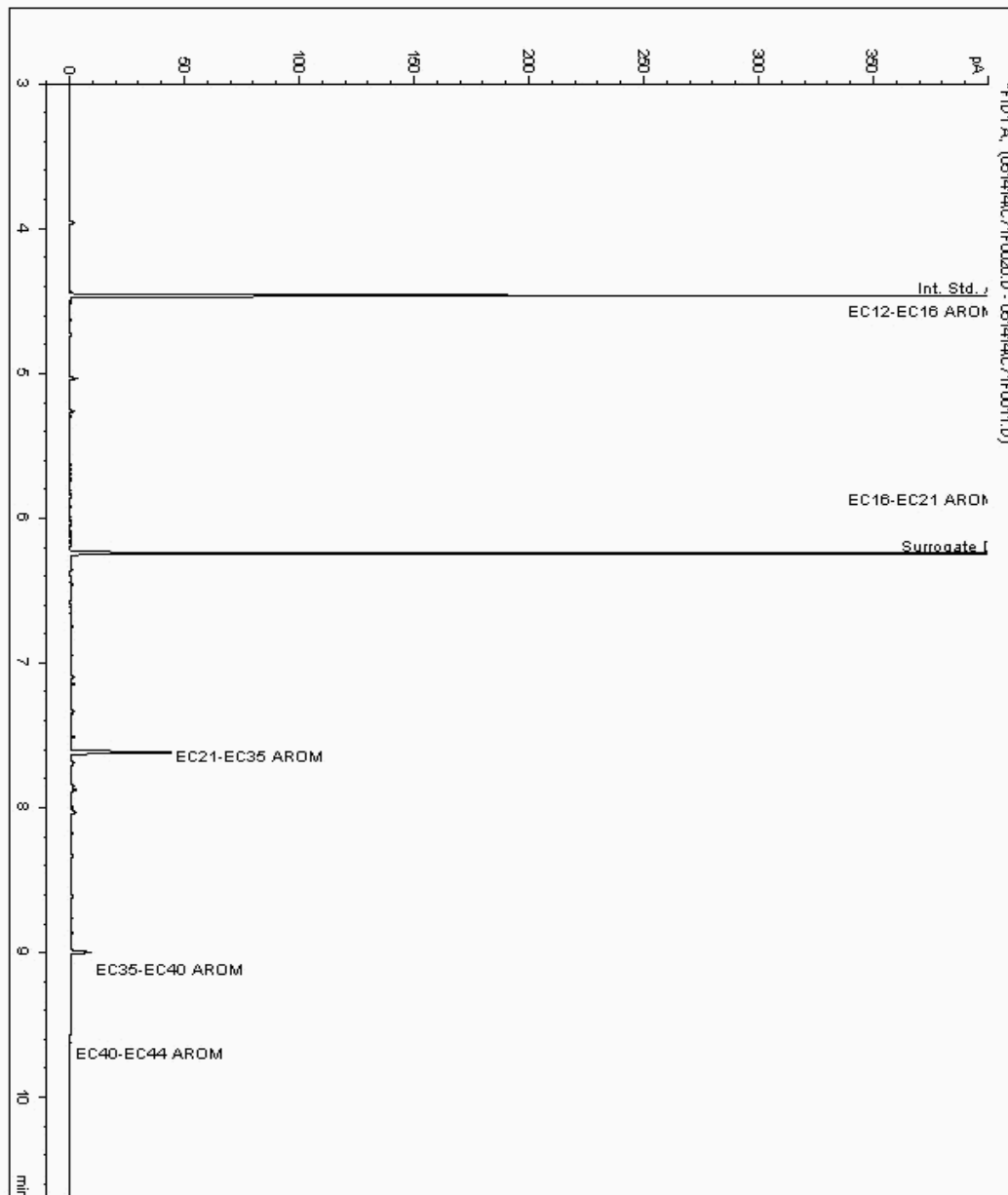
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 9271061  
Sample ID : CGBH10

Depth : 0.50

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

Sample Identity: 8803855-9271061  
Date Acquired : 14/05/2014 17:04:44 PM  
Units : ppb  
Dilution: CGBH10[0.50] →





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

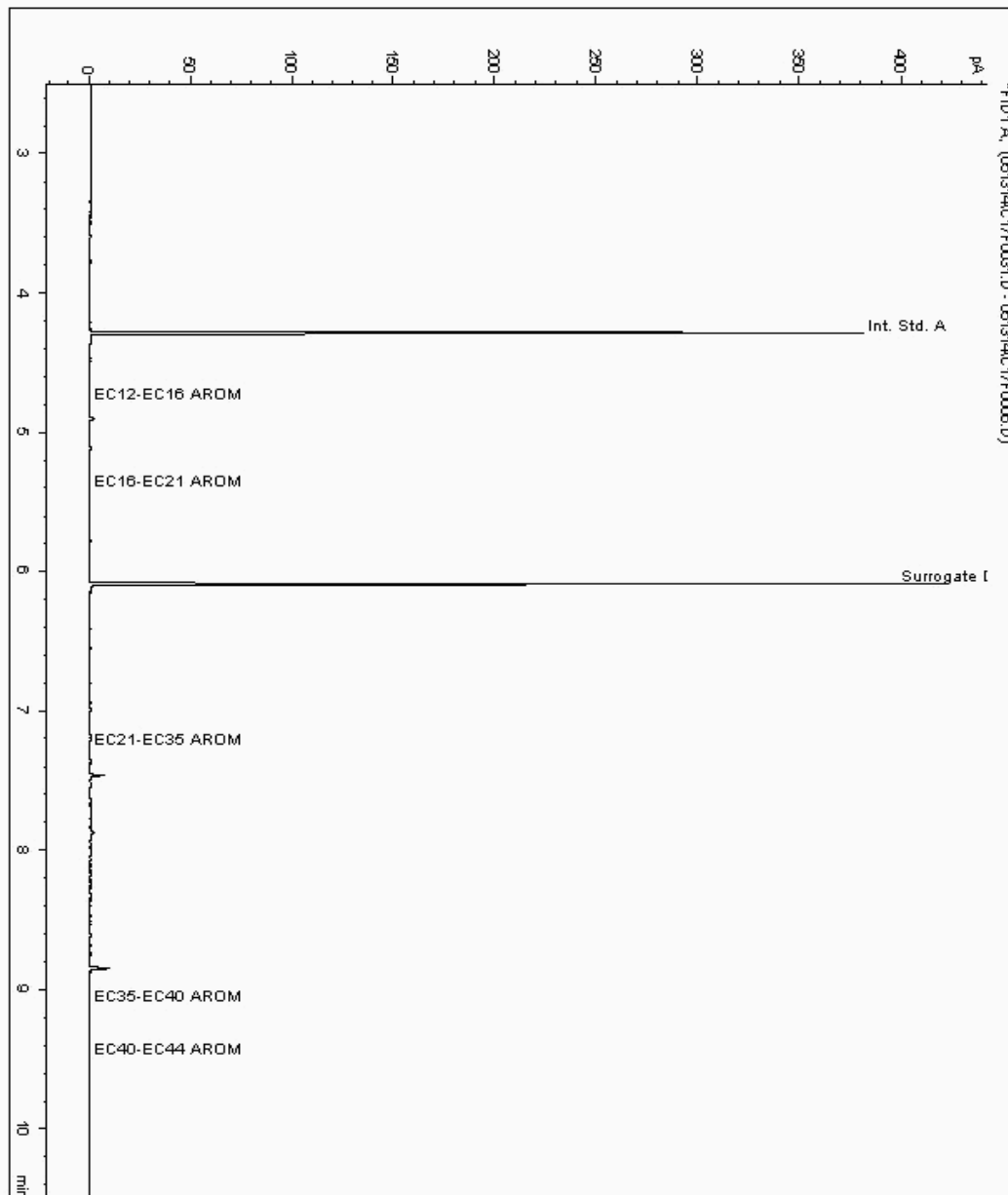
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 9272307  
Sample ID : CGBH10

Depth : 2.00

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

Sample Identity: 8803790-9272307  
Date Acquired : 14/05/2014 01:11:24 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 0.970





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

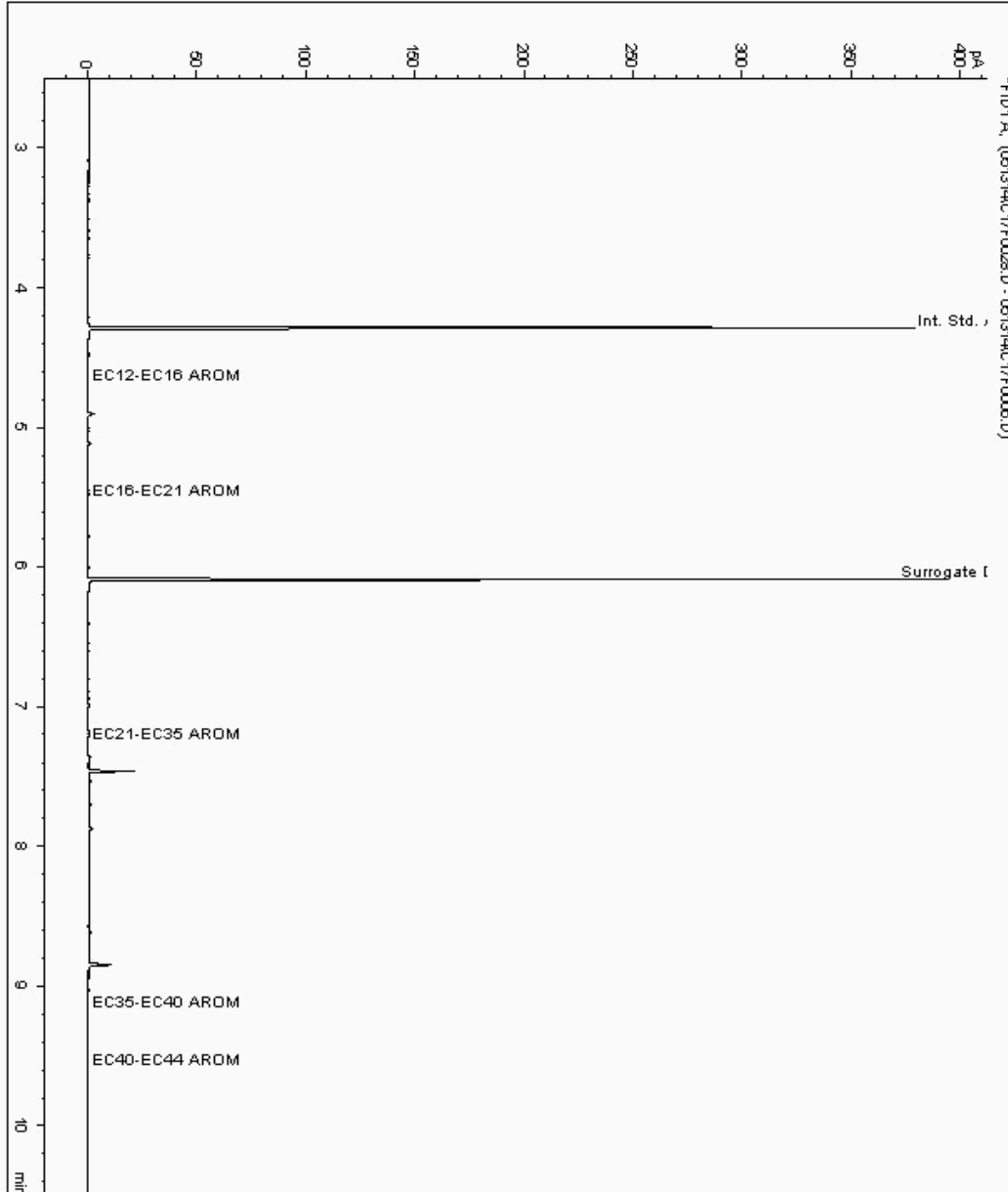
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 9272361  
Sample ID : CGBH17

Depth : 0.50

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

Sample Identity: 8803805-9272361  
Date Acquired : 14/05/2014 00:10:39 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 1.020





SDG: 140510-79  
Job: H\_RHASKON\_PTB-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

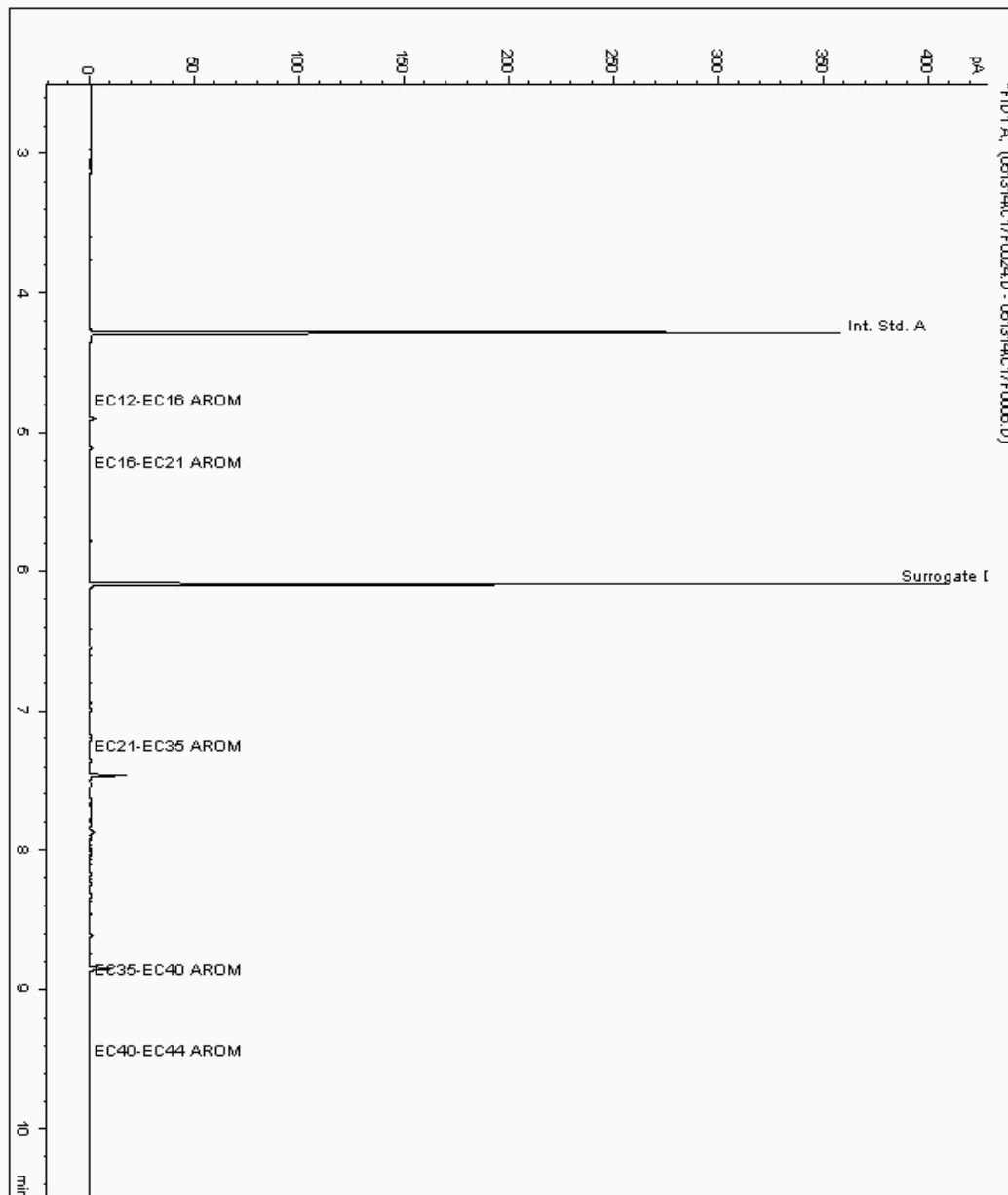
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 9272439  
Sample ID : CGBH17

Depth : 2.00

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

Sample Identity: 8803832-9272439  
Date Acquired : 13/05/2014 22:49:50 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 1.030





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

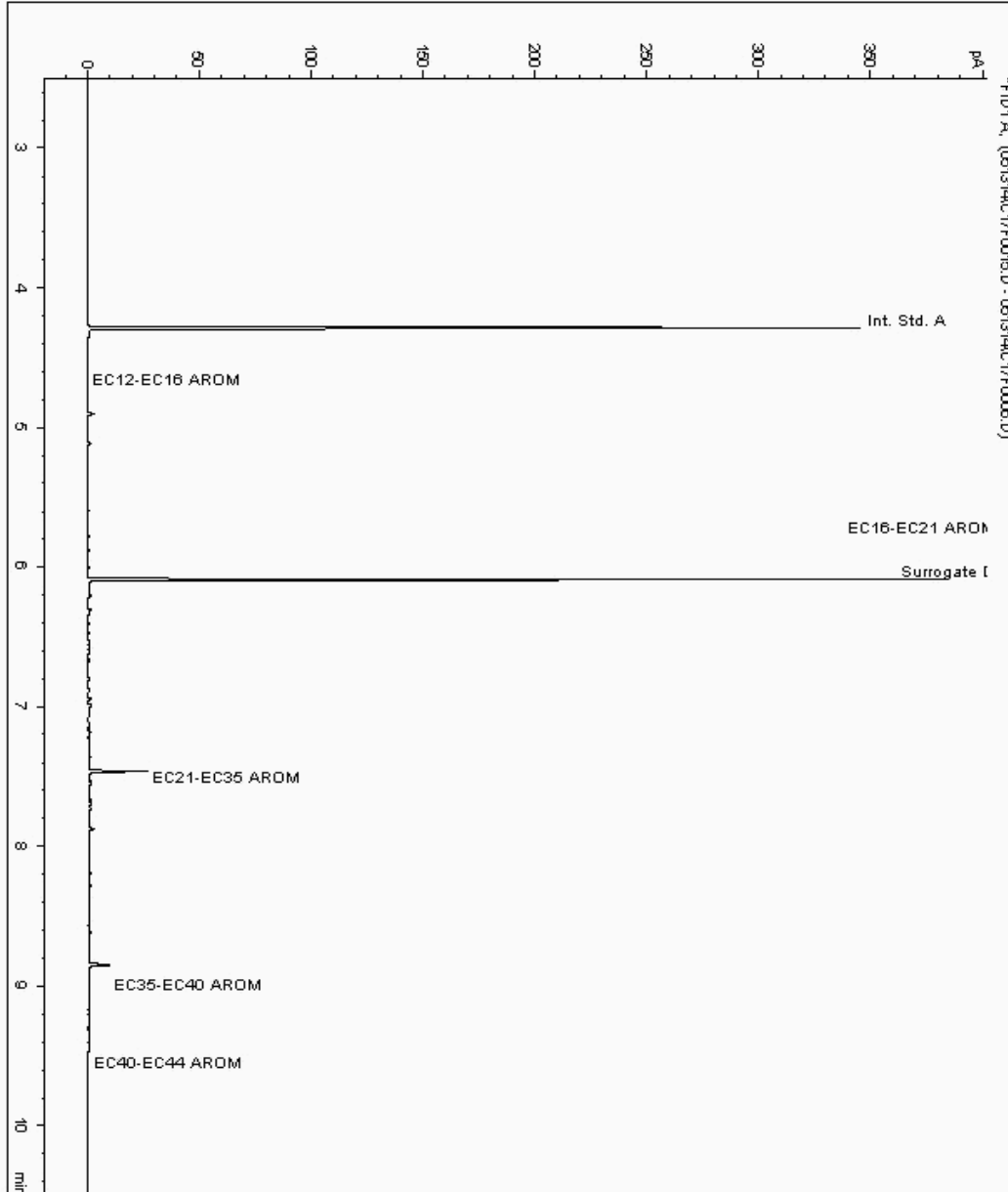
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 9272459  
Sample ID : CGBH05

Depth : 0.50

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

Sample Identity: 8803767-9272459  
Date Acquired : 13/05/2014 20:09:09 PM  
Units : ppb  
Dilution :  
CF : 1  
Multiplier : 1.030





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

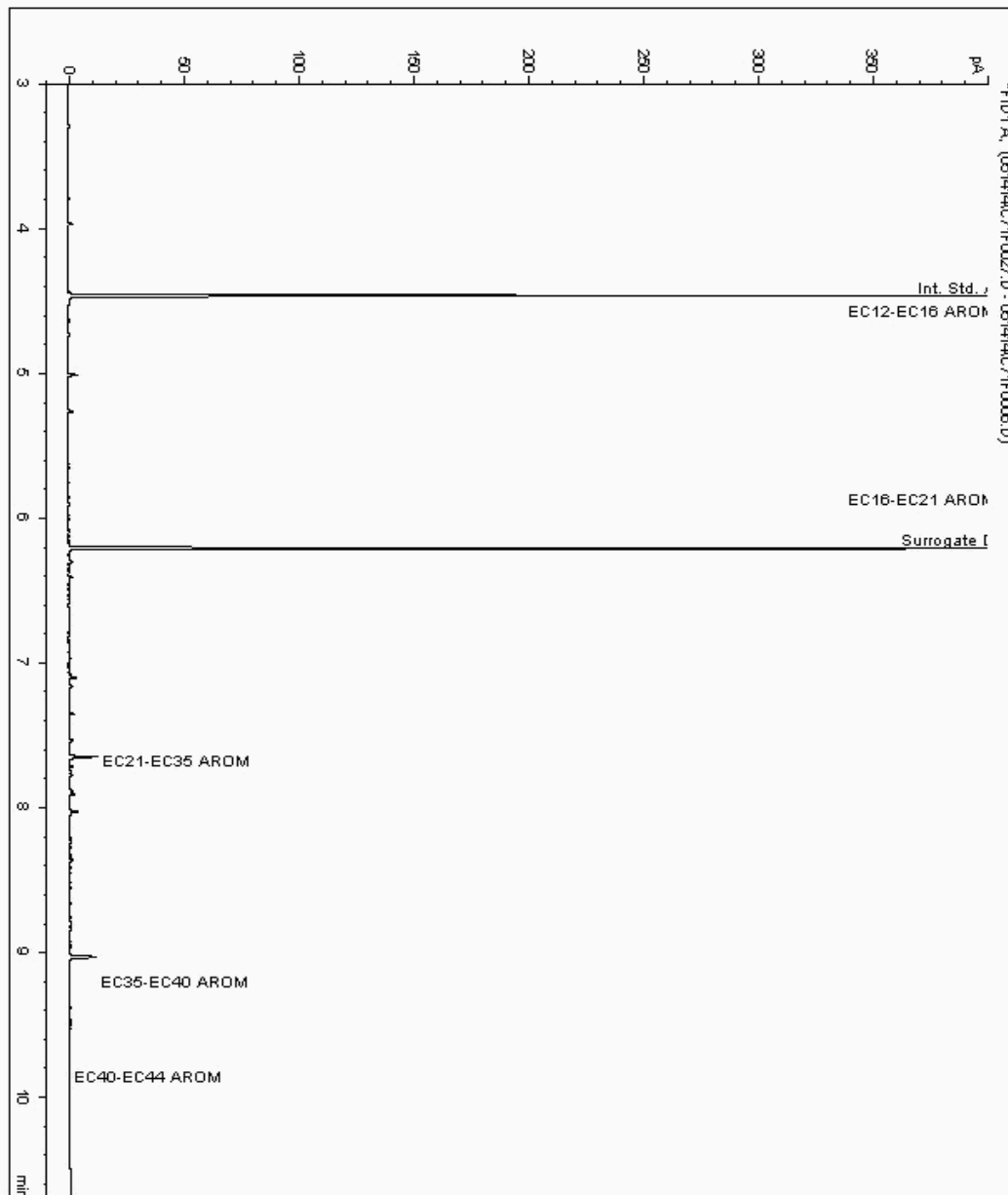
Analysis: EPH CWG (Aromatic) GC (S)

Sample No : 9272548  
Sample ID : CGBH05

Depth : 1.00

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

Sample Identity: 8803779-9272548  
Date Acquired : 14/05/2014 22:07:53 PM  
Units : ppb  
Dilution:





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

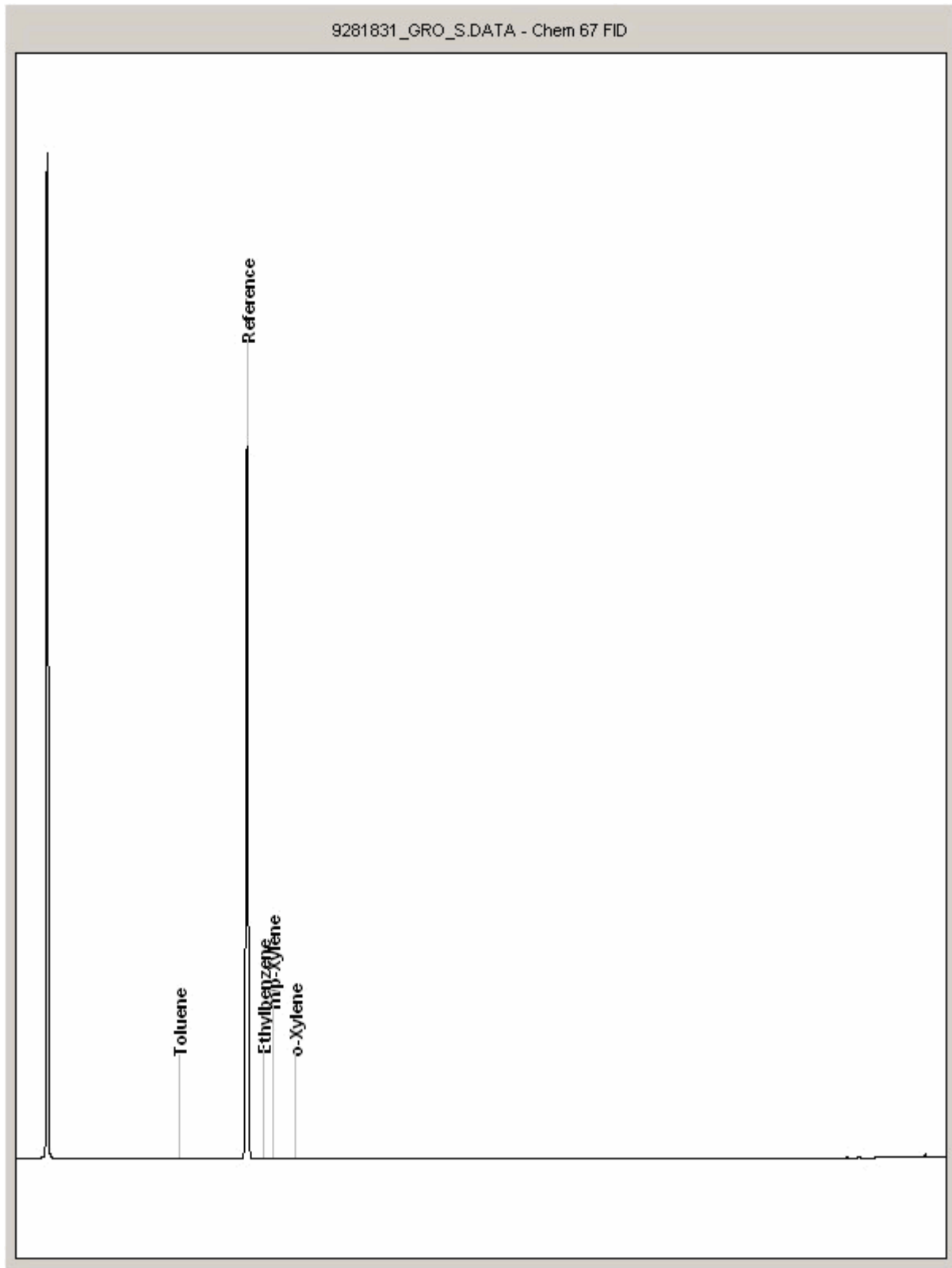
Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 9281831  
Sample ID : CGBH05

Depth : 0.50





SDG: 140510-79  
Job: H\_RHASKON\_PTB-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

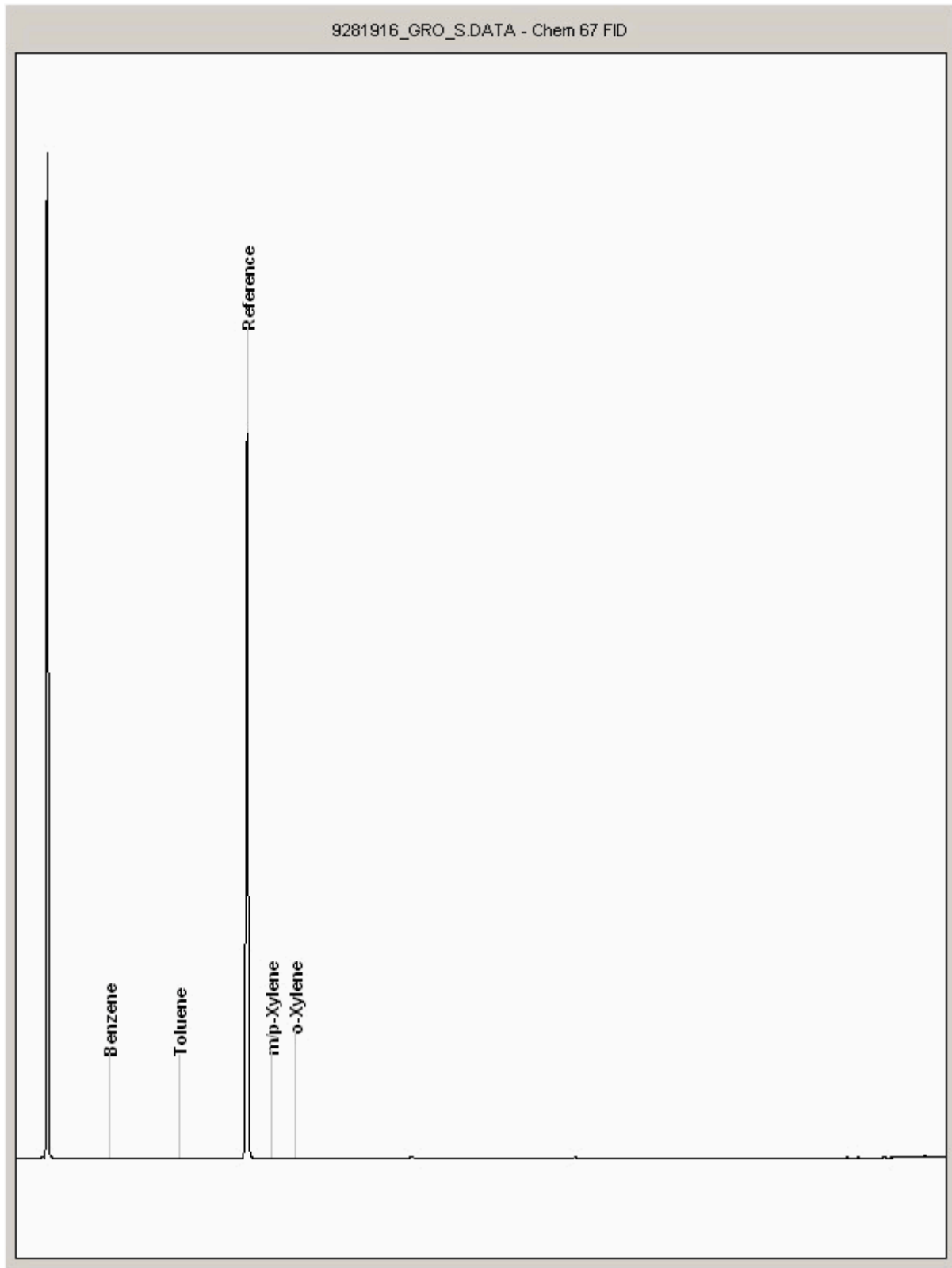
Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 9281916  
Sample ID : CGBH10

Depth : 2.00



SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

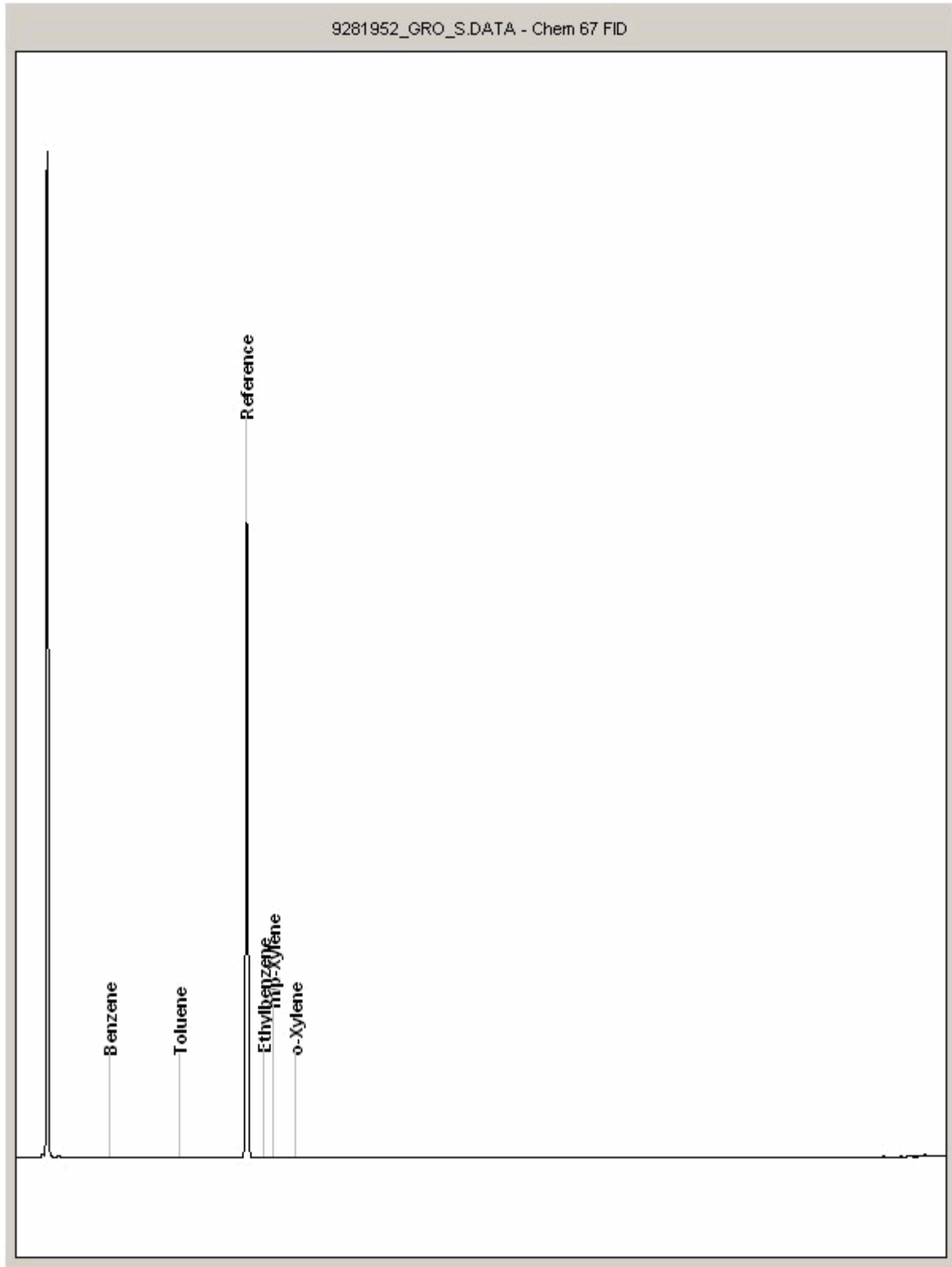
Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 9281952  
Sample ID : CGBH05

Depth : 1.00



SDG: 140510-79  
Job: H\_RHASKON\_PTB-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

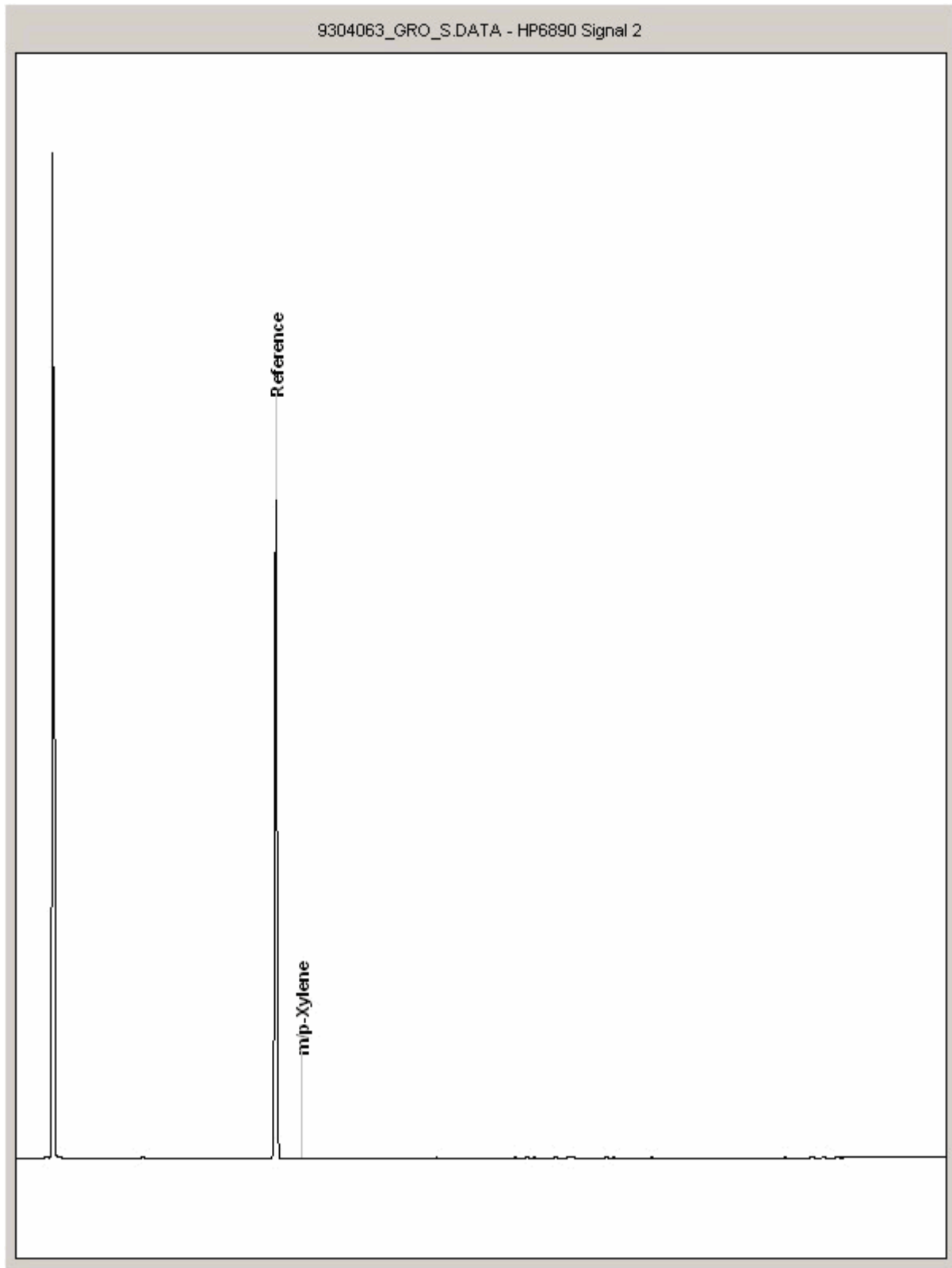
Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 9304063  
Sample ID : CGBH17

Depth : 0.50



SDG: 140510-79  
Job: H\_RHASKON\_PTB-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

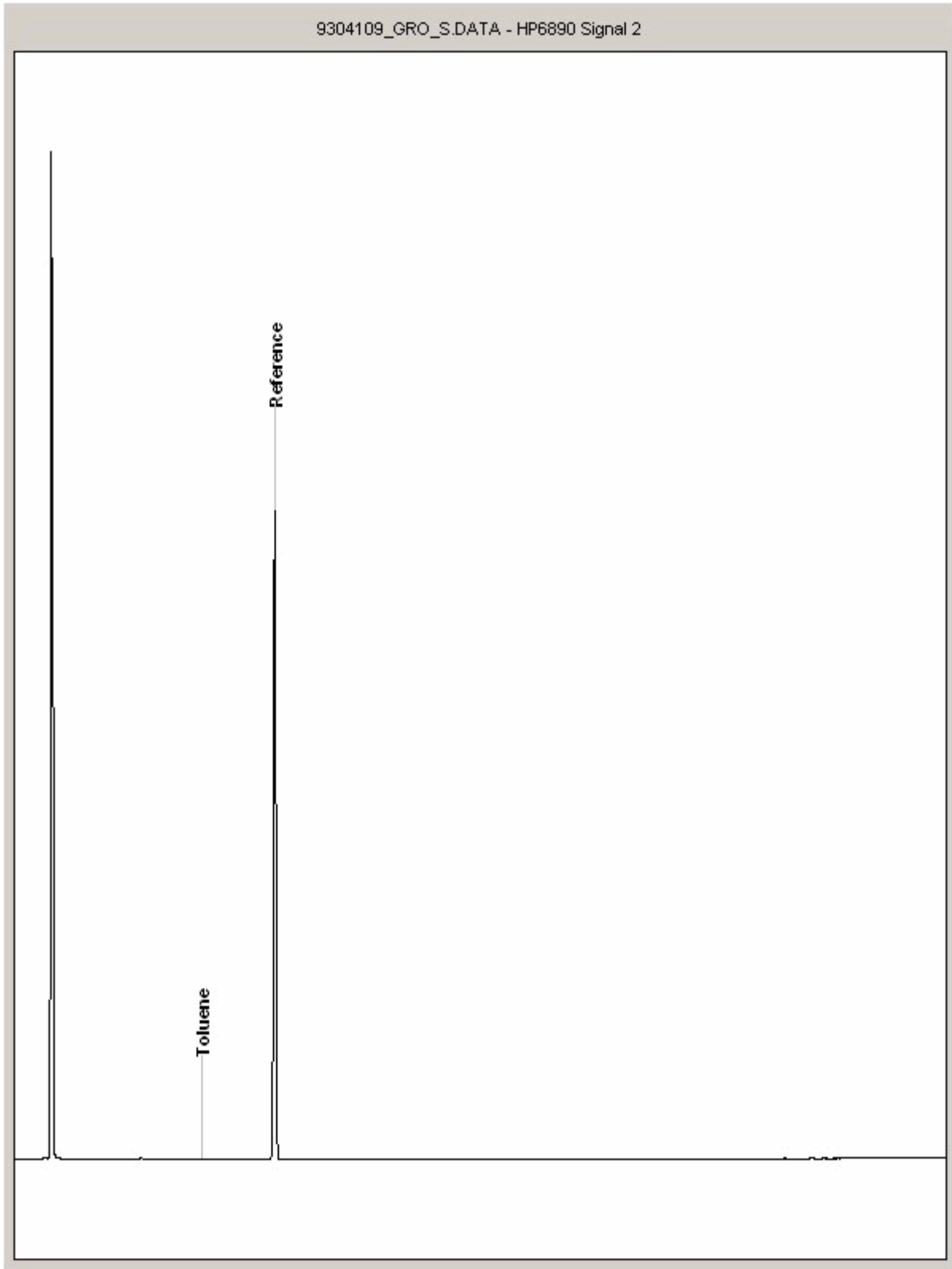
Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 9304109  
Sample ID : CGBH10

Depth : 0.50





SDG: 140510-79  
Job: H\_RHASKON\_PT8-82  
Client Reference: 9Y0074 103 100

Location: Cole Green  
Customer: Royal Haskoning  
Attention: Declan Fives

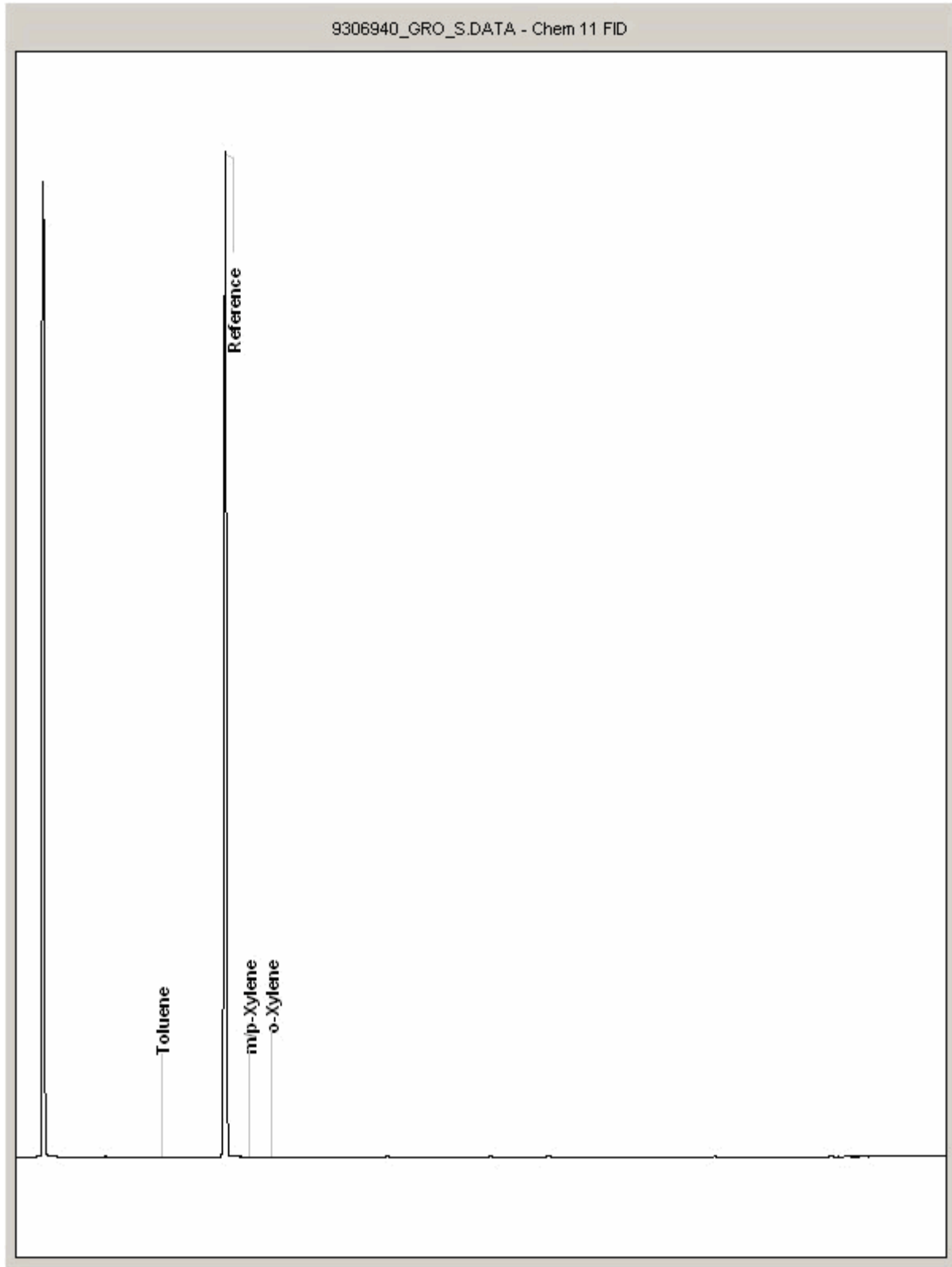
Order Number: 9Y0074-103-100  
Report Number: 271730  
Superseded Report:

### Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 9306940  
Sample ID : CGBH17

Depth : 2.00



**SDG:** 140510-79  
**Job:** H\_RHASKON\_PT8-82  
**Client Reference:** 9Y0074 103 100

**Location:** Cole Green  
**Customer:** Royal Haskoning  
**Attention:** Declan Fives

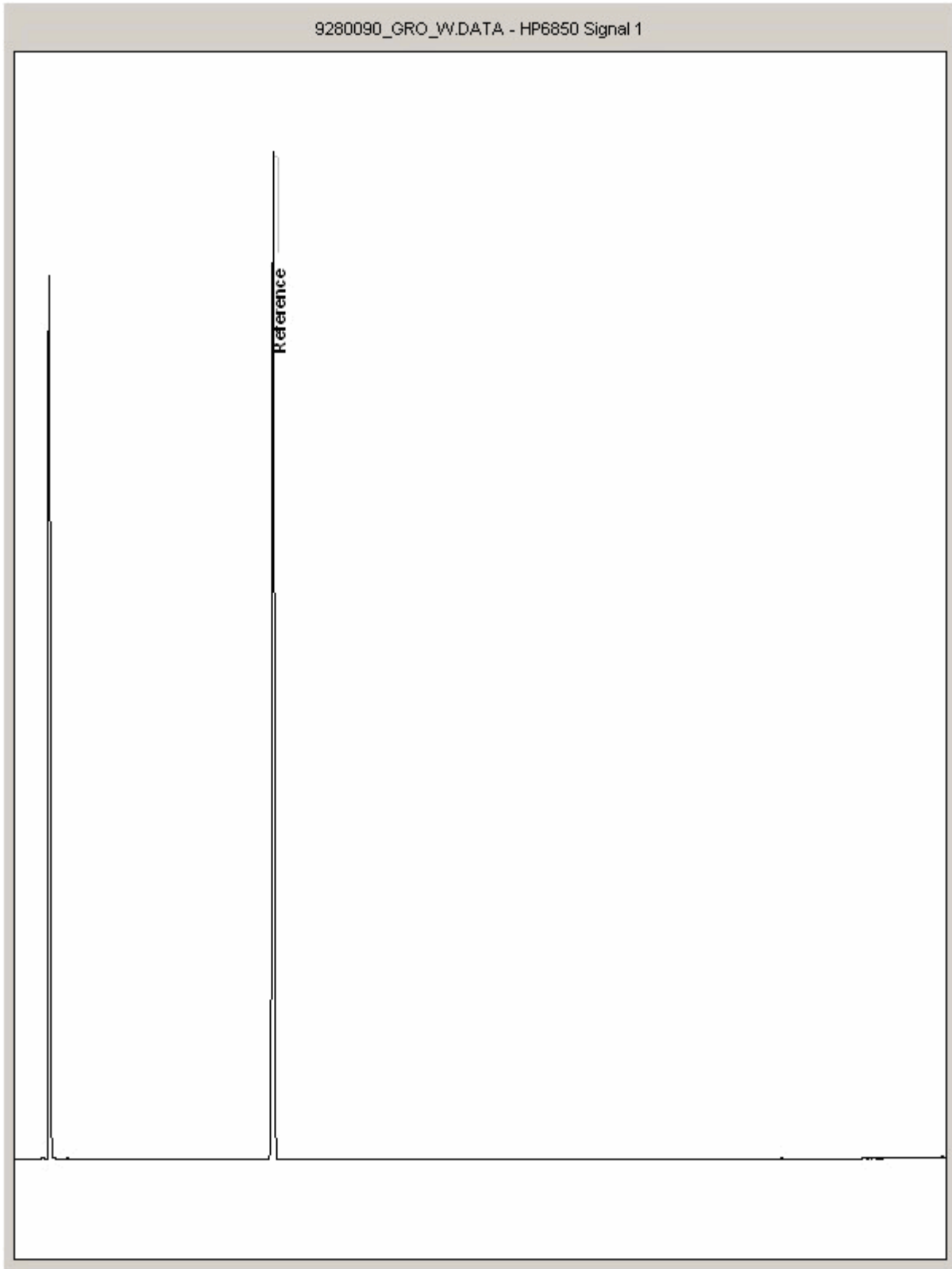
**Order Number:** 9Y0074-103-100  
**Report Number:** 271730  
**Superseded Report:**

### Chromatogram

**Analysis:** GRO by GC-FID (W)

**Sample No :** 9280090  
**Sample ID :** CGBH10

**Depth :** 0.50





**SDG:** 140510-79  
**Job:** H\_RHASKON\_PTB-82  
**Client Reference:** 9Y0074 103 100

**Location:** Cole Green  
**Customer:** Royal Haskoning  
**Attention:** Declan Fives

**Order Number:** 9Y0074-103-100  
**Report Number:** 271730  
**Superseded Report:**

## Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH<sub>4</sub> 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 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.

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 Dimethylphenol, 3,5 Dimethylphenol).

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

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 C<sub>4</sub>-C<sub>10</sub> 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	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
THIN LAYER CHROMATOGRAPHY	D&C	DCM	SOX THERM	ATROSCAN
ELEMENTAL SULPHUR	D&C	DCM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOX THERM	GC-MS
HERBICIDES	D&C	HEXANE ACETONE	SOX THERM	GC-MS
PESTICIDES	D&C	HEXANE ACETONE	SOX THERM	GC-MS
EPH (DRO)	D&C	HEXANE ACETONE	END OVEREND	GC-FD
EPH (MINO L)	D&C	HEXANE ACETONE	END OVEREND	GC-FD
EPH (CLEANED UP)	D&C	HEXANE ACETONE	END OVEREND	GC-FD
EPH CWG BY GC	D&C	HEXANE ACETONE	END OVEREND	GC-FD
PCB TOT/ PCB CON	D&C	HEXANE ACETONE	END OVEREND	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE ACETONE	MICROWAVE TM218.	GC-MS
C8-C40 (C6-C40) EZ FLASH	WET	HEXANE ACETONE	SHAKER	GC-EZ
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE ACETONE	SHAKER	GC-EZ
SEM VOLATILE ORGANIC COMPOUNDS	WET	DCM ACETONE	SONICATE	GC-MS

## LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRRED EXTRACTION (STIR -BAR)	GCMS
EPH	HEXANE	STIRRED EXTRACTION (STIR -BAR)	GC FD
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR -BAR)	GC FD
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR -BAR)	GC FD
PCB CONGENERS	HEXANE	STIRRED EXTRACTION (STIR -BAR)	GCMS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIR -BAR)	GCMS
SVOC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPIOPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	DCM	SOLID PHASE EXTRACTION	GCMS
TH by INFRARED (R)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by R	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).

### 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.

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

**SDG:** 140510-79  
**Job:** H\_RHASKON\_PTB-82  
**Client Reference:** 9Y0074 103 100

**Location:** Cole Green  
**Customer:** Royal Haskoning  
**Attention:** Declan Fives

**Order Number:** 9Y0074-103-100  
**Report Number:** 271730  
**Superseded Report:**

## Appendix General

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

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. 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** -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 Dimethylphenol, 3,5 Dimethylphenol).

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

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

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

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

20. For 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 preservation was performed
§	Sampled on date not provided
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

## Asbestos

### Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using 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.**