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**HAULBOWLINE EAST TIP –
EXPLORATORY GROUND INVESTIGATION
FACTUAL REPORT
NO. P12030
VOL. 5**

Employer:

Cork County Council

Environmental Directorate,
Cork County Council,
Inniscara,
Co. Cork.

Employer's Representative:

WYG EPT Ltd.

Arndale Court,
Headingley,
Leeds,
United Kingdom,
LS6 2UJ

TABLE OF CONTENTS

1	INTRODUCTION.....	1
1.1	SCOPE OF WORKS.....	1
1.2	REPORTING	2
1.3	SITE LOCATION & DESCRIPTION	2
1.4	GEOLOGY	3
1.4.1	Solid.....	3
1.4.2	Superficial	3
2	FIELDWORK.....	4
2.1	GENERAL	4
2.2	EXPLORATORY HOLES	5
2.3	GROUNDWATER MONITORING	6
2.4	GROUND GAS	7
2.5	SAMPLING	7
2.6	IN-SITU TESTING	8
3	LABORATORY TESTING	11
3.1	ENVIRONMENTAL - SOLID	12
3.2	ENVIRONMENTAL - WATER	16
3.3	GEOTECHNICAL - SOIL	19
3.4	GEOTECHNICAL - ROCK	19
4	GROUND CONDITIONS.....	20
4.1	GROUNDWATER	21
4.2	GROUND GAS	24
5	SUMMARY.....	25

APPENDICES

VOL. 1

APPENDIX A EXPLORATORY HOLE RECORDS AND PHOTOGRAPHIC
RECORDS

VOL. 2

APPENDIX B *In situ* PERMEABILITY TEST DATA

APPENDIX C GROUNDWATER AND GROUND GAS MONITORING DATA

VOL. 3

APPENDIX D1 LABORATORY RESULTS- SOIL

VOL. 4

APPENDIX D2 LABORATORY RESULTS- WATER

VOL. 5

APPENDIX D3 LABORATORY RESULTS- WATER, PAH and GEOTECHNICAL

APPENDIX E EXPLORATION LOCATION LAYOUT & PLANS

APPENDIX F AGREED METHOD STATEMENTS AND PROCEDURES

APPENDIX D3

LABORATORY RESULTS –WATER (continued), PAH and GEOTECHNICAL



Priority Geotechnical Ltd
Unit 12
Owenacurra Business Park
Midleton
Co Cork
Co Cork

Attention: Colette Kelly

CERTIFICATE OF ANALYSIS

Date: 18 July 2012
Customer: D_PRIORGEOT_CRK
Sample Delivery Group (SDG): 120630-35
Your Reference: P12030
Location: Haulbowline
Report No: 187955

We received 8 samples on Friday June 29, 2012 and 8 of these samples were scheduled for analysis which was completed on Wednesday July 18, 2012. 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: 120630-35
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 187955
 Superseded Report:

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	
		5812252	293706			1l green glass bottle
		5812259	358151			1l green glass bottle
		5812253	542181			1l green glass bottle
		5812260	547994			1l green glass bottle
	5812251	561561			1l green glass bottle	
	5812256	656920			1l green glass bottle	
	5812254	875454			1l green glass bottle	
	5812258	897297			1l green glass bottle	
Alkalinity as CaCO3	All	NDPs: 0 Tests: 1				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 8				
Anions by Kone (w)	All	NDPs: 0 Tests: 8				
BOD True Total	All	NDPs: 0 Tests: 8				
COD Unfiltered	All	NDPs: 0 Tests: 8				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 8				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 8				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 8				
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 8				
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 8				
Fluoride	All	NDPs: 0 Tests: 2				
Free Sulphur	All	NDPs: 0 Tests: 8				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 8				
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 7				
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 8				



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LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	
		5812252	293706			1l green glass bottle
		5812259	358151			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle
		5812253	542181			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle
		5812260	547994			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle
	5812251	561561			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle	
	5812256	656920			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle	
	5812254	875454			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle	
	5812258	897297			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle	
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 8				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 8				
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 8				
pH Value	All	NDPs: 0 Tests: 8				
Phenols by HPLC (W)	All	NDPs: 0 Tests: 6				
Saline Cyanides (W)*	All	NDPs: 0 Tests: 8				
Saline TON	All	NDPs: 0 Tests: 8				
Sulphide	All	NDPs: 0 Tests: 8				
TOC (Saline)*	All	NDPs: 0 Tests: 8				
TPH CWG (W)	All	NDPs: 0 Tests: 8				
VOC MS (W)	All	NDPs: 0 Tests: 6				



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Results Legend		Customer Sample R	293706	358151	542181	547994	561561	658920
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
M	mCERTS accredited.		28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012
S	Deviating sample.							
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		29/06/2012	29/06/2012	29/06/2012	29/06/2012	29/06/2012	29/06/2012
	Trigger breach confirmed		120630-35	120630-35	120630-35	120630-35	120630-35	120630-35
(F)			5812252	5812259	5812253	5812260	5812251	5812256
Component	LOD/Units	Method						
Cyanide Complex as CN*	mg/l	SUB	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
TOC (Saline)*	<1 mg/l	SUB	47.9	9.71	58.3	9.3	16.3	3.68
Cyanide Free as CN*	<0.005 mg/l	SUB	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cyanide as CN*	<0.005 mg/l	SUB	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043		29.3				
BOD, unfiltered	<1 mg/l	TM045	<5	<2	22.4	<2	2.08	<2
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2 #	<0.2 #	16 #	<0.2 #	5.85 #	2.84 #
Sulphide	<0.01 mg/l	TM101	<0.1	<0.01	<0.1	0.025	<0.05	<0.01
Fluoride	<0.5 mg/l	TM104		<0.5		0.829		
COD, unfiltered	<7 mg/l	TM107	805	398	2070	330	548	232
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	37 #	37.5 #	27.3 #	39.2 #	33.8 #	33.2 #
Barium (diss.filt)	<0.03 µg/l	TM152	111	74.2	536	116	178	141
Molybdenum (diss.filt)	<0.24 µg/l	TM152		13.4		55.2		
Phosphorus (diss.filt)	<6.3 µg/l	TM152		<6.3		<6.3		
Nitrite as NO2	<0.05 mg/l	TM184	0.114	<0.05	<0.05	0.155	<0.05	0.072
Sulphate	<2 mg/l	TM184	1900	1940	739	2180	1660	1610
Chloride	<2 mg/l	TM184	16000	15900	11500	16700	14200	14200
PCB congener 28	<0.015 µg/l	TM197	0.06	0.08	<0.015	0.25	<0.015	<0.015
PCB congener 52	<0.015 µg/l	TM197	0.03	0.04	<0.015	0.09	<0.015	<0.015
PCB congener 101	<0.015 µg/l	TM197	0.02	0.02	<0.015	0.03	<0.015	<0.015
PCB congener 118	<0.015 µg/l	TM197	<0.015	0.02	<0.015	0.02	<0.015	<0.015
PCB congener 138	<0.015 µg/l	TM197	<0.015	0.02	<0.015	0.03	<0.015	<0.015
PCB congener 153	<0.015 µg/l	TM197	<0.015	0.02	<0.015	0.02	<0.015	<0.015
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	0.11	0.2	<0.105	0.44	<0.105	<0.105
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	<0.012 mg/l	TM228	614	521	381	540	759	765
Sodium (diss.filt)	<0.076 mg/l	TM228	9810	9640	6350	11900	8760	8080
Magnesium (diss.filt)	<0.036 mg/l	TM228	698	843	582	960	489	420
Potassium (diss.filt)	<2.335 mg/l	TM228	326	332	193	386	294	278
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03 #		<0.03 #	<0.03 #	<0.03 #	<0.03 #
pH	<1 pH Units	TM256	9.37	9.57	7.63	9.06	8.07	9.06
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016	<0.016		<0.016	<0.016	<0.016
Arsenic (Saline)	<0.5 µg/l	TM270	<0.5 #	<0.5 #	0.6 #	<0.5 #	1.62 #	0.687 #
Aluminium (Saline)	<3.7 µg/l	TM270	45.6 #	65.4 #	49.2 #	58.1 #	44.6 #	51.7 #



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Results Legend			Customer Sample R						
#	ISO17025 accredited.		293706	358151	542181	547994	561561	658920	
M	mCERTS accredited.								
S	Deviating sample.								
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								
			Depth (m)						
			Sample Type						
			Date Sampled						
			Date Received						
			SDG Ref						
			Lab Sample No.(s)						
			AGS Reference						
Component	LOD/Units	Method							
Antimony (Saline)	<1 µg/l	TM270	1.89 #	<1 #	<1 #	1.97 #	<1 #	2.38 #	
Boron (Saline)	<201 µg/l	TM270	3070 #	2140 #	2680 #	4040 #	2530 #	2340 #	
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15 #	<0.15 #	<0.15 #	<0.15 #	<0.15 #	<0.15 #	
Chromium (Saline)	<1.5 µg/l	TM270	12.7 #	14.1 #	4.88 #	16.5 #	5.18 #	4.93 #	
Copper (Saline)	<1 µg/l	TM270	4.53 #	1.47 #	<1 #	6.81 #	2.83 #	<1 #	
Iron (Saline)	<4 µg/l	TM270	<4 #	<4 #	12.5 #	<4 #	<4 #	<4 #	
Lead (Saline)	<0.2 µg/l	TM270	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	
Manganese (Saline)	<0.3 µg/l	TM270	<0.3 #	<0.3 #	5320 #	<0.3 #	225 #	66.5 #	
Mercury (Saline)	<0.15 µg/l	TM270	0.783 #	0.393 #	<0.15 #	1.15 #	0.242 #	0.454 #	
Nickel (saline)	<1.1 µg/l	TM270	6.26 #	4.03 #	13.2 #	10.1 #	8.78 #	7.11 #	
Selenium (Saline)	<0.5 µg/l	TM270	2.6 #	3.25 #	4.84 #	2.69 #	2.15 #	2.02 #	
Vanadium (Saline)	<4 µg/l	TM270	<4 #	<4 #	<4 #	<4 #	<4 #	<4 #	
Zinc (Saline)	<2.1 µg/l	TM270	<2.1 #	<2.1 #	<2.1 #	10.4 #	10.9 #	<2.1 #	
Saline TON as NO3	<0.3 mg/l	TM281	0.564 #	1.02 #	<0.3 #	1.3 #	<0.3 #	<0.3 #	
Saline Nitrate as NO3	<0.3 mg/l	TM281	0.41 #	1.02 #	<0.3 #	1.1 #	<0.3 #	<0.3 #	
Sulphur, Free	<0.05 mg/l	TM294	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	<0.05 #	



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Order Number: 4559
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Superseded Report:

Results Legend		Customer Sample R	875454	897297				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D				
S	Deviating sample.		28/06/2012	28/06/2012				
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		29/06/2012	29/06/2012				
(F)	Trigger breach confirmed		120630-35	120630-35				
			5812254	5812258				
Component	LOD/Units	Method						
Cyanide Complex as CN*	mg/l	SUB	<0.005	<0.005				
TOC (Saline)*	<1 mg/l	SUB	4.09	101				
Cyanide Free as CN*	<0.005 mg/l	SUB	<0.005	<0.005				
Cyanide as CN*	<0.005 mg/l	SUB	<0.005	<0.005				
BOD, unfiltered	<1 mg/l	TM045	<2	28.3				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2	19.3	#	#		
Sulphide	<0.01 mg/l	TM101	<0.01	<0.1				
COD, unfiltered	<7 mg/l	TM107	325	3050				
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	40.1	28.4	#	#		
Barium (diss.filt)	<0.03 µg/l	TM152	64.2	596				
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	<0.05				
Sulphate	<2 mg/l	TM184	2150	814				
Chloride	<2 mg/l	TM184	17300	12900				
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015				
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015				
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105				
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05				
Calcium (diss.filt)	<0.012 mg/l	TM228	426	400				
Sodium (diss.filt)	<0.076 mg/l	TM228	12000	6890				
Magnesium (diss.filt)	<0.036 mg/l	TM228	1010	661				
Potassium (diss.filt)	<2.335 mg/l	TM228	367	216				
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03	<0.03	#	#		
pH	<1 pH Units	TM256	8.51	7.42				
Phenols, Total Detected monohydric	<0.016 mg/l	TM259	<0.016					
Arsenic (Saline)	<0.5 µg/l	TM270	0.692	0.802	#	#		
Aluminium (Saline)	<3.7 µg/l	TM270	52.9	36	#	#		
Antimony (Saline)	<1 µg/l	TM270	<1	<1	#	#		
Boron (Saline)	<201 µg/l	TM270	4080	3370	#	#		
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15	<0.15	#	#		
Chromium (Saline)	<1.5 µg/l	TM270	13.7	4.93	#	#		



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Table with columns: Results Legend, Customer Sample R, 875454, 897297, Component, LOD/Units, Method, and numerical data for various elements like Copper, Iron, Lead, etc.



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Validated

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TPH CWG (W)

Results Legend		Customer Sample R	293706	358151	542181	547994	561561	658920
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.		28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.		29/06/2012	29/06/2012	29/06/2012	29/06/2012	29/06/2012	29/06/2012
tot.unfilt	Total / unfiltered sample.		120630-35	120630-35	120630-35	120630-35	120630-35	120630-35
*	Subcontracted test.		5812252	5812259	5812253	5812260	5812251	5812256
**	% 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 Trigger breach confirmed							
(F)								
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	98	96	93	102	106	76
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50	<50	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	467	625	279	191	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	467	625	279	191	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	22	51	16	56	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	22	51	16	66	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	491	678	302	258	<10	<10



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Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample R		875454	897297					
#	ISO17025 accredited.									
M	mCERTS accredited.									
S	Deviating sample.									
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									
Component	LOD/Units	Method	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
GRO Surrogate % recovery**	%	TM245		Saline D	28/06/2012		Saline D	28/06/2012		
GRO >C5-C12	<50 µg/l	TM245								
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245								
Benzene	<7 µg/l	TM245								
Toluene	<4 µg/l	TM245								
Ethylbenzene	<5 µg/l	TM245								
m,p-Xylene	<8 µg/l	TM245								
o-Xylene	<3 µg/l	TM245								
Sum of detected Xylenes	<11 µg/l	TM245								
Sum of detected BTEX	<28 µg/l	TM245								
Aliphatics >C5-C6	<10 µg/l	TM245								
Aliphatics >C6-C8	<10 µg/l	TM245								
Aliphatics >C8-C10	<10 µg/l	TM245								
Aliphatics >C10-C12	<10 µg/l	TM245								
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174								
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174							38	
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174							1470	
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174							1510	
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							<10	
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174							<10	
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174							<10	
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174							217	
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174							217	
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174							1730	



CERTIFICATE OF ANALYSIS

SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample R	293706	358151	547994	561561	658920	875454	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference							
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.		28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012
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		29/06/2012	29/06/2012	29/06/2012	29/06/2012	29/06/2012	29/06/2012	29/06/2012
(F)	Trigger breach confirmed		120630-35	120630-35	120630-35	120630-35	120630-35	120630-35	120630-35
			5812252	5812259	5812260	5812251	5812256	5812254	5812254
Component	LOD/Units	Method							
Dibromofluoromethane**	%	TM208	104	101	111	105	103	103	
Toluene-d8**	%	TM208	98.9	102	96.7	97.7	93.3	104	
4-Bromofluorobenzene**	%	TM208	96.4	96.2	95.8	89.8	95.8	93.2	
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	<3	
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Benzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1	



SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

VOC MS (W)

Results Legend			Customer Sample R							
#	ISO17025 accredited.		293706	358151	547994	561561	658920	875454		
M	mCERTS accredited.									
S	Deviating sample.									
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 Trigger breach confirmed									
(F)										
Component	LOD/Units	Method	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
1,2-Dibromoethane	<1 µg/l	TM208	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
Chlorobenzene	<1 µg/l	TM208	28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012	28/06/2012
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208								
Ethylbenzene	<1 µg/l	TM208								
m,p-Xylene	<1 µg/l	TM208								
o-Xylene	<1 µg/l	TM208								
Styrene	<1 µg/l	TM208								
Bromoform	<1 µg/l	TM208								
Isopropylbenzene	<1 µg/l	TM208								
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208								
1,2,3-Trichloropropane	<1 µg/l	TM208								
Bromobenzene	<1 µg/l	TM208								
Propylbenzene	<1 µg/l	TM208								
2-Chlorotoluene	<1 µg/l	TM208								
1,3,5-Trimethylbenzene	<1 µg/l	TM208								
4-Chlorotoluene	<1 µg/l	TM208								
tert-Butylbenzene	<1 µg/l	TM208								
1,2,4-Trimethylbenzene	<1 µg/l	TM208								
sec-Butylbenzene	<1 µg/l	TM208								
4-iso-Propyltoluene	<1 µg/l	TM208								
1,3-Dichlorobenzene	<1 µg/l	TM208								
1,4-Dichlorobenzene	<1 µg/l	TM208								
n-Butylbenzene	<1 µg/l	TM208								
1,2-Dichlorobenzene	<1 µg/l	TM208								
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208								
1,2,4-Trichlorobenzene	<1 µg/l	TM208								
Hexachlorobutadiene	<1 µg/l	TM208								
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208								
Naphthalene	<1 µg/l	TM208								
1,2,3-Trichlorobenzene	<1 µg/l	TM208								
1,3,5-Trichlorobenzene	<1 µg/l	TM208								



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Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC		
TM270	Thermo Electron Application Note AN_E0640: X Series ICP-MS: Using automated collision cell ICP-MS with rapid in-sample switching to achieve ultimate performance in environmental analysis.	Dissolved Metals in Saline Matrices by CCT ICP-MS		
TM281		The Determination of Total Oxidized Nitrogen in Saline Matrices using the Kone Spectrophotometric Analysers		
TM294		Determination of Free Sulphur in liquids by HPLC		

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



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Superseded Report:

Test Completion Dates

Lab Sample No(s)	5812252	5812259	5812253	5812260	5812251	5812256	5812254	5812258
Customer Sample Ref.	293706	358151	542181	547994	561561	658920	875454	897297
AGS Ref.								
Depth								
Type	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D
Alkalinity as CaCO3		06-Jul-2012						
Ammoniacal Nitrogen	06-Jul-2012	03-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
Anions by Kone (w)	06-Jul-2012	06-Jul-2012	06-Jul-2012	07-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	07-Jul-2012
BOD True Total	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
COD Unfiltered	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
Conductivity (at 20 deg.C)	05-Jul-2012	04-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
Cyanide Comp/Free/Total/Thiocyanate	04-Jul-2012	04-Jul-2012	10-Jul-2012	04-Jul-2012	04-Jul-2012	04-Jul-2012	04-Jul-2012	04-Jul-2012
Dissolved Metals by ICP-MS	06-Jul-2012	05-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
EPH CWG (Aliphatic) Aqueous GC (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	06-Jul-2012	06-Jul-2012
EPH CWG (Aromatic) Aqueous GC (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	06-Jul-2012	06-Jul-2012
Fluoride		04-Jul-2012		06-Jul-2012				
Free Sulphur	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
GRO by GC-FID (W)	04-Jul-2012	04-Jul-2012	04-Jul-2012	04-Jul-2012	04-Jul-2012	04-Jul-2012	04-Jul-2012	04-Jul-2012
Hexavalent Chromium (w)	09-Jul-2012		09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
Metals analysis (Saline Sample)	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
Metals by iCap-OES Dissolved (W)	05-Jul-2012	04-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
Nitrite by Kone (w)	06-Jul-2012	06-Jul-2012	09-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
PCB Congeners - Aqueous (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
pH Value	05-Jul-2012	04-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
Phenols by HPLC (W)	09-Jul-2012	06-Jul-2012		09-Jul-2012	09-Jul-2012	06-Jul-2012	09-Jul-2012	
Saline Cyanides (W)*	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012
Saline TON	09-Jul-2012	06-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
Sulphide	05-Jul-2012	04-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
TOC (Saline)*	18-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012
TPH CWG (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	06-Jul-2012	06-Jul-2012
VOC MS (W)	06-Jul-2012	06-Jul-2012		06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	



SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
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Location: Haulbowline
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Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

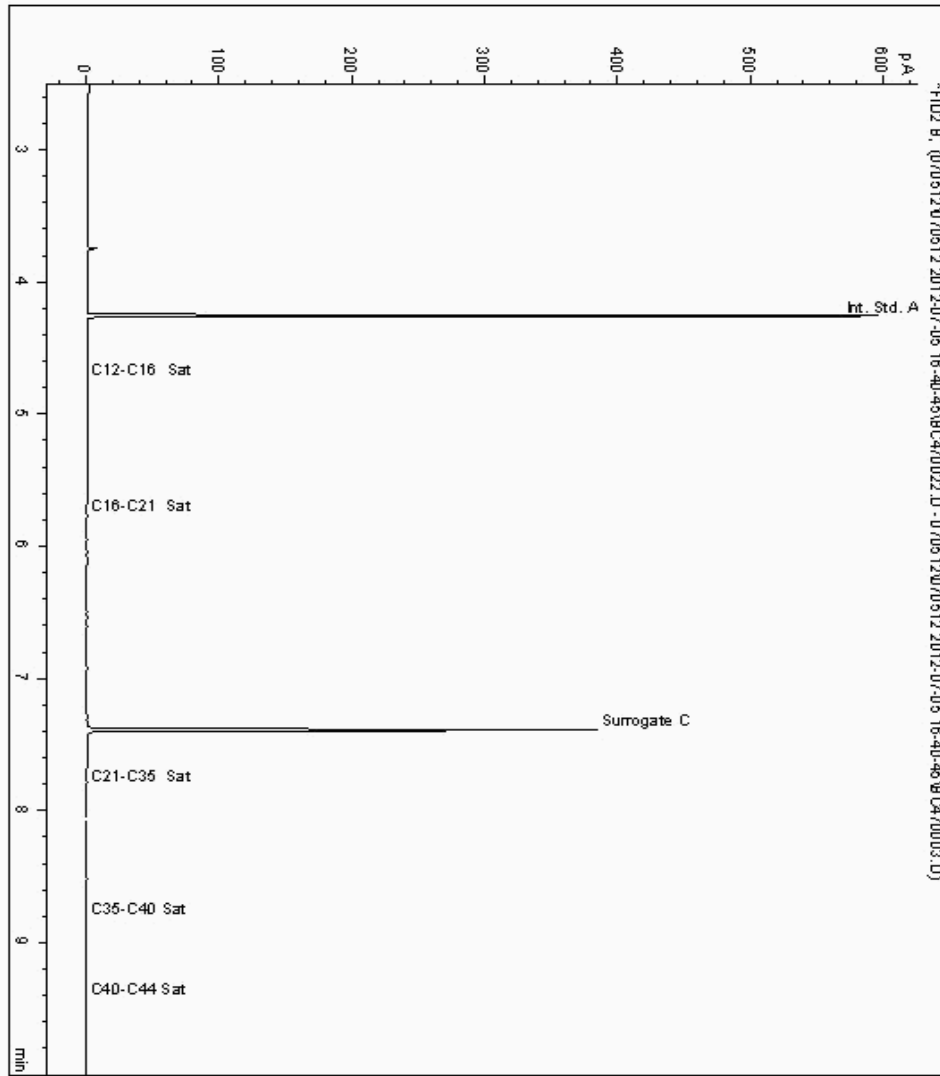
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5821789
Sample ID : 875454

Depth :

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

Sample Identity: 5670122-5821789
Date Acquired : 05/07/12 23:22:16
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





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Report Number: 187955
Superseded Report:

Chromatogram

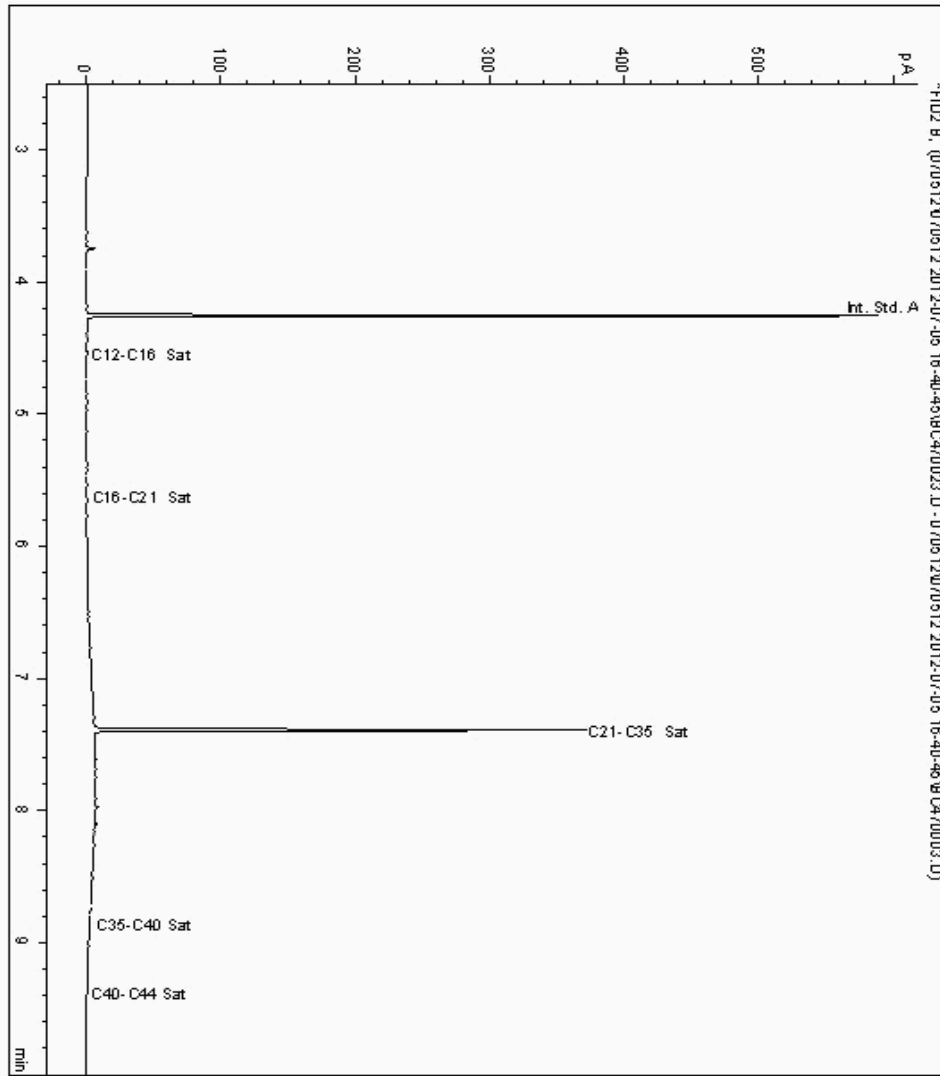
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5821821
Sample ID : 897297

Depth :

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

Sample Identity: 5670180-5821821
Date Acquired : 05/07/12 23:41:24
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
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Location: Haulbowline
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Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

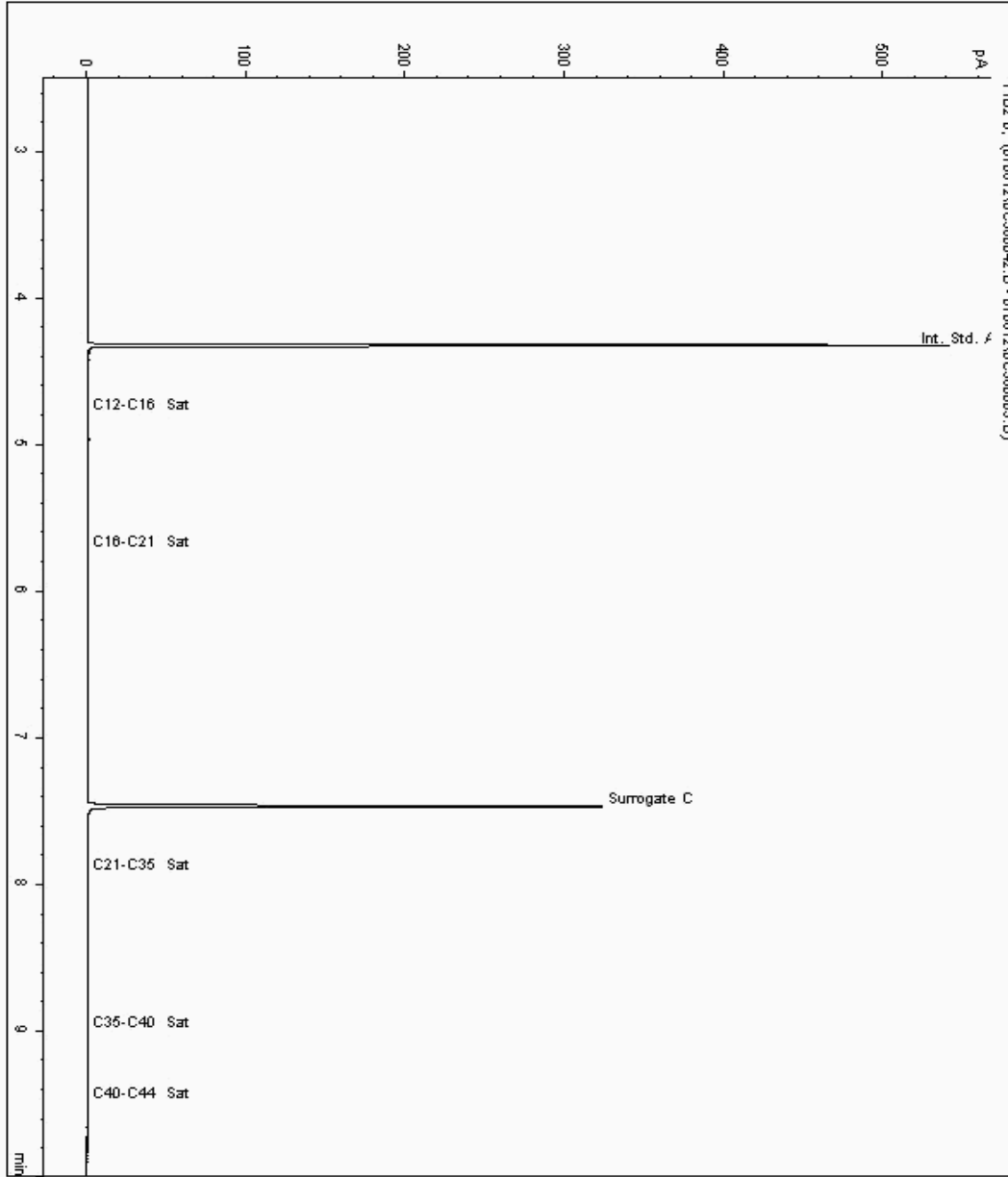
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5822636
Sample ID : 658920

Depth :

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

Sample Identity: 5670151-5822636
Date Acquired : 07/07/12 05:30:19 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

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Report Number: 187955
Superseded Report:

Chromatogram

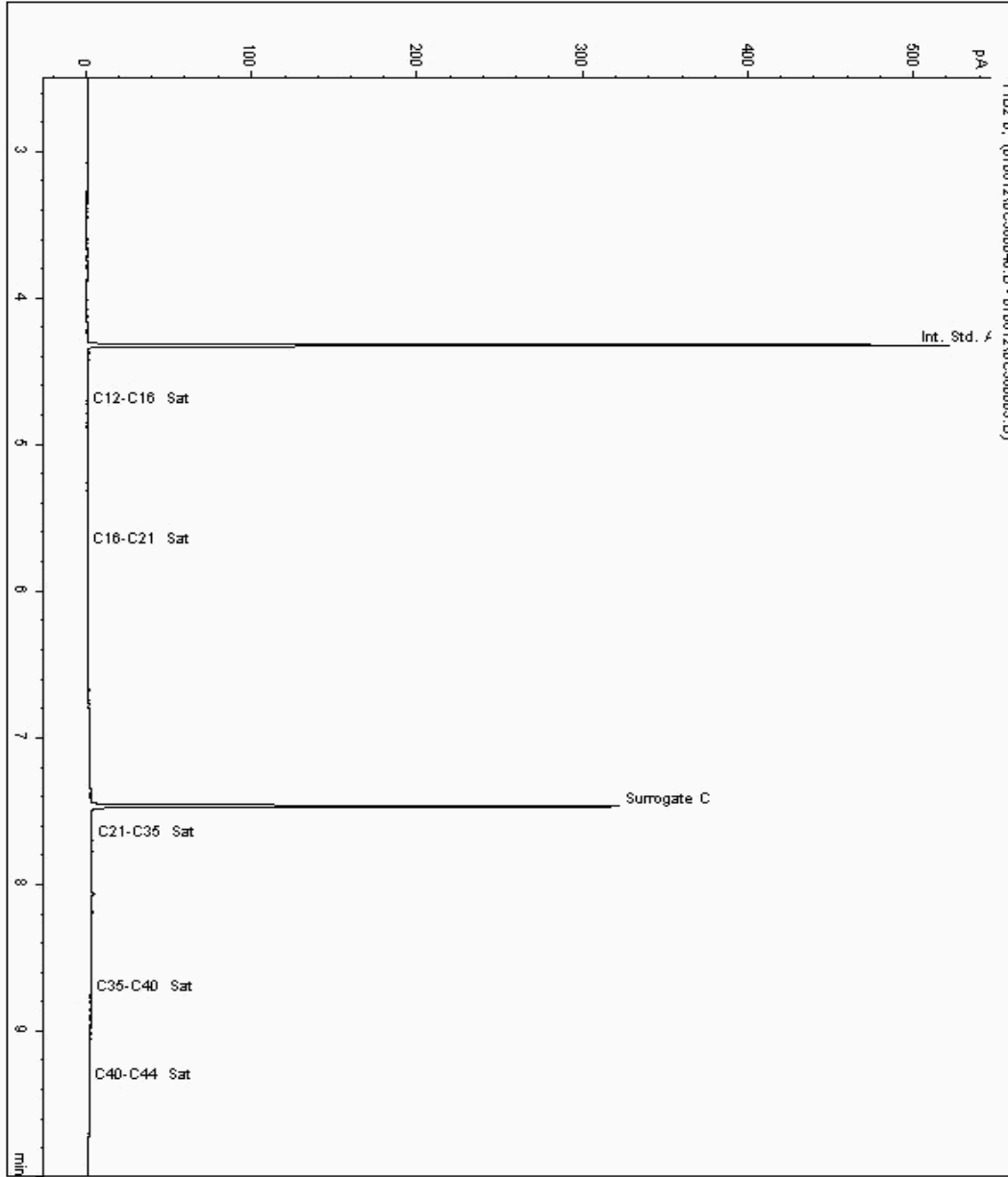
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5822677
Sample ID : 358151

Depth :

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

Sample Identity: 5670211-5822677
Date Acquired : 07/07/12 06:45:00 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
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Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

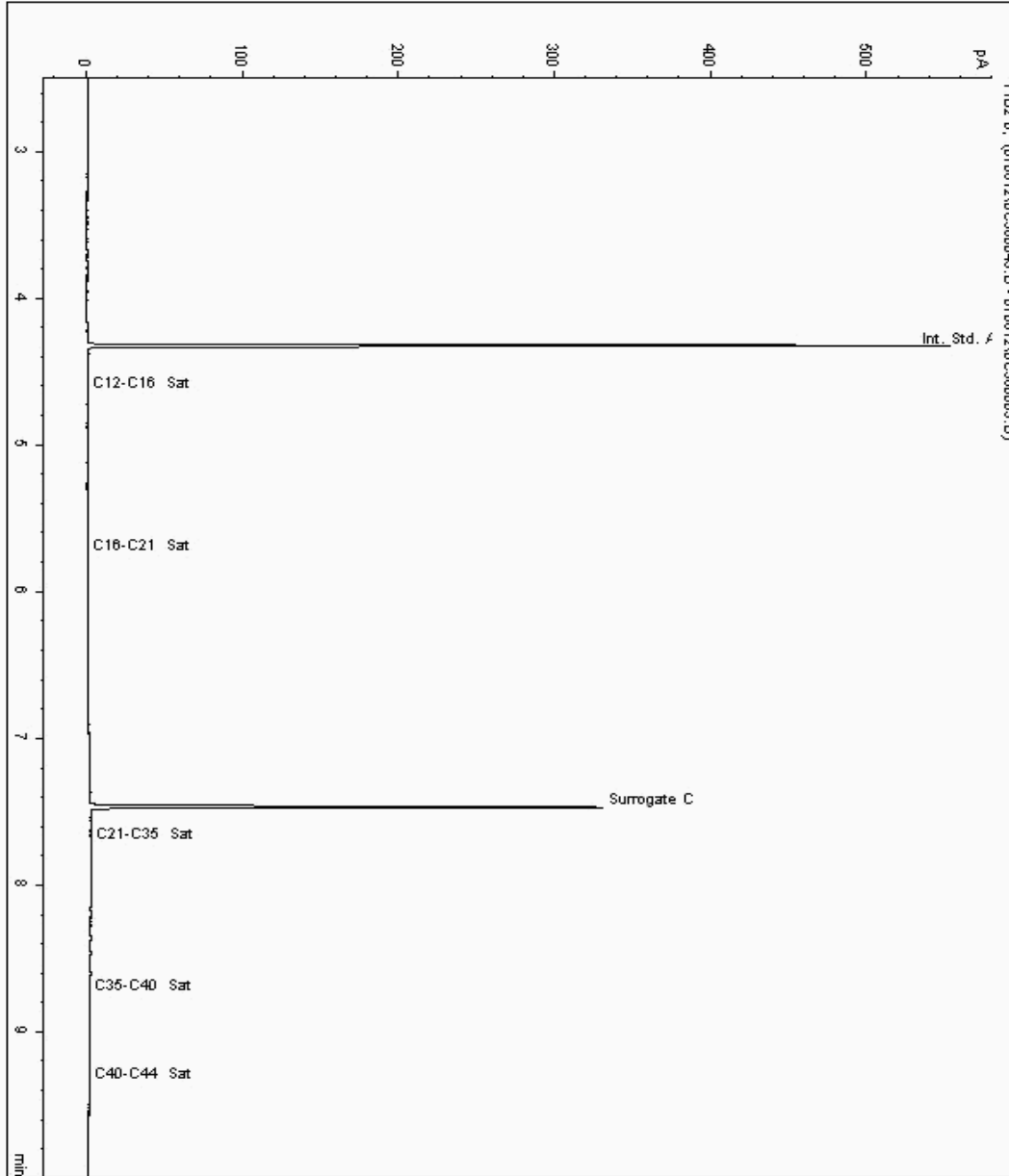
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5822703
Sample ID : 293706

Depth :

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

Sample Identity: 5670063-5822703
Date Acquired : 07/07/12 05:48:54 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
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Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

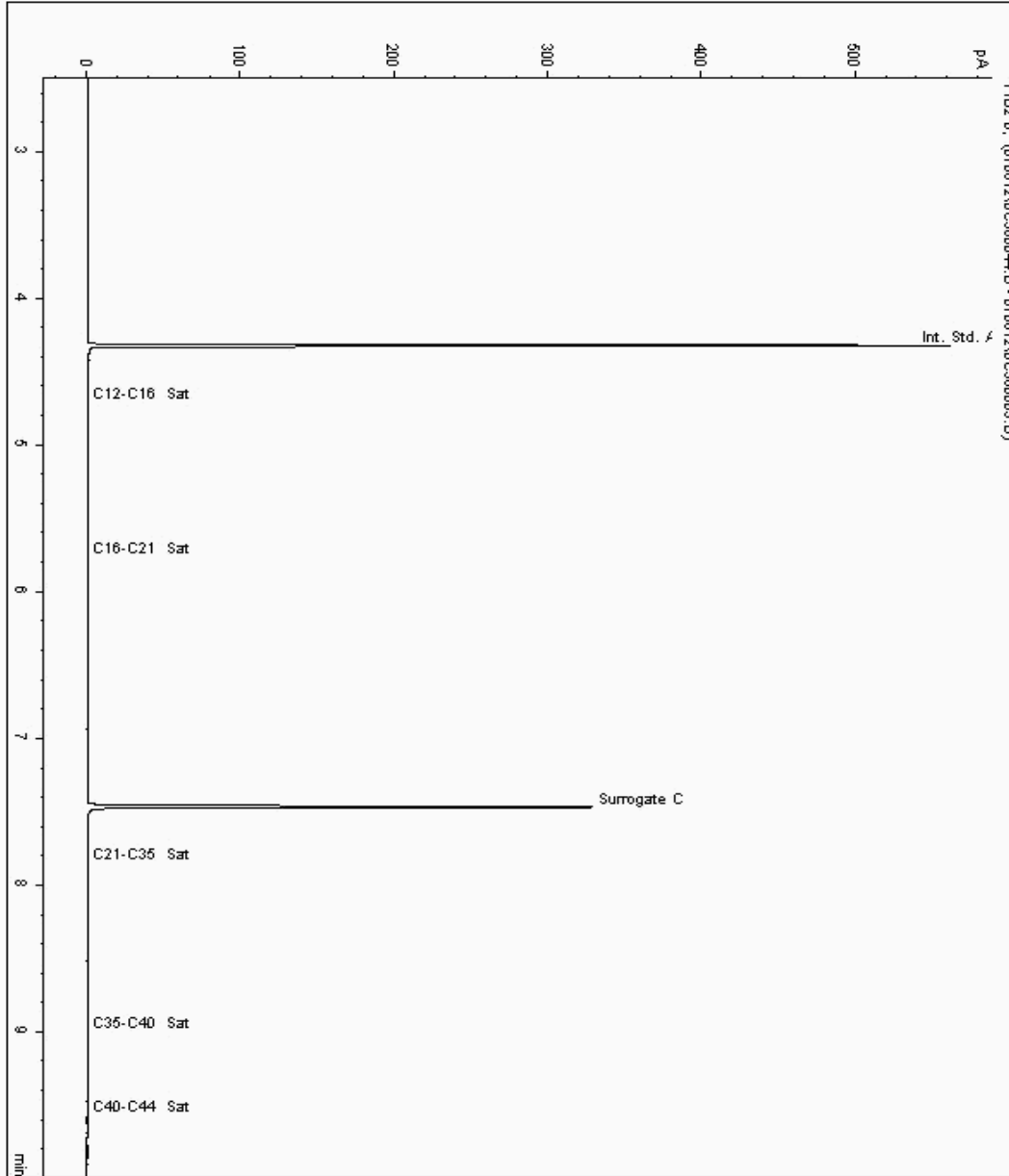
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5822716
Sample ID : 561561

Depth :

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

Sample Identity: 5670034-5822716
Date Acquired : 07/07/12 06:07:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120630-35
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Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

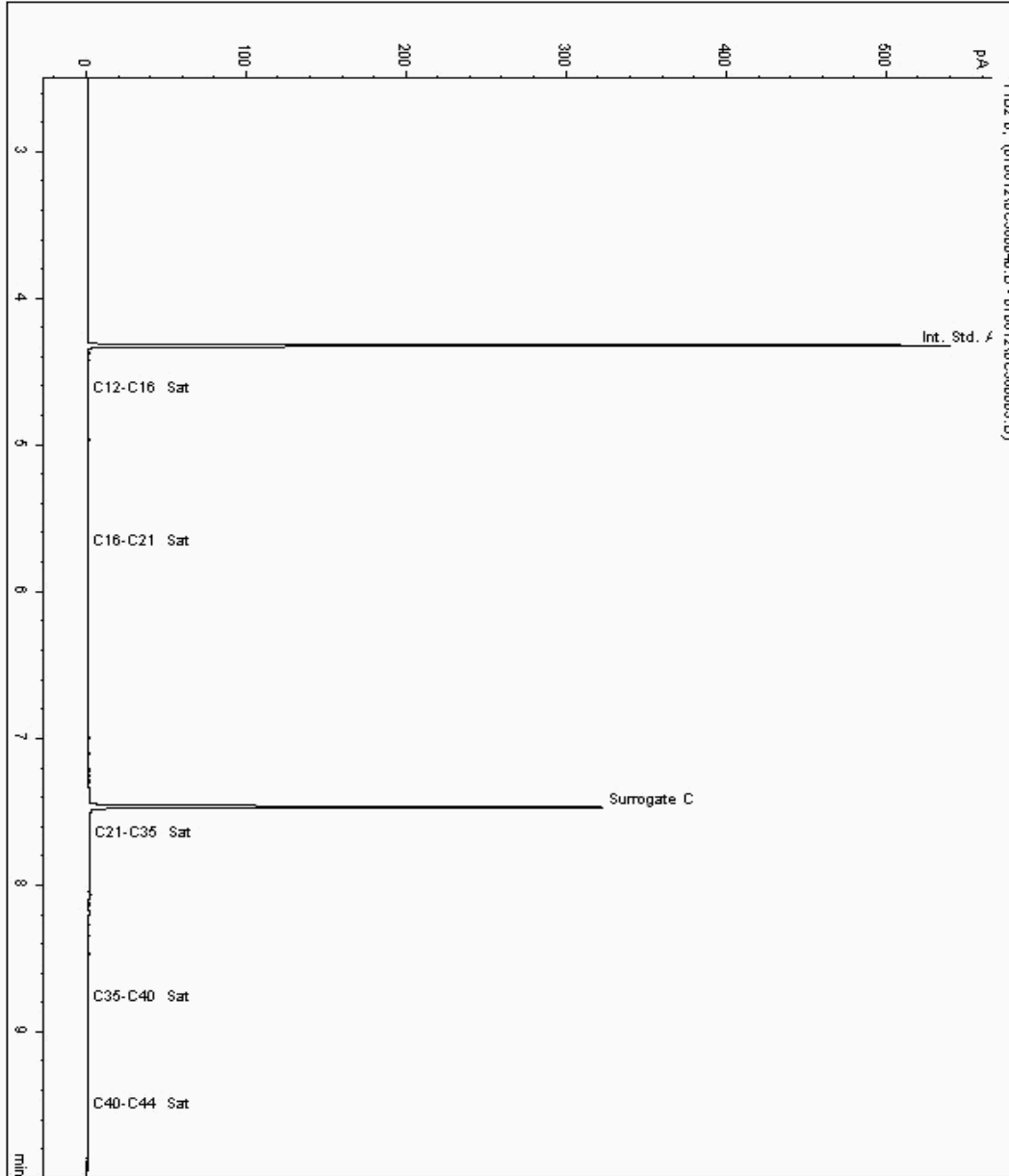
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5823046
Sample ID : 547994

Depth :

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

Sample Identity: 5670244-5823046
Date Acquired : 07/07/12 05:02:02 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

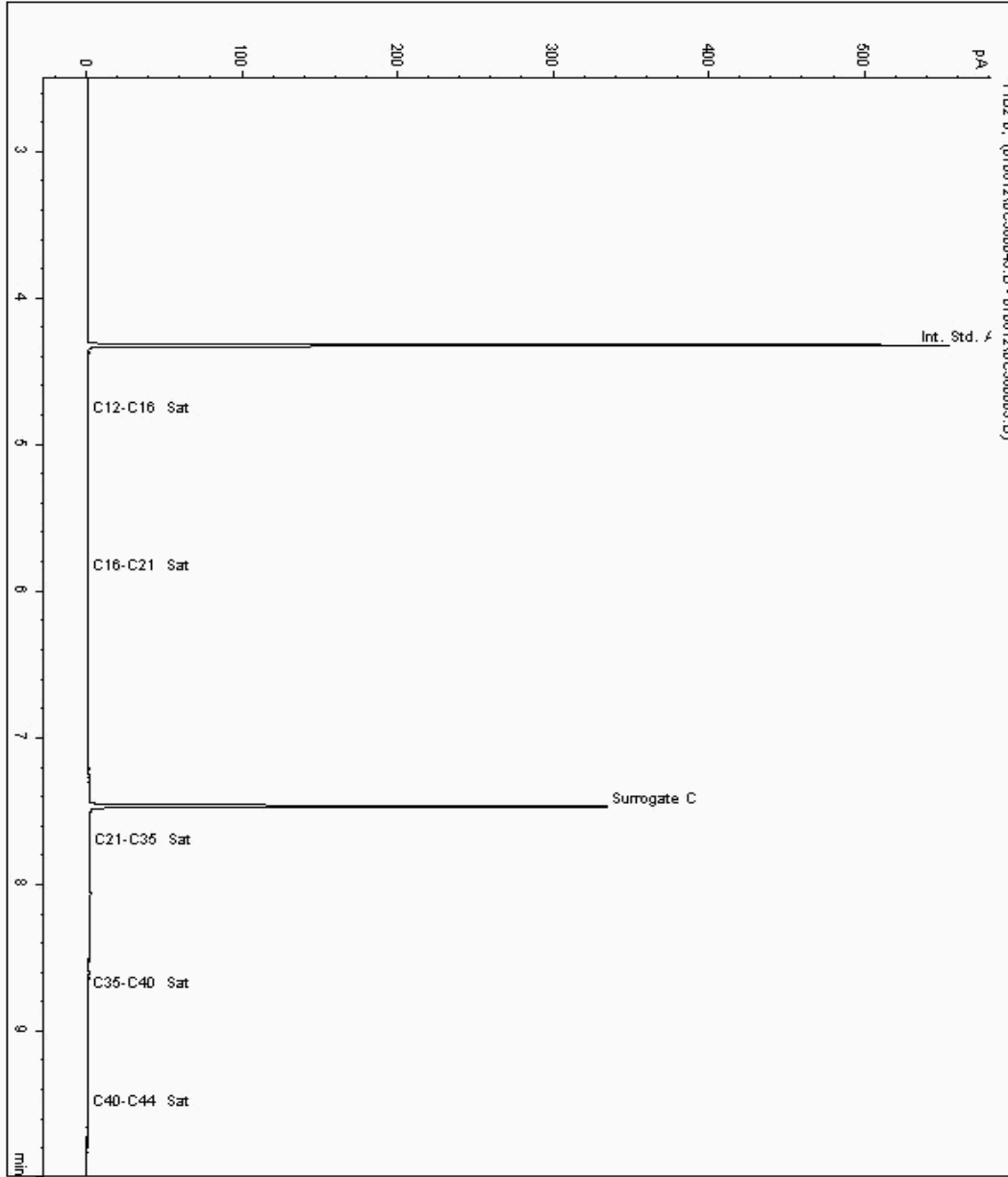
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5823069
Sample ID : 542181

Depth :

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

Sample Identity: 5670093-5823069
Date Acquired : 07/07/12 06:26:24 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

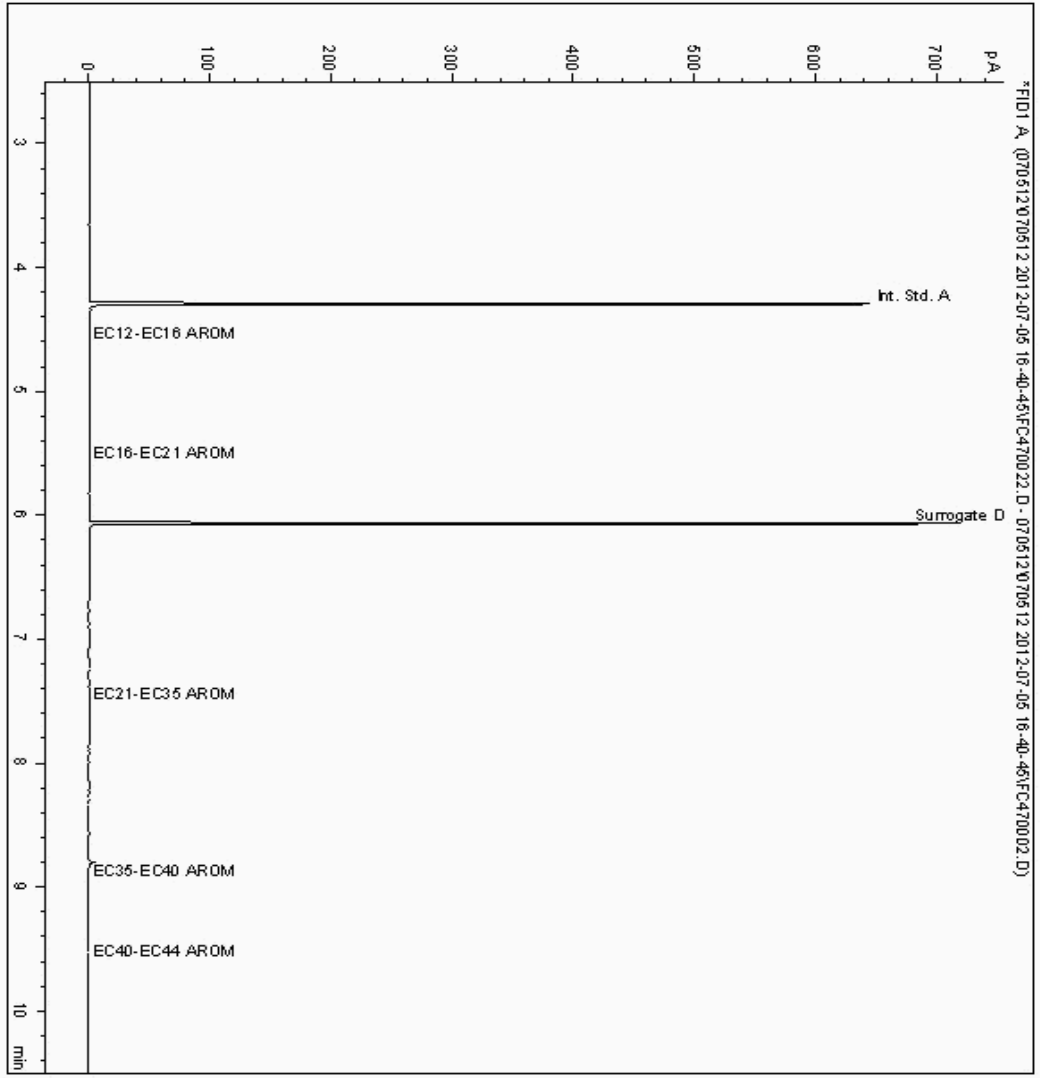
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5821789
Sample ID : 875454

Depth :

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

Sample Identity: 5670123-5821789
Date Acquired : 05/07/12 23:22:16
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

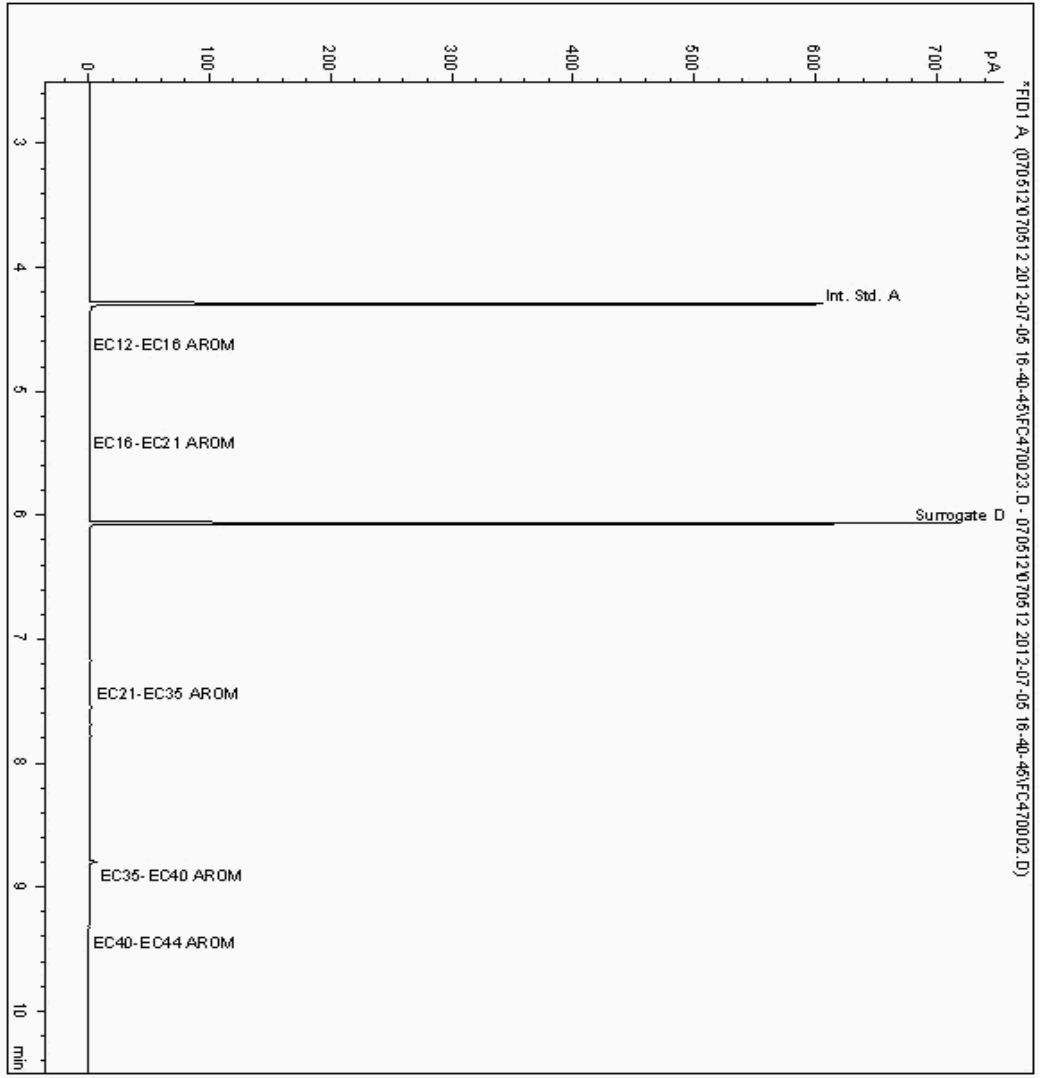
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5821821
Sample ID : 897297

Depth :

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

Sample Identity: 5670181-5821821
Date Acquired : 05/07/12 23:41:24
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

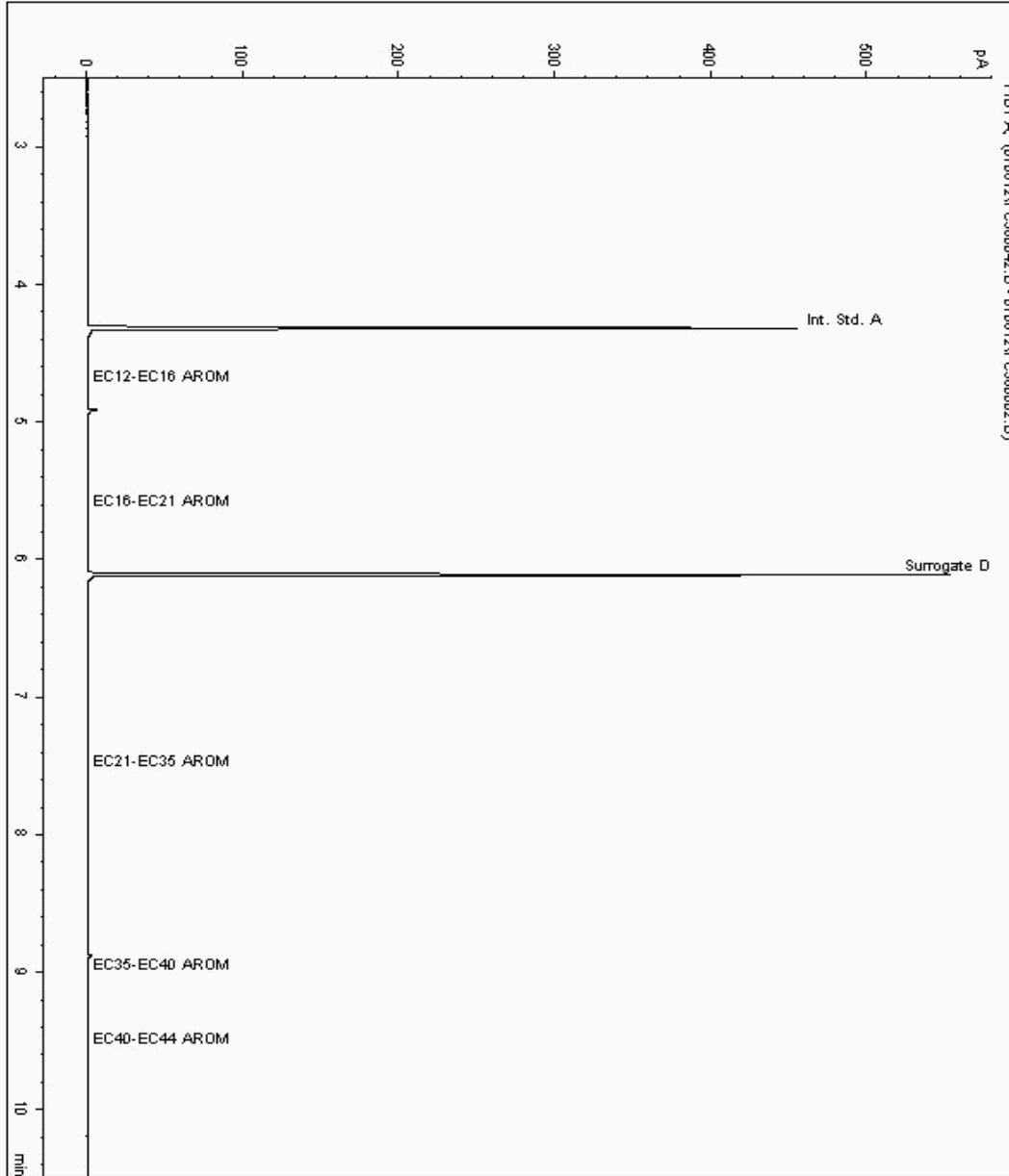
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5822636
Sample ID : 658920

Depth :

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

Sample Identity: 5670152-5822636
Date Acquired : 07/07/12 05:30:19 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

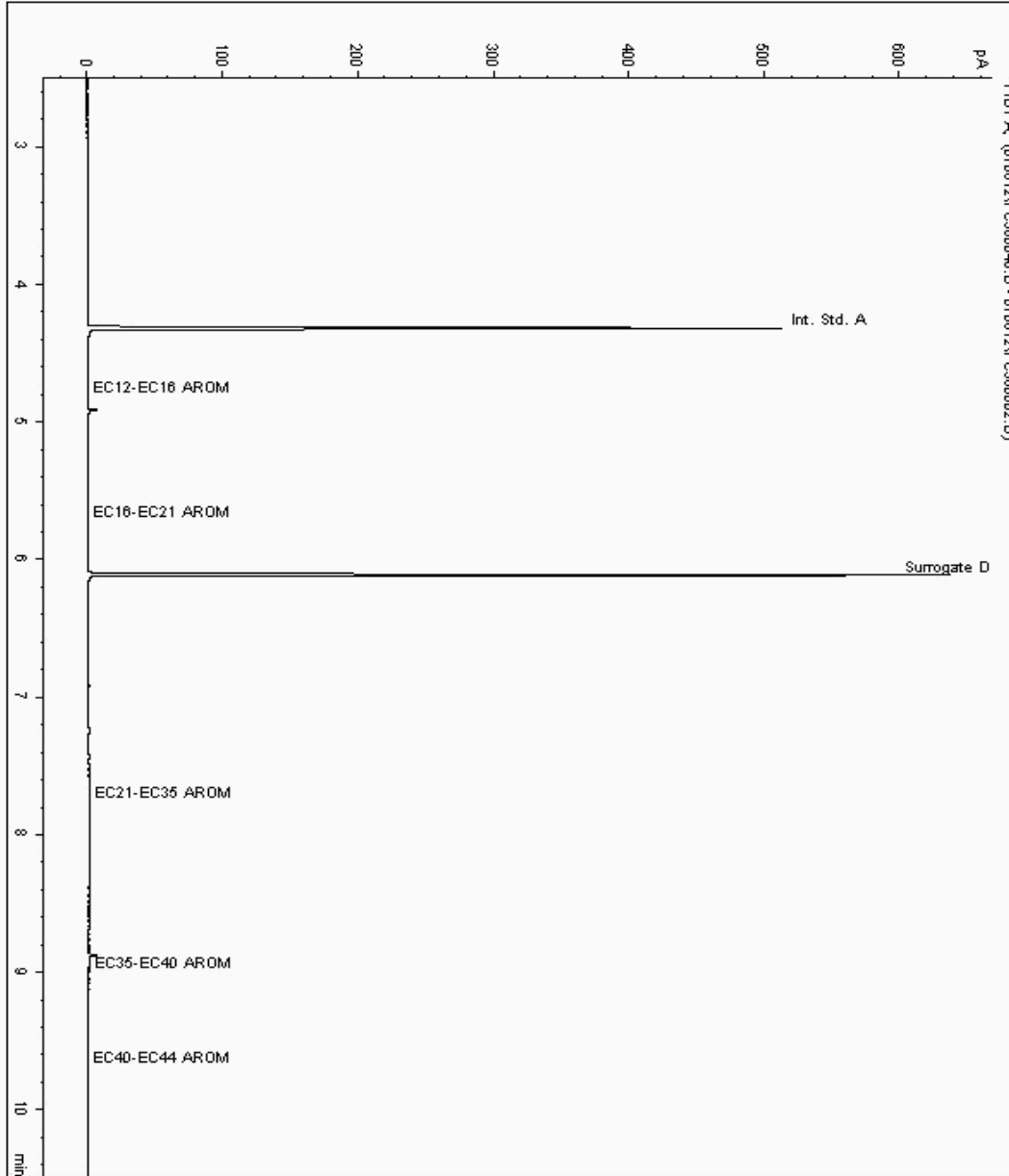
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5822677
Sample ID : 358151

Depth :

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

Sample Identity: 5670212-5822677
Date Acquired : 07/07/12 06:45:00 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

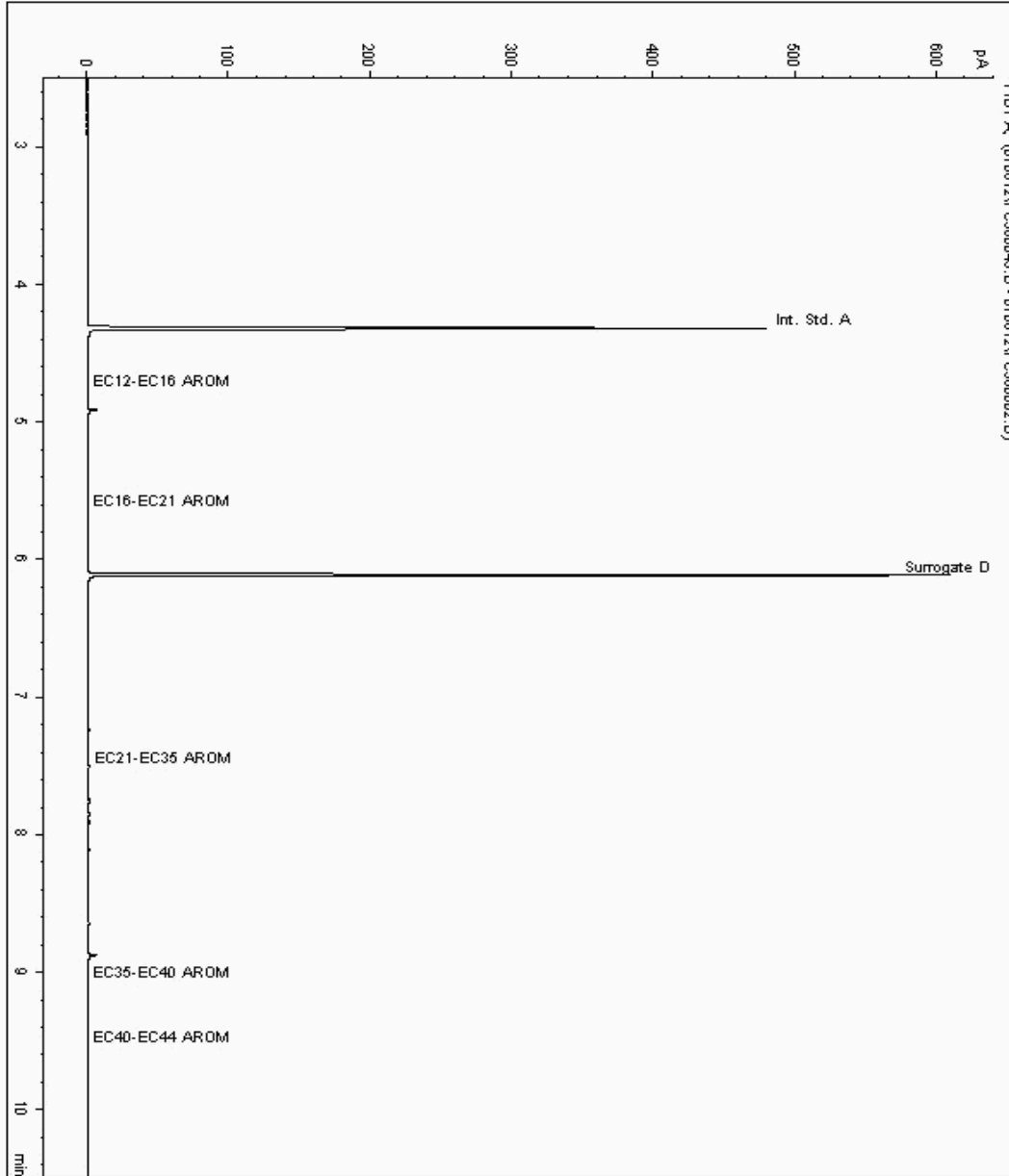
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5822703
Sample ID : 293706

Depth :

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

Sample Identity: 5670064-5822703
Date Acquired : 07/07/12 05:48:54 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

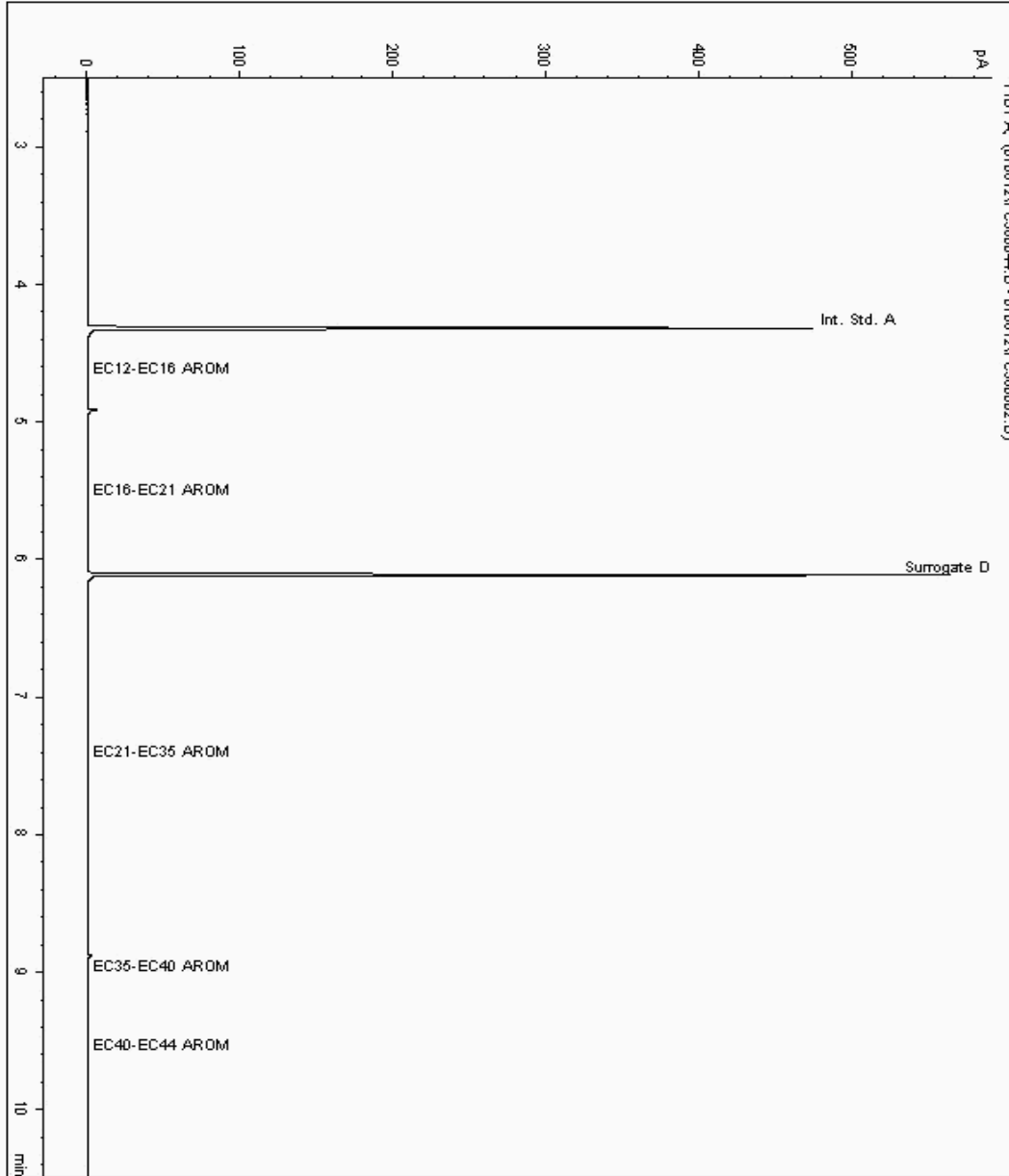
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5822716
Sample ID : 561561

Depth :

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

Sample Identity: 5670035-5822716
Date Acquired : 07/07/12 06:07:33 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

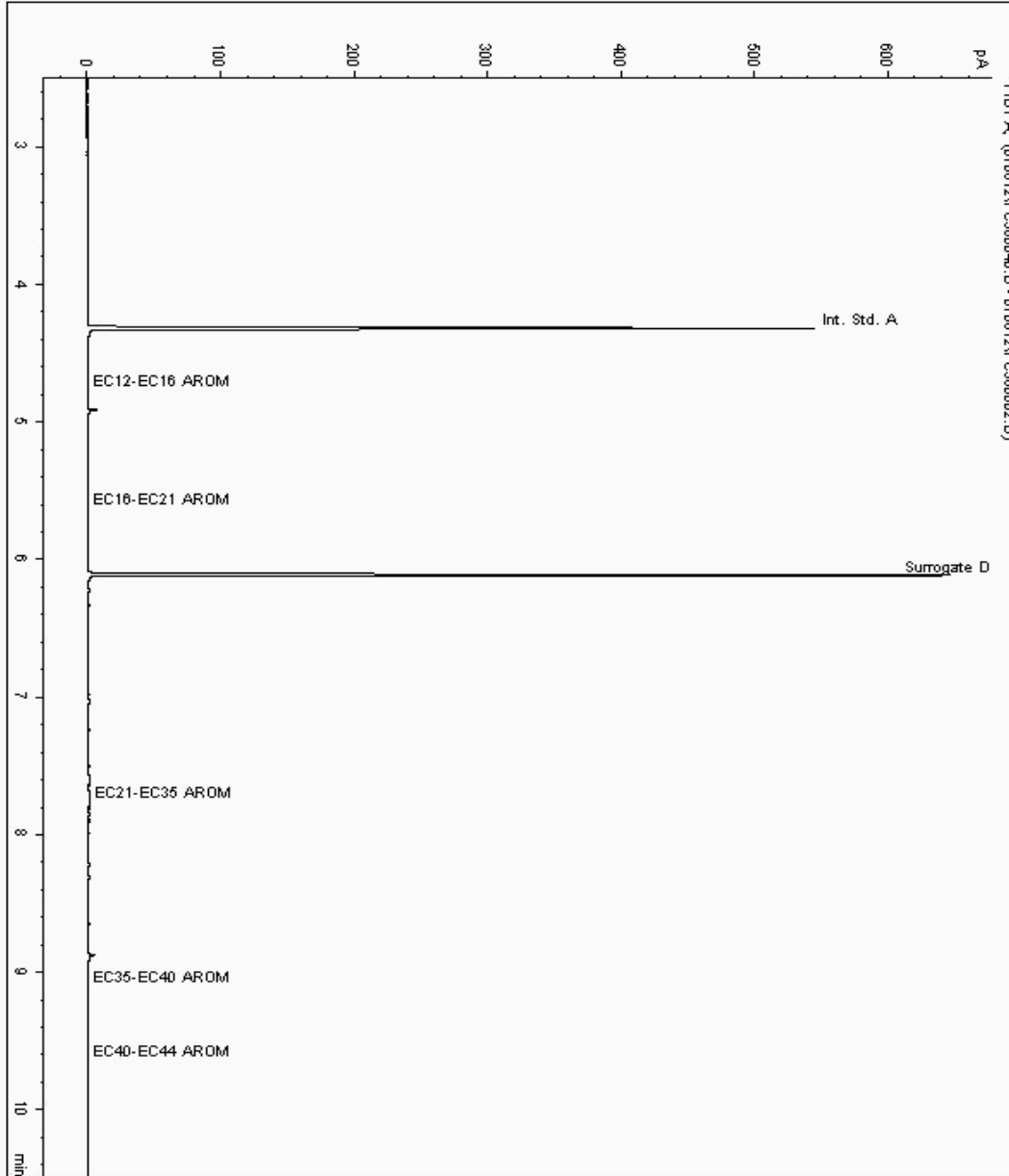
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5823046
Sample ID : 547994

Depth :

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

Sample Identity: 5670245-5823046
Date Acquired : 07/07/12 05:02:02 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

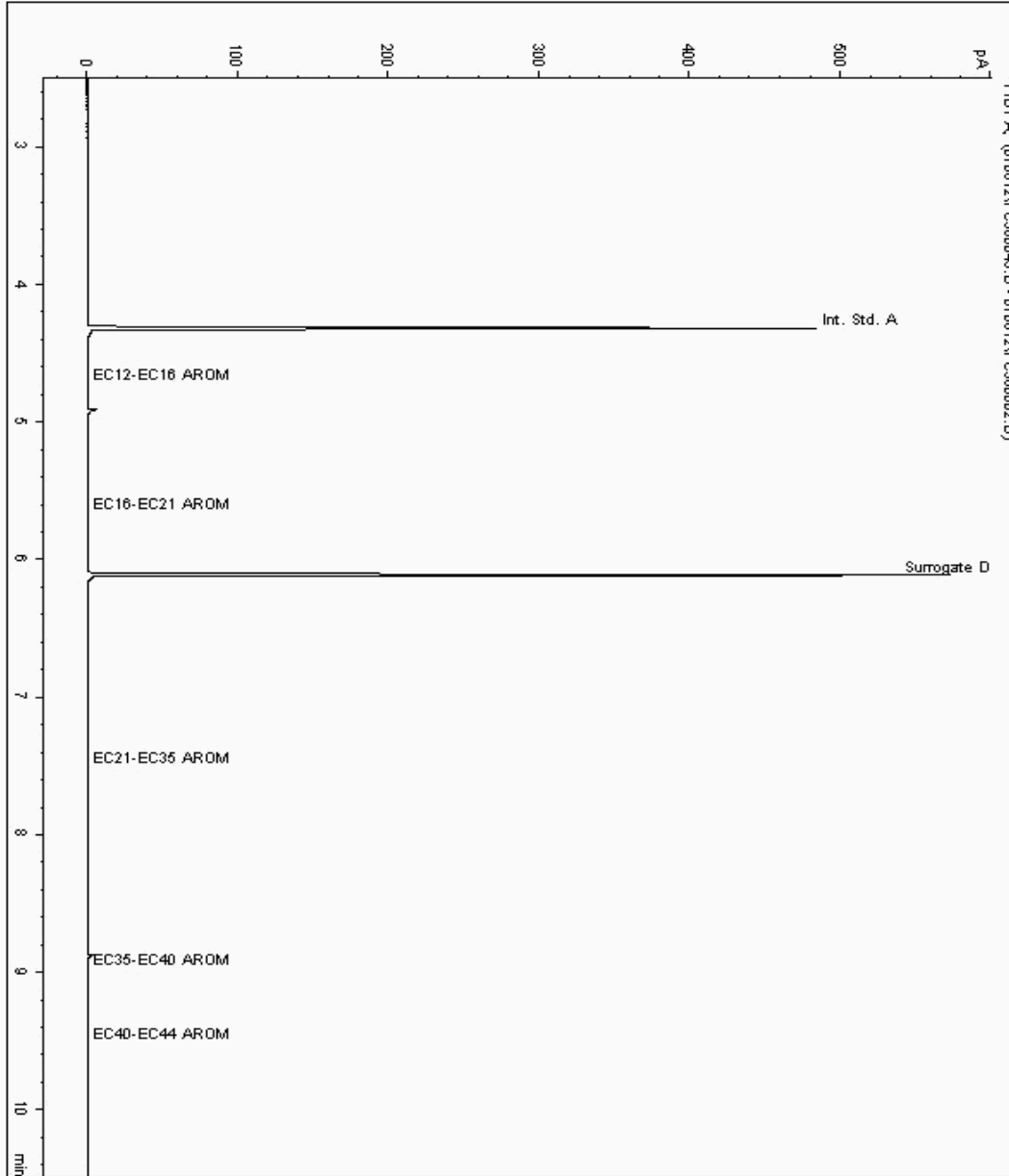
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5823069
Sample ID : 542181

Depth :

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

Sample Identity: 5670094-5823069
Date Acquired : 07/07/12 06:26:24 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

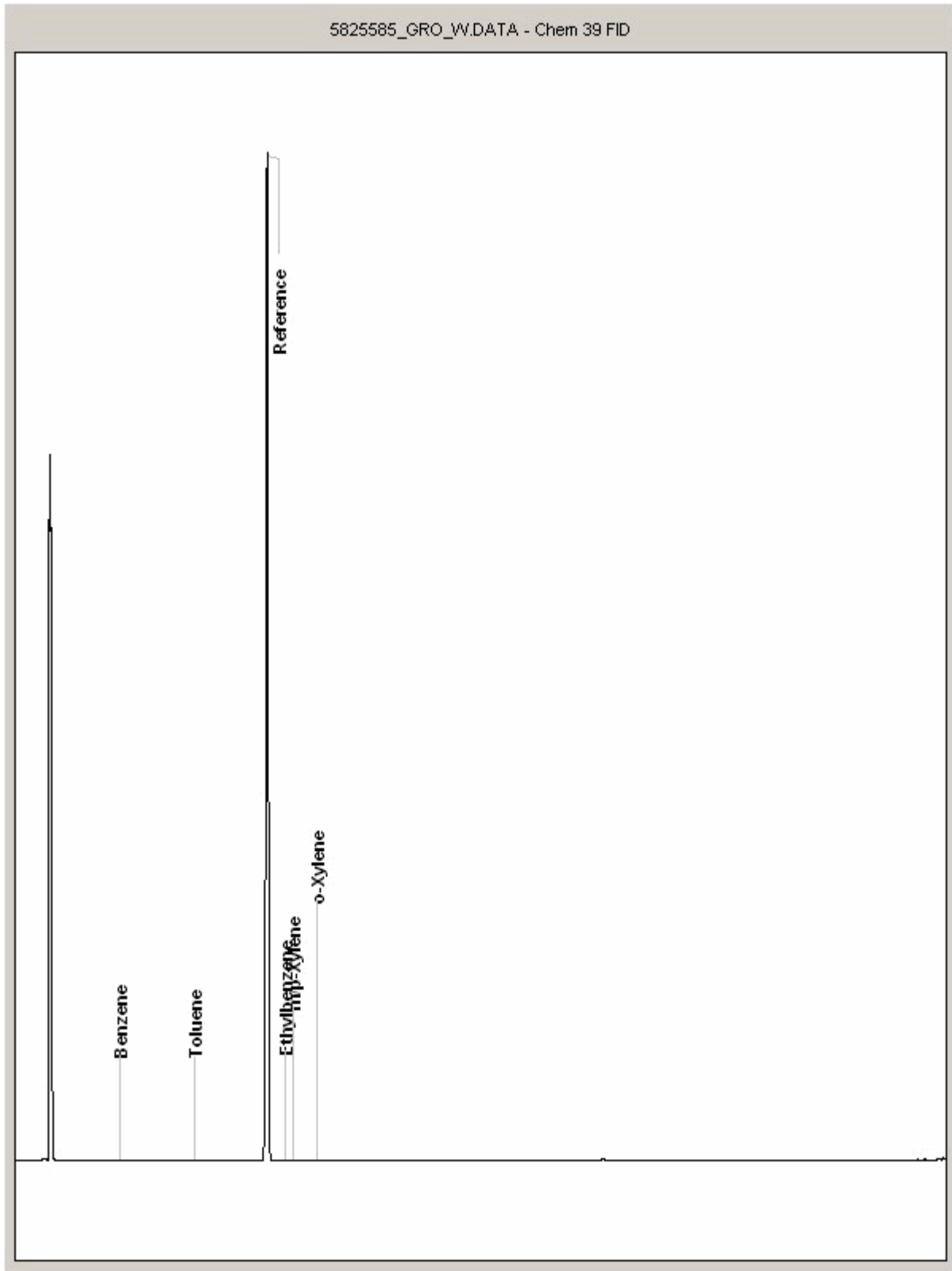
Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5825585
Sample ID : 358151

Depth :





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

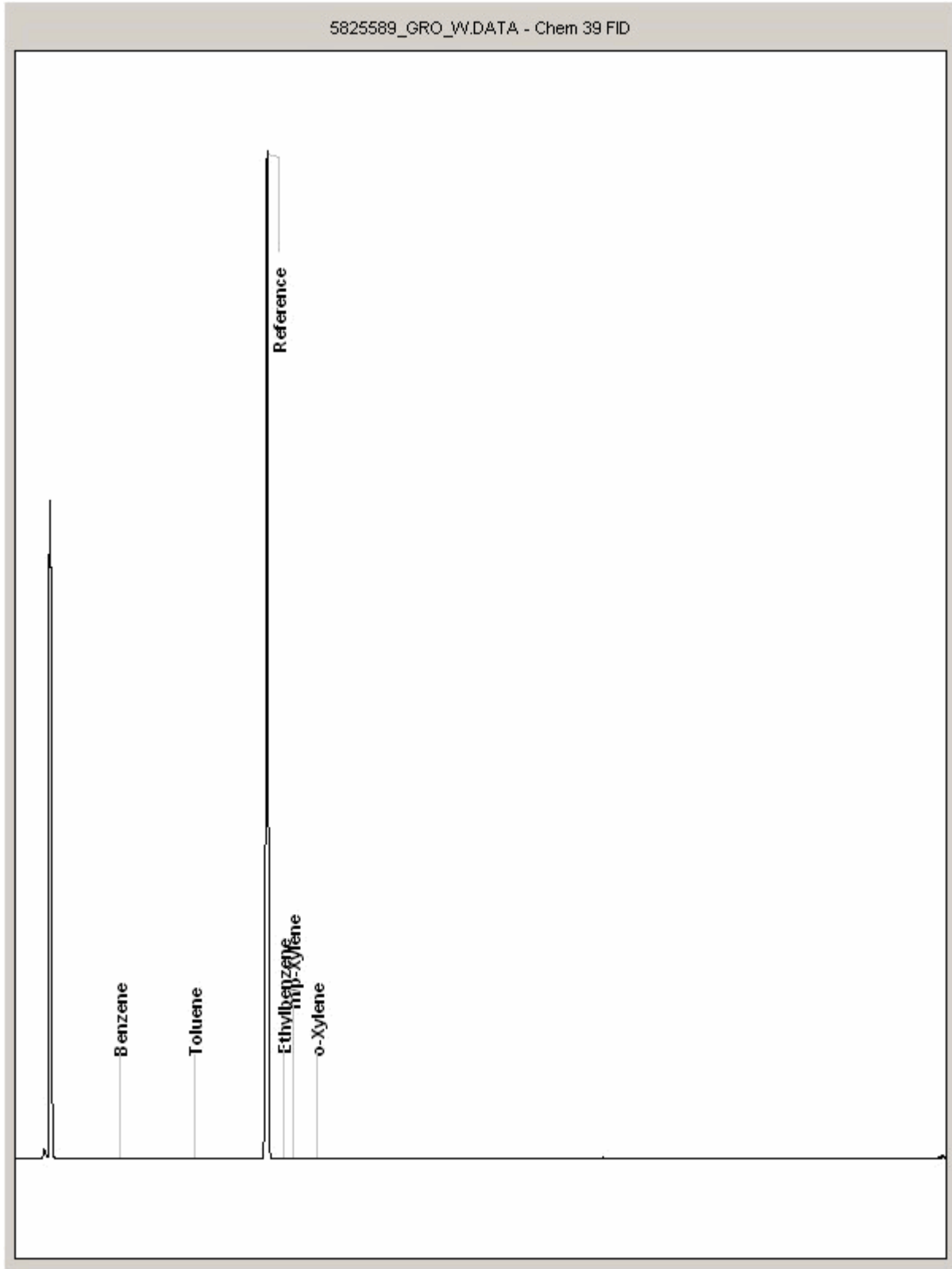
Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5825589
Sample ID : 561561

Depth :





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

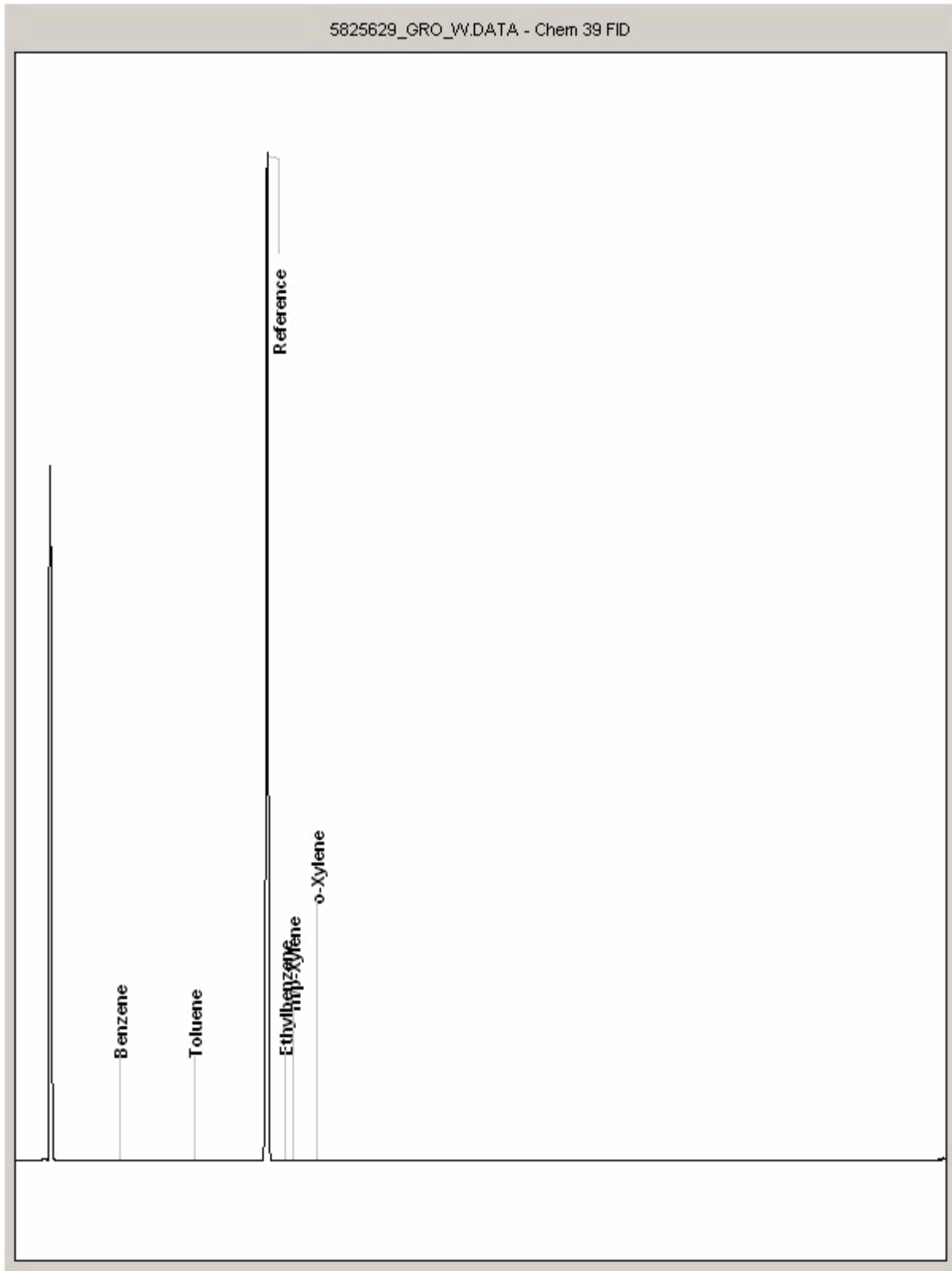
Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5825629
Sample ID : 293706

Depth :





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

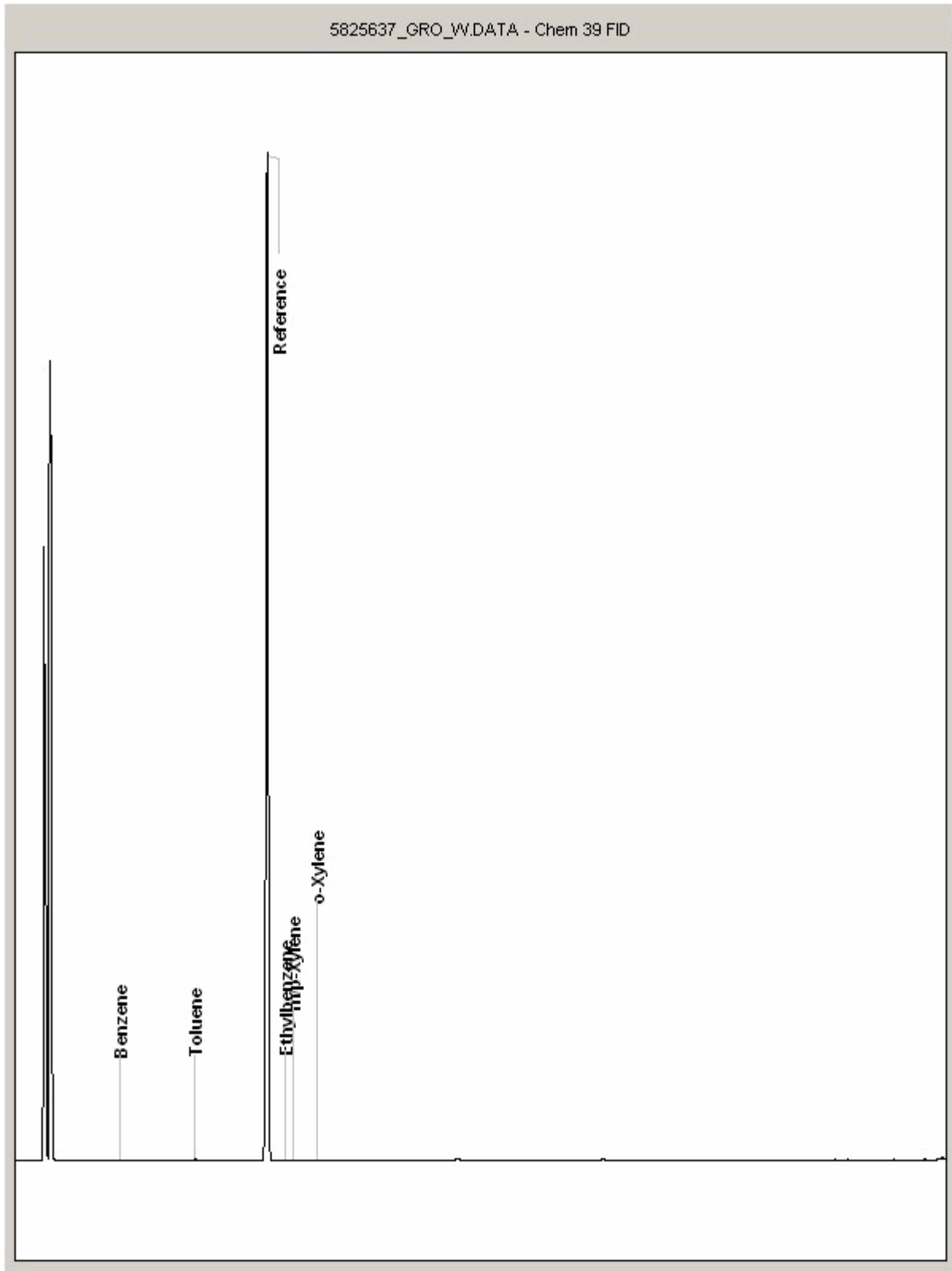
Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5825637
Sample ID : 542181

Depth :





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

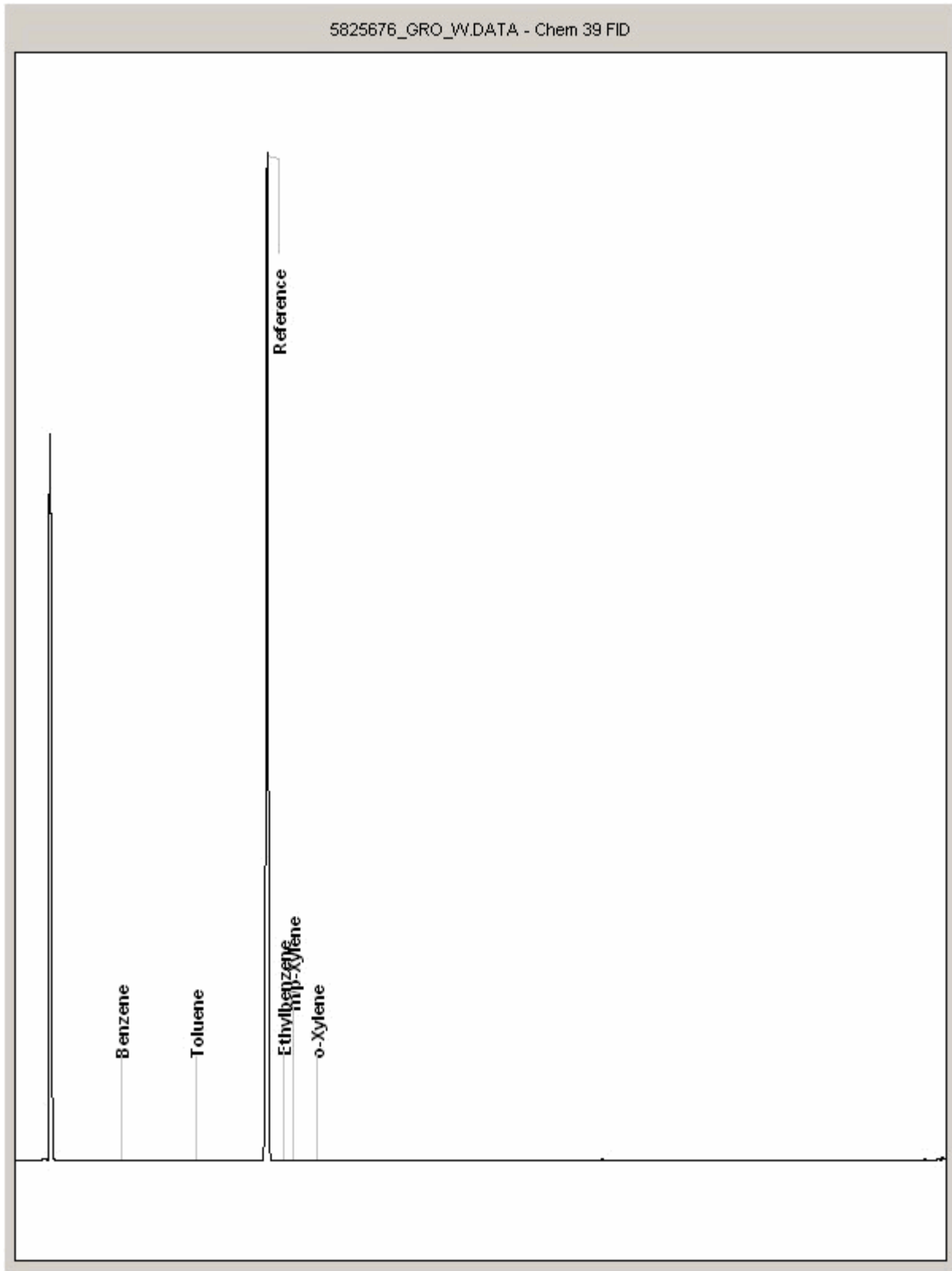
Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5825676
Sample ID : 875454

Depth :





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

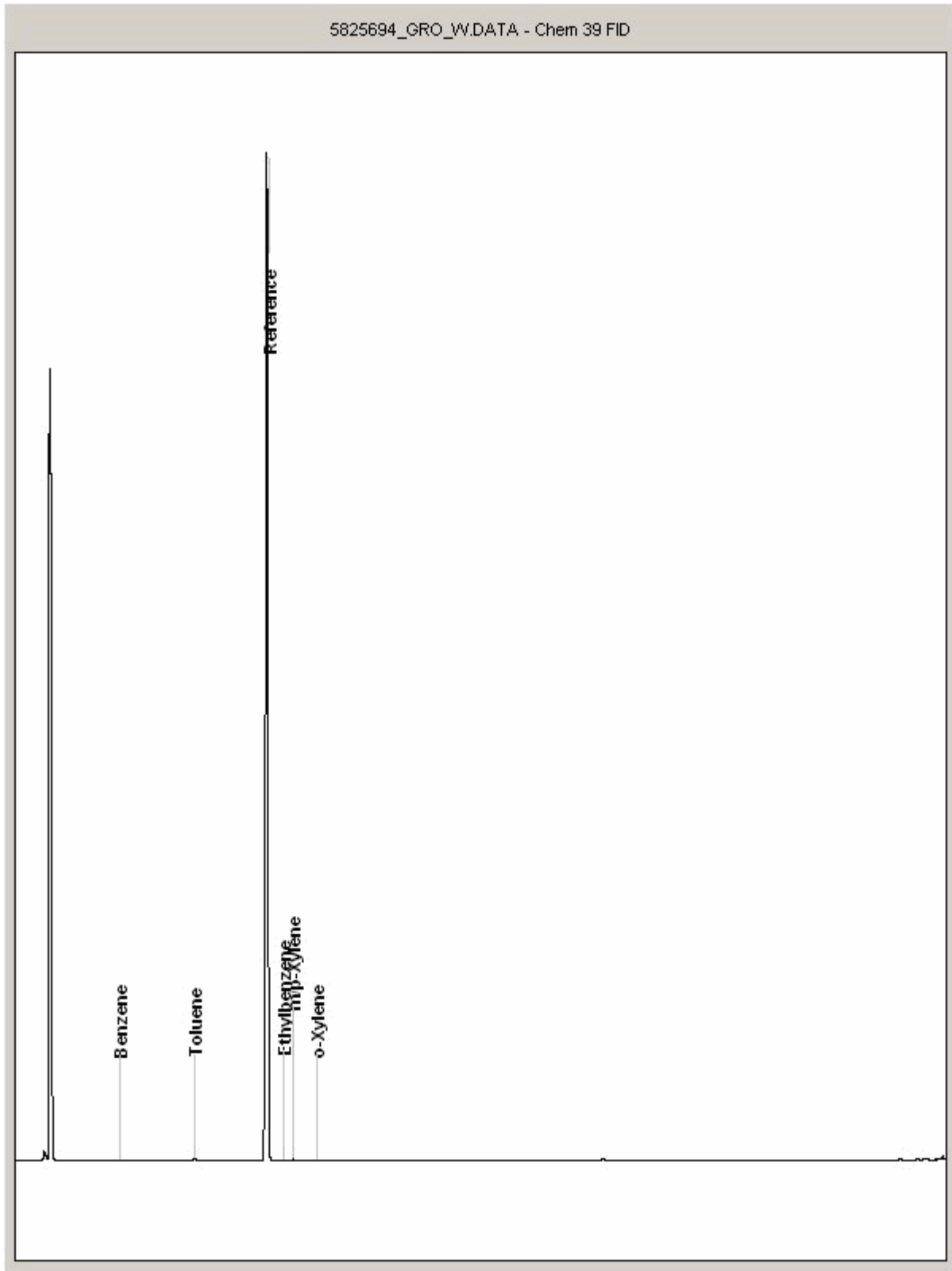
Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5825694
Sample ID : 658920

Depth :





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

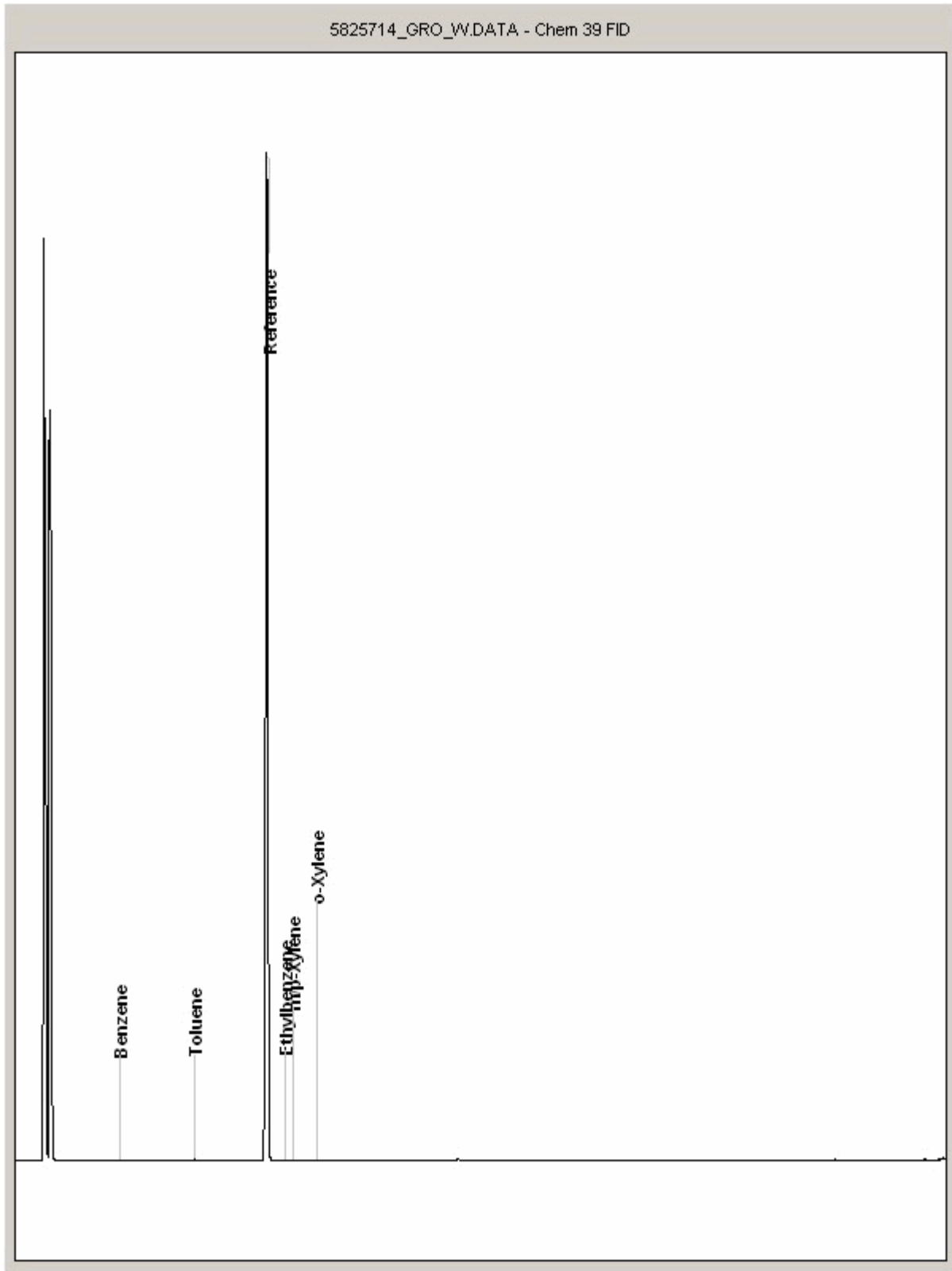
Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5825714
Sample ID : 897297

Depth :





SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

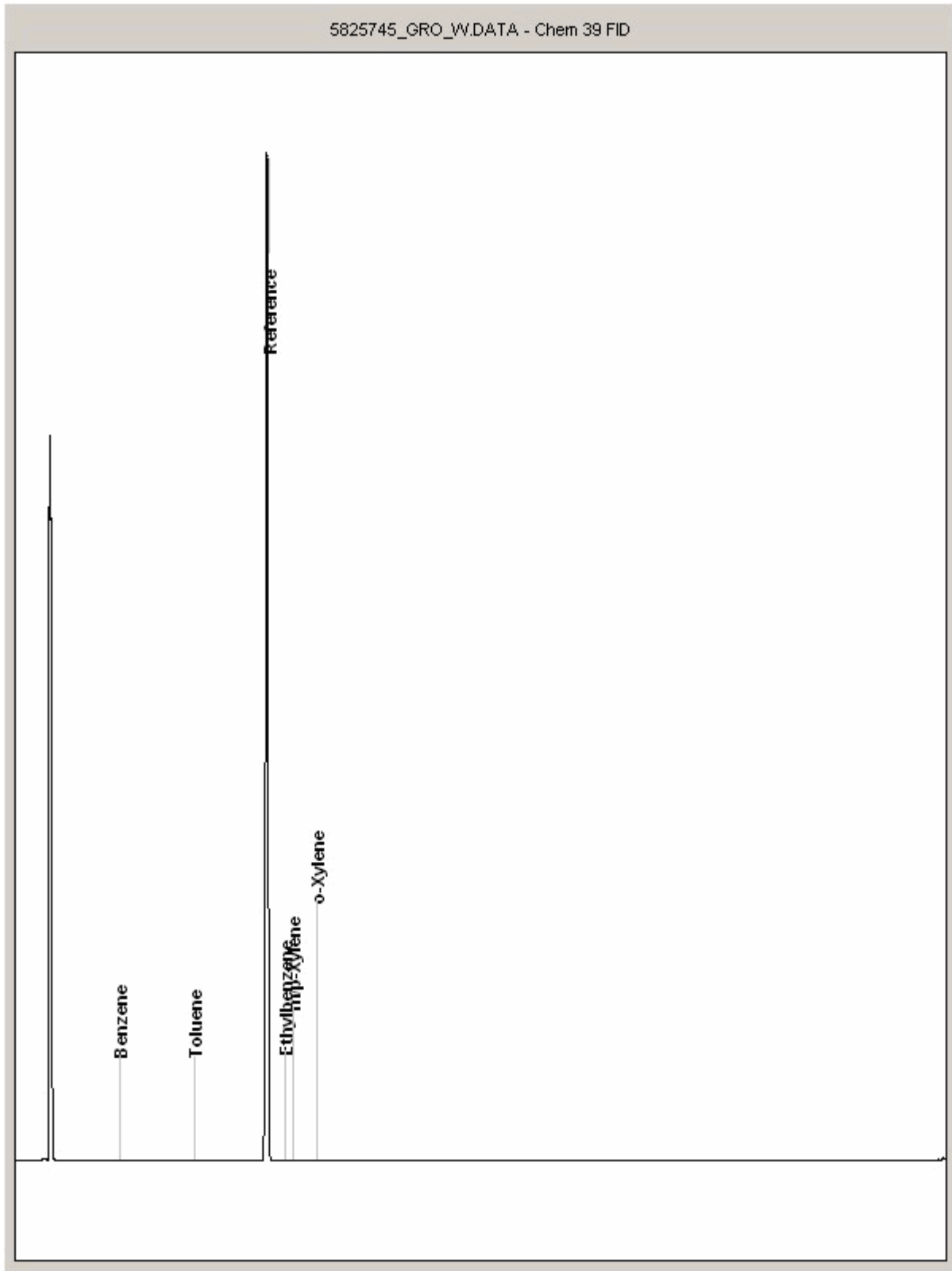
Order Number: 4559
Report Number: 187955
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5825745
Sample ID : 547994

Depth :



Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 8 samples described below.

Samples Registered on:	03-Jul-2012
Analysis Started on:	11-Jul-2012
Analysis Completed on:	13-Jul-2012
Results for Batch Number	20041239
Your Purchase Order Number:	150155

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Final Report

Report ID - 20041239 - 1

Batch description: Saline TOC Analysis

Reported on:
13-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001993797
Comments: 5819656 - 358151
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	9.71	mg/l	1	None	NM	1102

Final Report

Report ID - 20041239 - 1

Batch description: Saline TOC Analysis

Reported on:
13-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001993798
Comments: 5819690 - 658920
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	3.68	mg/l	1	None	NM	1102

Final Report

Report ID - 20041239 - 1

Batch description: Saline TOC Analysis

Reported on:
13-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001993799
Comments: 5819756 - 875454
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	4.09	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001993800
Comments: 5819807 - 547994
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	9.30	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001993801
Comments: 5819855 - 293706
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID, Testcode</u>
Carbon, Organic : Total as C :- {TOC}	47.9	mg/l	1	None	NM 1102

Client: ALcontrol Laboratories Chester
Folder No: 001993802
Comments: 5819891 - 561561
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	16.3	mg/l	1	None	NM	1102

Final Report

Report ID - 20041239 - 1

Batch description: Saline TOC Analysis

Reported on:
13-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001993803
Comments: 5819919 - 897297
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID, Testcode</u>
Carbon, Organic : Total as C :- {TOC}	101	mg/l	1	None	NM 1102

Client: ALcontrol Laboratories Chester
Folder No: 001993804
Comments: 5819963 - 542181
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID, Testcode</u>
Carbon, Organic : Total as C :- {TOC}	58.3	mg/l	1	None	NM 1102

Method Description Summary for all samples in batch Number 20041239

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

Tracy Dykes
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Tracy

Please find attached the results for the batch of 8 samples described below.

Samples Registered on:	03-Jul-2012
Analysis Started on:	04-Jul-2012
Analysis Completed on:	12-Jul-2012
Results for Batch Number	20041234
Your Purchase Order Number:	150155

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

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The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Client: ALcontrol Laboratories Chester
Folder No: 001993788
Comments: 5820007 - 897297
Quote No: 8770

Project: Saline Cyanide
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Cyanide : Free as CN	<0.00500	mg/l	0.005	None	SX	183
Cyanide as CN	<0.00500	mg/l	0.005	None	SX	182
Cyanide : Complex as CN	<0.00500	mg/l		None	NLS	864

Client: ALcontrol Laboratories Chester
Folder No: 001993789
Comments: 5820042 - 547994
Quote No: 8770

Project: Saline Cyanide
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Cyanide : Free as CN	<0.00500	mg/l	0.005	None	SX	183
Cyanide as CN	<0.00500	mg/l	0.005	None	SX	182
Cyanide : Complex as CN	<0.00500	mg/l		None	NLS	864

Client: ALcontrol Laboratories Chester
Folder No: 001993790
Comments: 5820055 - 561561
Quote No: 8770

Project: Saline Cyanide
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Cyanide : Free as CN	<0.00500	mg/l	0.005	None	SX	183
Cyanide as CN	<0.00500	mg/l	0.005	None	SX	182
Cyanide : Complex as CN	<0.00500	mg/l		None	NLS	864

Client: ALcontrol Laboratories Chester
Folder No: 001993791
Comments: 5820064 - 542181
Quote No: 8770

Project: Saline Cyanide
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Cyanide : Free as CN	<0.00500	mg/l	0.005	None	SX	183
Cyanide as CN	<0.00500	mg/l	0.005	None	SX	182
Cyanide : Complex as CN	<0.00500	mg/l		None	NLS	864

Client: ALcontrol Laboratories Chester
Folder No: 001993792
Comments: 5820088 - 875454
Quote No: 8770

Project: Saline Cyanide
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Cyanide : Free as CN	<0.00500	mg/l	0.005	None	SX	183
Cyanide as CN	<0.00500	mg/l	0.005	None	SX	182
Cyanide : Complex as CN	<0.00500	mg/l		None	NLS	864

Client: ALcontrol Laboratories Chester
Folder No: 001993793
Comments: 5820092 - 358151
Quote No: 8770

Project: Saline Cyanide
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Cyanide : Free as CN	<0.00500	mg/l	0.005	None	SX	183
Cyanide as CN	<0.00500	mg/l	0.005	None	SX	182
Cyanide : Complex as CN	<0.00500	mg/l		None	NLS	864

Client: ALcontrol Laboratories Chester
Folder No: 001993794
Comments: 5820099 - 658920
Quote No: 8770

Project: Saline Cyanide
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Cyanide : Free as CN	<0.00500	mg/l	0.005	None	SX	183
Cyanide as CN	<0.00500	mg/l	0.005	None	SX	182
Cyanide : Complex as CN	<0.00500	mg/l		None	NLS	864

Client: ALcontrol Laboratories Chester
Folder No: 001993795
Comments: 5820115 - 293706
Quote No: 8770

Project: Saline Cyanide
Sampled on: 28-Jun-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Cyanide : Free as CN	<0.00500	mg/l	0.005	None	SX	183
Cyanide as CN	<0.00500	mg/l	0.005	None	SX	182
Cyanide : Complex as CN	<0.00500	mg/l		None	NLS	864

Method Description Summary for all samples in batch Number 20041234

182	SX I Cyanide or NM I Cyanide- (total) - UV digested, determined colorimetrically by CF analyser
183	SX I Cyanide or NM I Cyanide- (free) - determined colorimetrically by CF analyser
864	Parameter by calculation



Simon Padley

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

SDG: 120630-35
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 187955
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 and CEN Leach tests, flash point, 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 2 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.

SOLID MATRICES EXTRACTION SUMMARY				
ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DOM	SOX THERM	GCMS
HERBICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
PESTICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
EPH (DRO)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (MIN OIL)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (CLEANED UP)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH CWGBY GC	D&C	HEXANE ACETONE	END OVER END	GC FD
PCBAROCLOR 1254/PCBCON	D&C	HEXANE ACETONE	END OVER END	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE ACETONE	MICROWAVE TM218.	GCMS
>C6-C40	WET	HEXANE ACETONE	SHAKER	GC FD
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE ACETONE	SHAKER	GC FD
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GCMS

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
PCB7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCBAROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVCC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by R	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FD

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description 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 Anorthophyllite	-
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.



Priority Geotechnical Ltd
Unit 12
Owenacurra Business Park
Midleton
Co Cork
Co Cork

Attention: Colette Kelly

CERTIFICATE OF ANALYSIS

Date: 23 July 2012
Customer: D_PRIORGEOT_CRK
Sample Delivery Group (SDG): 120704-46
Your Reference: P12030
Location: Haulbowline
Report No: 188344

This report has been revised and directly supersedes 187811 in its entirety.

We received 7 samples on Tuesday July 03, 2012 and 7 of these samples were scheduled for analysis which was completed on Monday July 23, 2012. 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: 120704-46	Location: Haulbowline	Order Number: 4559
Job: D_PRIORGEOT_CRK-44	Customer: Priority Geotechnical Ltd	Report Number: 188344
Client Reference: P12030	Attention: Colette Kelly	Superseded Report: 187811

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5830008	221070			02/07/2012
5830005	353699			02/07/2012
5830002	364120			02/07/2012
5830004	564641			02/07/2012
5830013	637895			02/07/2012
5830009	775326			02/07/2012
5830001	871985			02/07/2012

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



SDG: 120704-46
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 188344
 Superseded Report: 187811

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	5830008	5830005	5830002	5830004	5830013	5830009	5830001
	Customer Sample Reference	221070	353699	364120	564641	637895	775326	871955
	AGS Reference							
	Depth (m)							
	Container	1l green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	1l plastic (ALE221)	1l green glass bottle	Vial (ALE297)
Alkalinity as CaCO3	All	NDPs: 0 Tests: 1				X		
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 6	X	X	X	X	X	X
Ammonium Low	All	NDPs: 0 Tests: 1				X		
Anions by Kone (w)	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
BOD True Total	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
Fluoride	All	NDPs: 0 Tests: 2			X	X		
Free Sulphur	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 7	X	X	X	X	X	X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 6		X	X	X	X	X



SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

LEACH Results Legend X Test N No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
	5830008	221070			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle
	5830005	353699			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle
	5830002	364120			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle
	5830004	564641			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle
5830013	637895			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle	
5830009	775326			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle	
5830001	871955			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle	
Low Level Cyanide (W)	All	NDPs: 0 Tests: 7			X X X X X X X
Mercury Dissolved	All	NDPs: 0 Tests: 1			X
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 6			X X X X X X
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 7			X X X X X X X
Metals Ultra Low	All	NDPs: 0 Tests: 1			X
Nitrite by Kone (w)	All	NDPs: 0 Tests: 6			X X X X X X
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 7			X X X X X X X
pH Value	All	NDPs: 0 Tests: 7			X X X X X X X
Phenols by ms (w)	All	NDPs: 0 Tests: 2			X X
Saline TON	All	NDPs: 0 Tests: 6			X X X X X X
Sulphide	All	NDPs: 0 Tests: 7			X X X X X X X
TOC (Saline)*	All	NDPs: 0 Tests: 6			X X X X X X
Total Organic and Inorganic Carbon	All	NDPs: 0 Tests: 1			X
TPH CWG (W)	All	NDPs: 0 Tests: 7			X X X X X X X
VOC MS (W)	All	NDPs: 0 Tests: 1			X



SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Results Legend		Customer Sample R	221070	353699	364120	564641	637895	775326
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline C	Saline C	Saline C	Saline C	Saline A	Saline C
S	Deviating sample.		02/07/2012	02/07/2012	02/07/2012	02/07/2012	02/07/2012	02/07/2012
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		03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012
(F)	Trigger breach confirmed		120704-46	120704-46	120704-46	120704-46	120704-46	120704-46
			5830008	5830005	5830002	5830004	5830013	5830009
Component	LOD/Units	Method						
TOC (Saline)*	<1 mg/l	SUB	4.09	3.27	8.62	26.3		6.98
Alkalinity, Carbonate as CaCO3	<2 mg/l	TM043					<2	
BOD, unfiltered	<1 mg/l	TM045	<3	<3	<6	<6	<2	3.93
Organic Carbon, Total	<3 mg/l	TM090					<3	
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	0.225	3.72	20.8	<0.2		11.4
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099	#	#	#	#	2.59	#
Sulphide	<0.01 mg/l	TM101	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoride	<0.5 mg/l	TM104			<0.5		<0.5	
COD, unfiltered	<7 mg/l	TM107	295	283	385	326	<7	309
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	39.8	39.8	37.8	39.5	<0.005	36.2
Aluminium (diss.filt)	<2.9 µg/l	TM152					3.58	
Antimony (diss.filt)	<0.16 µg/l	TM152					<0.16	
Arsenic (diss.filt)	<0.12 µg/l	TM152					<0.12	
Barium (diss.filt)	<0.03 µg/l	TM152	430	83.3	292	109	0.236	71.1
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.7	<0.7	<0.7	<0.7	<0.07	<0.7
Cadmium (diss.filt) (low level)	<0.03 µg/l	TM152					<0.03	
Chromium (diss.filt)	<0.22 µg/l	TM152					0.411	
Cobalt (diss.filt)	<0.06 µg/l	TM152			2.48		<0.06	
Molybdenum (diss.filt)	<0.24 µg/l	TM152			22.7		<0.24	
Nickel (diss.filt)	<0.15 µg/l	TM152					<0.15	
Phosphorus (diss.filt)	<6.3 µg/l	TM152			<6.3		<6.3	
Selenium (diss.filt)	<0.39 µg/l	TM152					<0.39	
Thallium (diss.filt)	<0.96 µg/l	TM152			1.83		<0.96	
Tin (diss.filt)	<0.36 µg/l	TM152			4.45		<0.36	
Vanadium (diss.filt)	<0.24 µg/l	TM152					<0.24	
Zinc (diss.filt)	<0.41 µg/l	TM152					<0.41	
Mercury (diss.filt)	<0.01 µg/l	TM183					<0.01	
Nitrite as NO2	<0.05 mg/l	TM184	0.133	<0.05	<0.05	0.359		<0.05
Sulphate	<2 mg/l	TM184	2250	1990	1560	2020	<2	1780
Chloride	<2 mg/l	TM184	17700	16900	17300	16500	<2	15800
Nitrate as NO3	<0.3 mg/l	TM184					<0.3	
PCB congener 28	<0.015 µg/l	TM197	0.02	<0.015	<0.015	0.15	<0.015	<0.015
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	0.05	<0.015	<0.015
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	0.02	<0.015	<0.015
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	0.02	<0.015	<0.015



SDG: 120704-46	Location: Haulbowline	Order Number: 4559
Job: D_PRIORGEOT_CRK-44	Customer: Priority Geotechnical Ltd	Report Number: 188344
Client Reference: P12030	Attention: Colette Kelly	Superseded Report: 187811

Results Legend			Customer Sample R					
#	ISO17025 accredited.		221070	353699	364120	564641	637895	775326
M	mCERTS accredited.							
S	Deviating sample.							
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							
Component	LOD/Units	Method	221070	353699	364120	564641	637895	775326
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	0.02	<0.015	<0.015
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	0.02	<0.015	<0.015
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	0.02	<0.015	<0.015
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105	0.3	<0.105	<0.105
Phenol	<0.5 µg/l	TM205			<3		<3	
2-methylphenol	<0.5 µg/l	TM205			<0.5		<0.5	
3-methylphenol	<0.5 µg/l	TM205			<0.5		<0.5	
4-methylphenol	<0.5 µg/l	TM205			<0.5		<0.5	
2-chlorophenol	<0.5 µg/l	TM205			<0.5		<0.5	
2,4-dimethylphenol	<0.5 µg/l	TM205			<0.5		<0.5	
4-chloro-3-methylphenol	<0.5 µg/l	TM205			<0.5		<0.5	
2,6-dichlorophenol	<0.5 µg/l	TM205			<0.5		<0.5	
4-Chlorophenol	<0.5 µg/l	TM205			<0.5		<0.5	
2,4-dichlorophenol	<0.5 µg/l	TM205			<0.5		<0.5	
2-nitrophenol	<0.5 µg/l	TM205			<0.5		<0.5	
2,4,6-trichlorophenol	<0.5 µg/l	TM205			<0.5		<0.5	
2,4,5-trichlorophenol	<0.5 µg/l	TM205			<0.5		<0.5	
4-nitrophenol	<0.5 µg/l	TM205			<0.5		<0.5	
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205			<0.5		<0.5	
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205			<0.5		<0.5	
2,4-dinitrophenol	<2.5 µg/l	TM205			<2.5		<5	
DNOC	<3 µg/l	TM205			<3		<6	
Pentachlorophenol	<2 µg/l	TM205			<2		<2	
Dinoseb	<4 µg/l	TM205			<4		<8	
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	<0.012 mg/l	TM228	736	564	970	717	<0.012	635
Sodium (diss.filt)	<0.076 mg/l	TM228	4670	10800	2260	10100	1.67	4280
Magnesium (diss.filt)	<0.036 mg/l	TM228	865	824	839	690	0.0615	760
Potassium (diss.filt)	<2.335 mg/l	TM228	377	366	291	342	<2.34	293
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	0.117	<0.03	<0.03
pH	<1 pH Units	TM256	9.73	8.4	7.45	9.47	6.57	7.48
Arsenic (Saline)	<0.5 µg/l	TM270	1.21	7.73	2.33	1.63		2.76
Aluminium (Saline)	<3.7 µg/l	TM270	38.9	79.7	41.2	42.2		46.8

SDG: 120704-46	Location: Haulbowline	Order Number: 4559
Job: D_PRIORGEOT_CRK-44	Customer: Priority Geotechnical Ltd	Report Number: 188344
Client Reference: P12030	Attention: Colette Kelly	Superseded Report: 187811

Results Legend			Customer Sample R							
#	ISO17025 accredited.		221070	353699	364120	564641	637895	775326		
M	mCERTS accredited.									
S	Deviating sample.									
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									
			Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			Saline C	Saline C	Saline C	Saline C	Saline C	Saline A	Saline C	
			02/07/2012	02/07/2012	02/07/2012	02/07/2012	02/07/2012	02/07/2012	02/07/2012	
			03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	
			120704-46	120704-46	120704-46	120704-46	120704-46	120704-46	120704-46	
			5830008	5830005	5830002	5830004	5830003	5830009	5830009	
Component	LOD/Units	Method								
Antimony (Saline)	<1 µg/l	TM270	<1	<1	<1	<1			1.86	#
Boron (Saline)	<201 µg/l	TM270	2570	2420	1470	2360			1900	#
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15	<0.15	<0.15	<0.15			<0.15	#
Chromium (Saline)	<1.5 µg/l	TM270	27.8	7.67	4.66	123			5.59	#
Copper (Saline)	<1 µg/l	TM270	<1	12.5	<1	2.04			<1	#
Iron (Saline)	<4 µg/l	TM270	<4	<4	<4	<4			<4	#
Lead (Saline)	<0.2 µg/l	TM270	<0.2	<0.2	<0.2	<0.2			<0.2	#
Manganese (Saline)	<0.3 µg/l	TM270	<0.3	487	13300	<0.3			5750	#
Mercury (Saline)	<0.15 µg/l	TM270	<0.15	<0.15	<0.15	<0.15			<0.15	#
Nickel (saline)	<1.1 µg/l	TM270	4.86	16.9	11.5	5.94			11.3	#
Selenium (Saline)	<0.5 µg/l	TM270	1.05	0.646	1.01	1.92			1.17	#
Vanadium (Saline)	<4 µg/l	TM270	16.7	26.6	15.5	22.9			22.8	#
Zinc (Saline)	<2.1 µg/l	TM270	<2.1	22.9	12.5	<2.1			6.12	#
Cyanide, Total (low level)	<5 µg/l	TM279	<5	<5	<5	<5	<5	<5	<5	
Saline TON as NO3	<0.3 mg/l	TM281	0.523	<0.3	<0.3	1.3			<0.3	#
Saline Nitrate as NO3	<0.3 mg/l	TM281	0.353	<0.3	<0.3	0.82			<0.3	
Sulphur, Free	<0.05 mg/l	TM294	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Boron Ultra low	<20 µg/l	TM307						361		
Copper Ultra low	<0.1 µg/l	TM307						<1		
Iron Ultra low	<70 µg/l	TM307						<700		
Manganese Ultra low	<0.1 µg/l	TM307						<1		
Lead Ultra low	<0.1 µg/l	TM307						<1		



SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Results Legend		Customer Sample R					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	871985				
M	mCERTS accredited.		Saline C				
S	Deviating sample.		02/07/2012				
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.		03/07/2012				
**	% 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		120704-46				
(F)	Trigger breach confirmed		5830001				
Component	LOD/Units		Method				
TOC (Saline)*	<1 mg/l	SUB	2.83				
BOD, unfiltered	<1 mg/l	TM045	<2				
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	<0.2	#			
Sulphide	<0.01 mg/l	TM101	<0.01				
COD, unfiltered	<7 mg/l	TM107	266				
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	38.8	#			
Barium (diss.filt)	<0.03 µg/l	TM152	81.9				
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.7				
Nitrite as NO2	<0.05 mg/l	TM184	<0.05				
Sulphate	<2 mg/l	TM184	2060				
Chloride	<2 mg/l	TM184	16900				
PCB congener 28	<0.015 µg/l	TM197	<0.015				
PCB congener 52	<0.015 µg/l	TM197	<0.015				
PCB congener 101	<0.015 µg/l	TM197	<0.015				
PCB congener 118	<0.015 µg/l	TM197	<0.015				
PCB congener 138	<0.015 µg/l	TM197	<0.015				
PCB congener 153	<0.015 µg/l	TM197	<0.015				
PCB congener 180	<0.015 µg/l	TM197	<0.015				
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105				
Cyanide, Free	<0.05 mg/l	TM227	<0.05				
Cyanide, Complex	<0.05 mg/l	TM227	<0.05				
Thiocyanate	<0.05 mg/l	TM227	<0.05				
Calcium (diss.filt)	<0.012 mg/l	TM228	696				
Sodium (diss.filt)	<0.076 mg/l	TM228	225				
Magnesium (diss.filt)	<0.036 mg/l	TM228	854				
Potassium (diss.filt)	<2.335 mg/l	TM228	375				
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03	#			
pH	<1 pH Units	TM256	9.03				
Arsenic (Saline)	<0.5 µg/l	TM270	3.09	#			
Aluminium (Saline)	<3.7 µg/l	TM270	36.2	#			
Antimony (Saline)	<1 µg/l	TM270	2.47	#			
Boron (Saline)	<201 µg/l	TM270	2610	#			
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15	#			
Chromium (Saline)	<1.5 µg/l	TM270	5.23	#			
Copper (Saline)	<1 µg/l	TM270	<1	#			



SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Table with columns: Results Legend, Customer Sample R, Component, LOD/Units, Method, and numerical data. Includes rows for Iron, Lead, Manganese, Mercury, Nickel, Selenium, Vanadium, Zinc, Cyanide, Saline TON as NO3, Saline Nitrate as NO3, and Sulphur, Free.



CERTIFICATE OF ANALYSIS

Validated

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowlne
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

TPH CWG (W)

Table with 10 columns: Results Legend, Customer Sample R, 221070, 353699, 364120, 564641, 637895, 775326. Rows include GRO Surrogate % recovery, GRO >C5-C12, Methyl tertiary butyl ether (MTBE), Benzene, Toluene, Ethylbenzene, m,p-Xylene, o-Xylene, Sum of detected Xylenes, Sum of detected BTEX, Aliphatics >C5-C6, Aliphatics >C6-C8, Aliphatics >C8-C10, Aliphatics >C10-C12, Aliphatics >C12-C16 (aq), Aliphatics >C16-C21 (aq), Aliphatics >C21-C35 (aq), Total Aliphatics >C12-C35 (aq), Aromatics >EC5-EC7, Aromatics >EC7-EC8, Aromatics >EC8-EC10, Aromatics >EC10-EC12, Aromatics >EC12-EC16 (aq), Aromatics >EC16-EC21 (aq), Aromatics >EC21-EC35 (aq), Total Aromatics >EC12-EC35 (aq), Total Aliphatics & Aromatics >C5-35 (aq).



SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

TPH CWG (W)

Results Legend		Customer Sample R		871985				
#	ISO17025 accredited.							
M	mCERTS accredited.							
S	Deviating sample.							
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							
		Depth (m)						
		Sample Type	Saline C					
		Date Sampled	02/07/2012					
		Sampled Time						
		Date Received	03/07/2012					
		SDG Ref	120704-46					
		Lab Sample No.(s)	5830001					
		AGS Reference						
Component	LOD/Units	Method						
GRO Surrogate % recovery**	%	TM245	97					
GRO >C5-C12	<50 µg/l	TM245	<50					
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	<10					
Aliphatics >C8-C10	<10 µg/l	TM245	<10					
Aliphatics >C10-C12	<10 µg/l	TM245	<10					
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10					
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10					
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10					
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10					
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	<10					
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10					
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10					
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10					
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10					
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10					



SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

VOC MS (W)

Results Legend		Customer Sample R	637895					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline A 02/07/2012 03/07/2012 120704-46 5830013					
M	mCERTS accredited.							
S	Deviating sample.							
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							
Component	LOD/Units			Method				
Dibromofluoromethane**	%	TM208	115					
Toluene-d8**	%	TM208	98.3					
4-Bromofluorobenzene**	%	TM208	95.5					
Dichlorodifluoromethane	<1 µg/l	TM208	<1					
Chloromethane	<1 µg/l	TM208	<1					
Vinyl chloride	<1 µg/l	TM208	<1					
Bromomethane	<1 µg/l	TM208	<1					
Chloroethane	<1 µg/l	TM208	<1					
Trichlorofluoromethane	<1 µg/l	TM208	<1					
1,1-Dichloroethene	<1 µg/l	TM208	<1					
Carbon disulphide	<1 µg/l	TM208	<1					
Dichloromethane	<3 µg/l	TM208	<3					
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1					
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1					
1,1-Dichloroethane	<1 µg/l	TM208	<1					
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1					
2,2-Dichloropropane	<1 µg/l	TM208	<1					
Bromochloromethane	<1 µg/l	TM208	<1					
Chloroform	<1 µg/l	TM208	<1					
1,1,1-Trichloroethane	<1 µg/l	TM208	<1					
1,1-Dichloropropene	<1 µg/l	TM208	<1					
Carbontetrachloride	<1 µg/l	TM208	<1					
1,2-Dichloroethane	<1 µg/l	TM208	<1					
Benzene	<1 µg/l	TM208	<1					
Trichloroethene	<1 µg/l	TM208	<1					
1,2-Dichloropropane	<1 µg/l	TM208	<1					
Dibromomethane	<1 µg/l	TM208	<1					
Bromodichloromethane	<1 µg/l	TM208	<1					
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1					
Toluene	<1 µg/l	TM208	<1					
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1					
1,1,2-Trichloroethane	<1 µg/l	TM208	<1					
1,3-Dichloropropane	<1 µg/l	TM208	<1					
Tetrachloroethene	<1 µg/l	TM208	<1					
Dibromochloromethane	<1 µg/l	TM208	<1					



SDG: 120704-46
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 188344
 Superseded Report: 187811

VOC MS (W)

Results Legend		Customer Sample R	637895					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline A 02/07/2012 03/07/2012 120704-46 5830013					
M	mCERTS accredited.							
S	Deviating sample.							
aq	Aqueous / settled sample.							
diss.fit	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							
Component	LOD/Units			Method				
1,2-Dibromoethane	<1 µg/l	TM208	<1					
Chlorobenzene	<1 µg/l	TM208	<1					
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1					
Ethylbenzene	<1 µg/l	TM208	<1					
m,p-Xylene	<1 µg/l	TM208	<1					
o-Xylene	<1 µg/l	TM208	<1					
Styrene	<1 µg/l	TM208	<1					
Bromoform	<1 µg/l	TM208	<1					
Isopropylbenzene	<1 µg/l	TM208	<1					
1,1,2,2-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					
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1					
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1					
VOC TIC	-	TM208	No TICs identified					
Sum of detected Xylenes	<2 µg/l	TM208	<2					



SDG:	120704-46	Location:	Haulbowline	Order Number:	4559
Job:	D_PRIORGEOT_CRK-44	Customer:	Priority Geotechnical Ltd	Report Number:	188344
Client Reference:	P12030	Attention:	Colette Kelly	Superseded Report:	187811

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM090	Method 5310, AWWA/APHA, 20th Ed., 1999 / Modified: US EPA Method 415.1 & 9060	Determination of Total Organic Carbon/Total Inorganic Carbon in Water and Waste Water		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM183	BS EN 23506:2002, (BS 6068-2.74:2002) ISBN 0 580 38924 3	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM270	Thermo Electron Application Note AN_E0640: X Series ICP-MS: Using automated collision cell ICP-MS with rapid in-sample switching to achieve ultimate performance in environmental analysis.	Dissolved Metals in Saline Matrices by CCT ICP-MS		
TM279		Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser		
TM281		The Determination of Total Oxidized Nitrogen in Saline Matrices using the Kone Spectrophotometric Analysers		
TM294		Determination of Free Sulphur in liquids by HPLC		
TM307		Ultra Low Metals		

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



SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Test Completion Dates

Lab Sample No(s)	5830008	5830005	5830002	5830004	5830013	5830009	5830001
Customer Sample Ref.	221070	353699	364120	564641	637895	775326	871985
AGS Ref.							
Depth							
Type	SALINE_C	SALINE_C	SALINE_C	SALINE_C	SALINE_A	SALINE_C	SALINE_C
Alkalinity as CaCO3					09-Jul-2012		
Ammoniacal Nitrogen	10-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012		10-Jul-2012	09-Jul-2012
Ammonium Low					10-Jul-2012		
Anions by Kone (w)	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012
BOD True Total	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012
COD Unfiltered	06-Jul-2012	07-Jul-2012	06-Jul-2012	07-Jul-2012	07-Jul-2012	06-Jul-2012	06-Jul-2012
Conductivity (at 20 deg.C)	05-Jul-2012	06-Jul-2012	05-Jul-2012	06-Jul-2012	06-Jul-2012	05-Jul-2012	05-Jul-2012
Cyanide Comp/Free/Total/Thiocyanate	09-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
Dissolved Metals by ICP-MS	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
EPH CWG (Aliphatic) Aqueous GC (W)	11-Jul-2012	11-Jul-2012	12-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
EPH CWG (Aromatic) Aqueous GC (W)	11-Jul-2012	11-Jul-2012	12-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Fluoride			06-Jul-2012		09-Jul-2012		
Free Sulphur	10-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012	10-Jul-2012	10-Jul-2012	09-Jul-2012
GRO by GC-FID (W)	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012	05-Jul-2012
Hexavalent Chromium (w)		10-Jul-2012	09-Jul-2012	10-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012
Low Level Cyanide (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
Mercury Dissolved					10-Jul-2012		
Metals analysis (Saline Sample)	11-Jul-2012	11-Jul-2012	12-Jul-2012	11-Jul-2012		12-Jul-2012	11-Jul-2012
Metals by iCap-OES Dissolved (W)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	10-Jul-2012	11-Jul-2012	11-Jul-2012
Metals Ultra Low					11-Jul-2012		
Nitrite by Kone (w)	07-Jul-2012	07-Jul-2012	06-Jul-2012	06-Jul-2012	07-Jul-2012	07-Jul-2012	06-Jul-2012
PCB Congeners - Aqueous (W)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
pH Value	06-Jul-2012	09-Jul-2012	06-Jul-2012	09-Jul-2012	09-Jul-2012	06-Jul-2012	06-Jul-2012
Phenols by ms (w)			23-Jul-2012		16-Jul-2012		
Saline TON	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012		10-Jul-2012	10-Jul-2012
Sulphide	06-Jul-2012	07-Jul-2012	06-Jul-2012	07-Jul-2012	07-Jul-2012	06-Jul-2012	06-Jul-2012
TOC (Saline)*	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012		17-Jul-2012	17-Jul-2012
Total Organic and Inorganic Carbon					07-Jul-2012		
TPH CWG (W)	11-Jul-2012	11-Jul-2012	12-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
VOC MS (W)					09-Jul-2012		



CERTIFICATE OF ANALYSIS

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

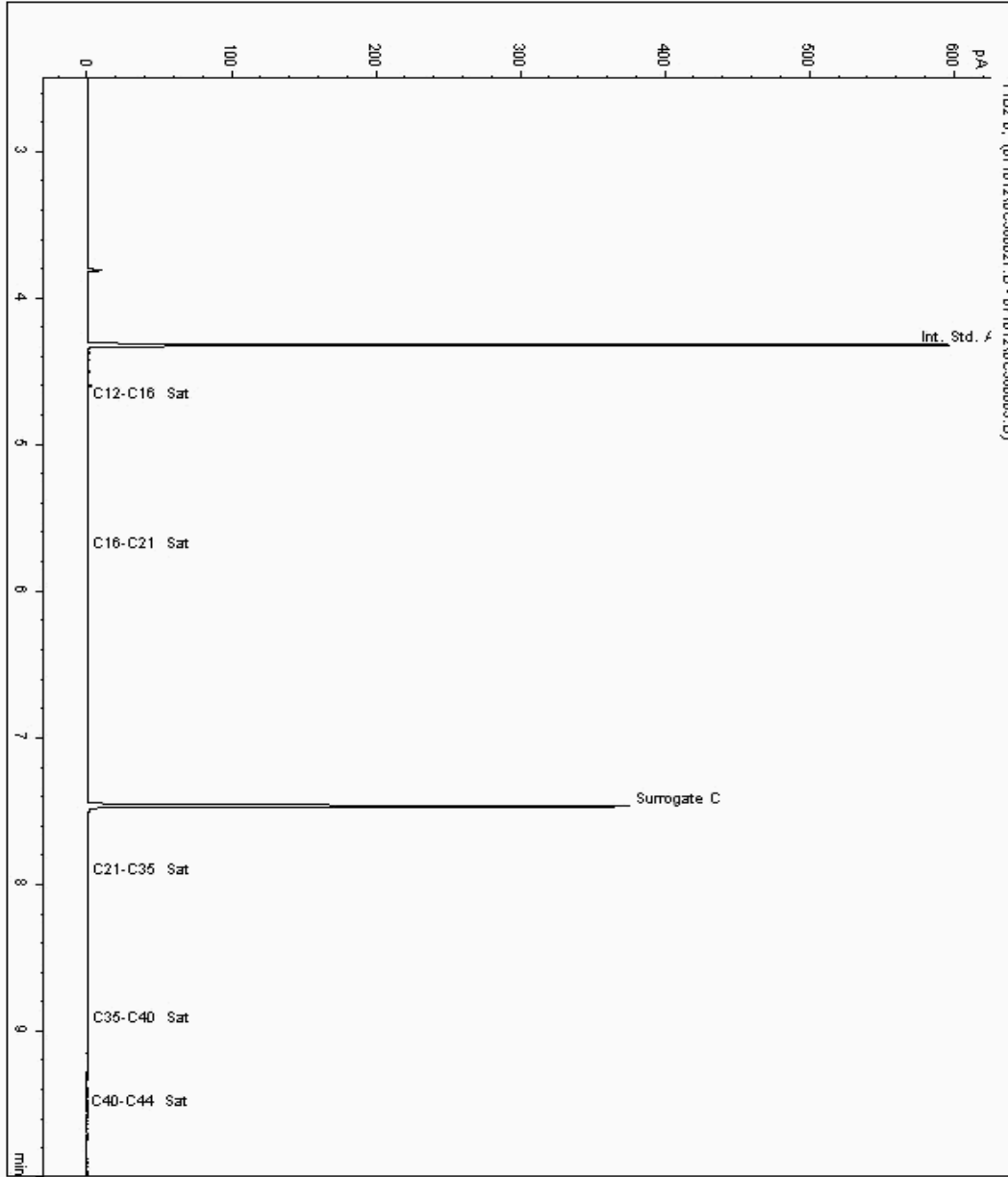
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5838935
Sample ID : 871985

Depth :

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

Sample Identity: 5686850-5838935
Date Acquired : 11/07/12 00:59:20 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

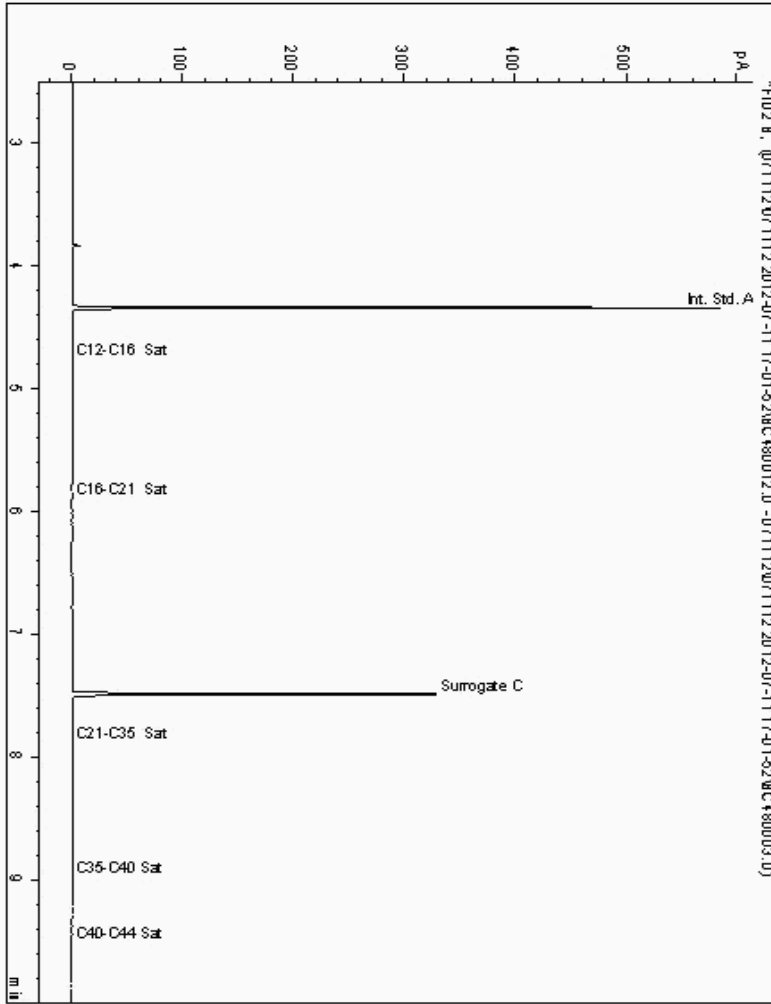
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5839030
Sample ID : 364120

Depth :

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

Sample Identity: 5686881-5839030
Date Acquired : 11/07/12 20:27:06
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

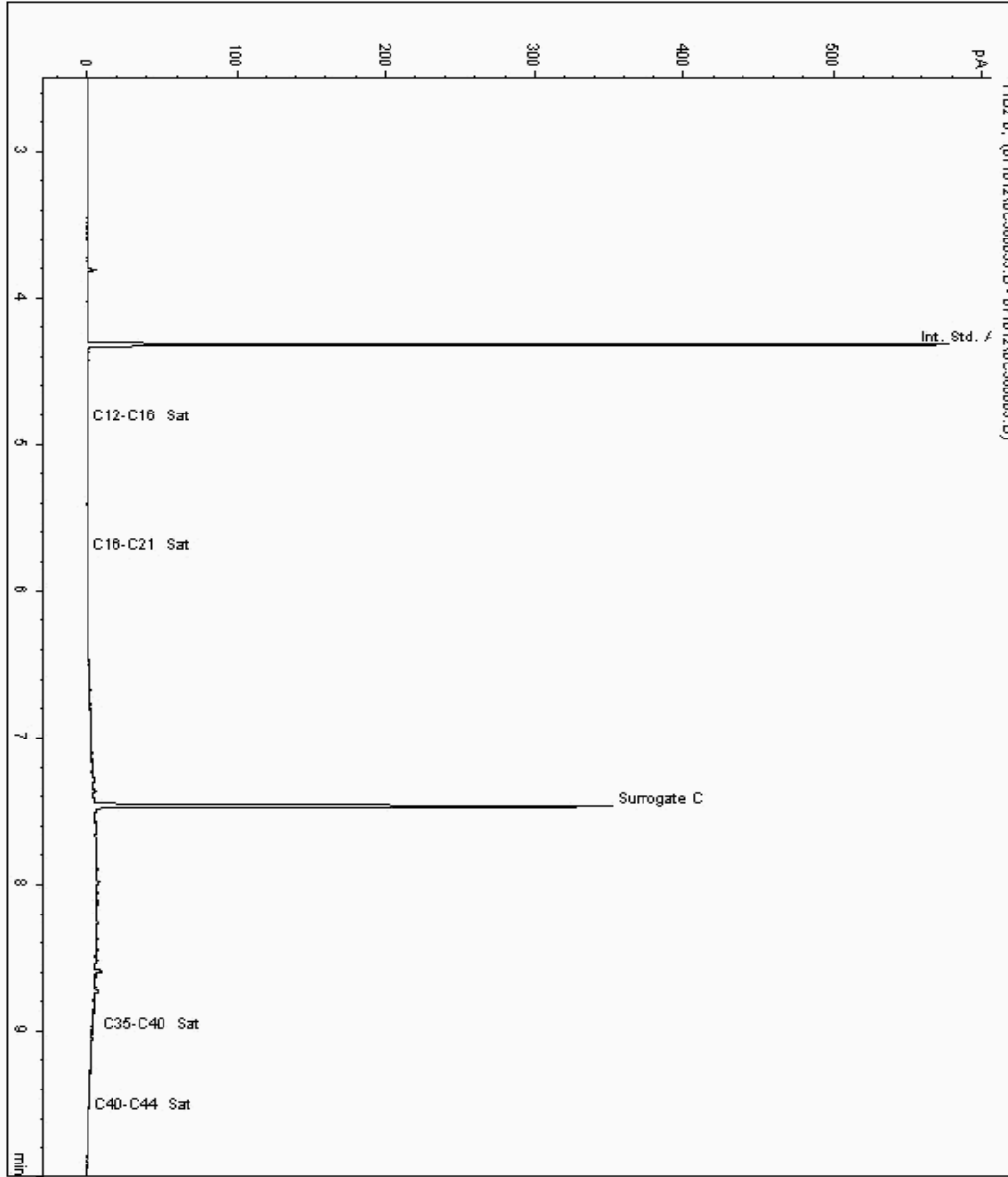
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5839051
Sample ID : 564641

Depth :

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

Sample Identity: 5686912-5839051
Date Acquired : 11/07/12 13:16:40 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

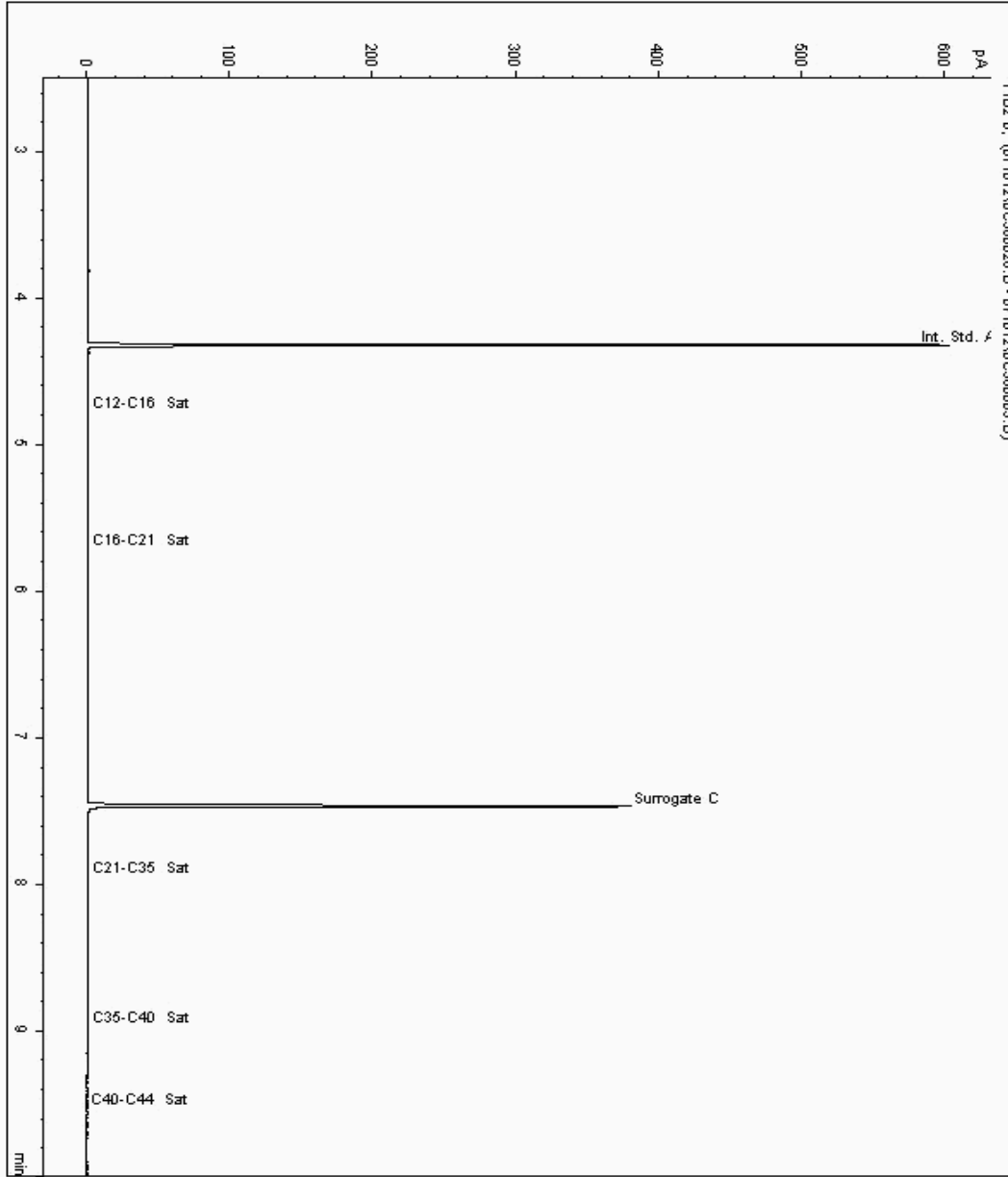
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5844432
Sample ID : 637895

Depth :

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

Sample Identity: 5687026-5844432
Date Acquired : 11/07/12 00:40:49 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

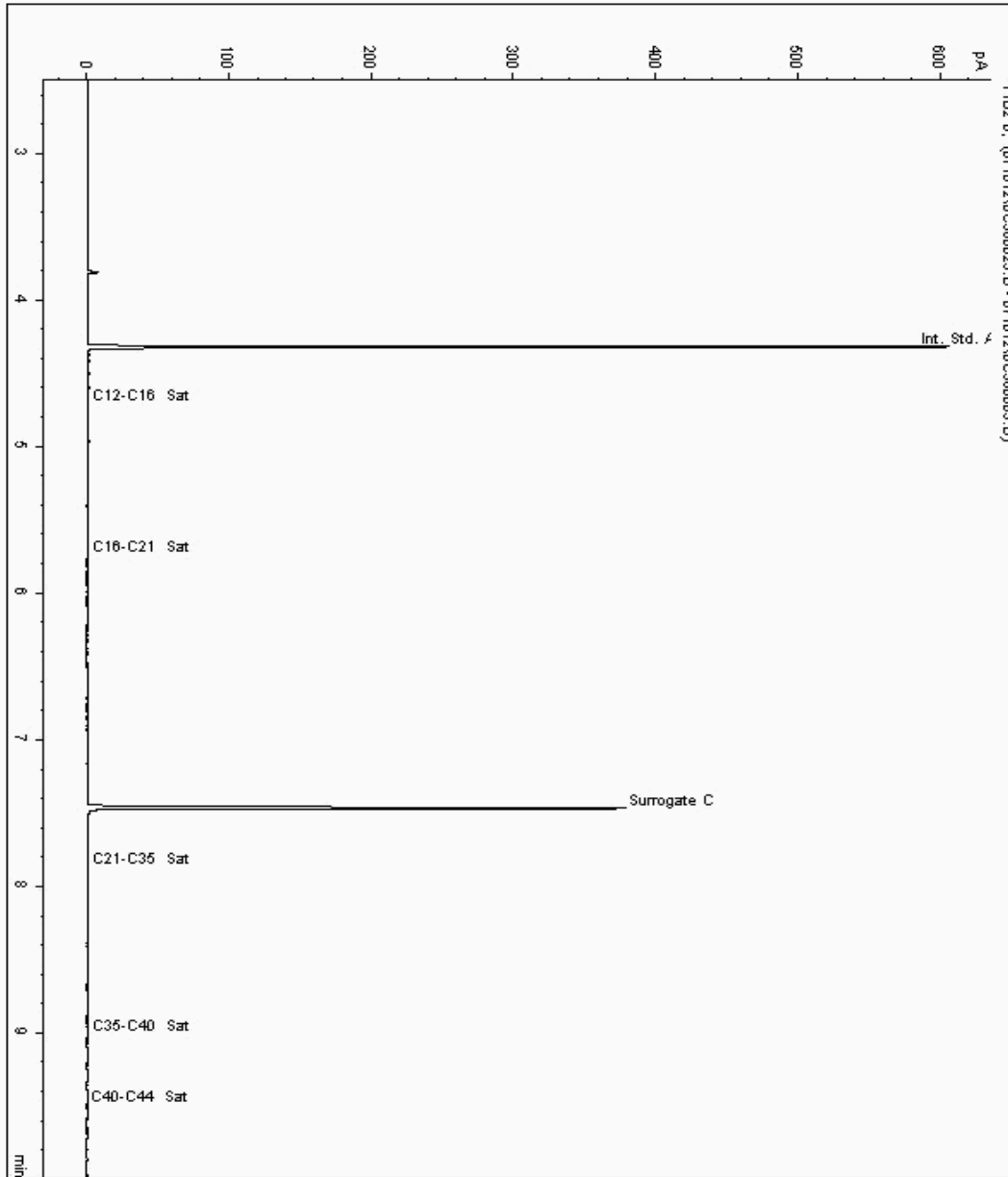
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5844796
Sample ID : 775326

Depth :

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

Sample Identity: 5687000-5844796
Date Acquired : 10/07/12 23:45:01 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

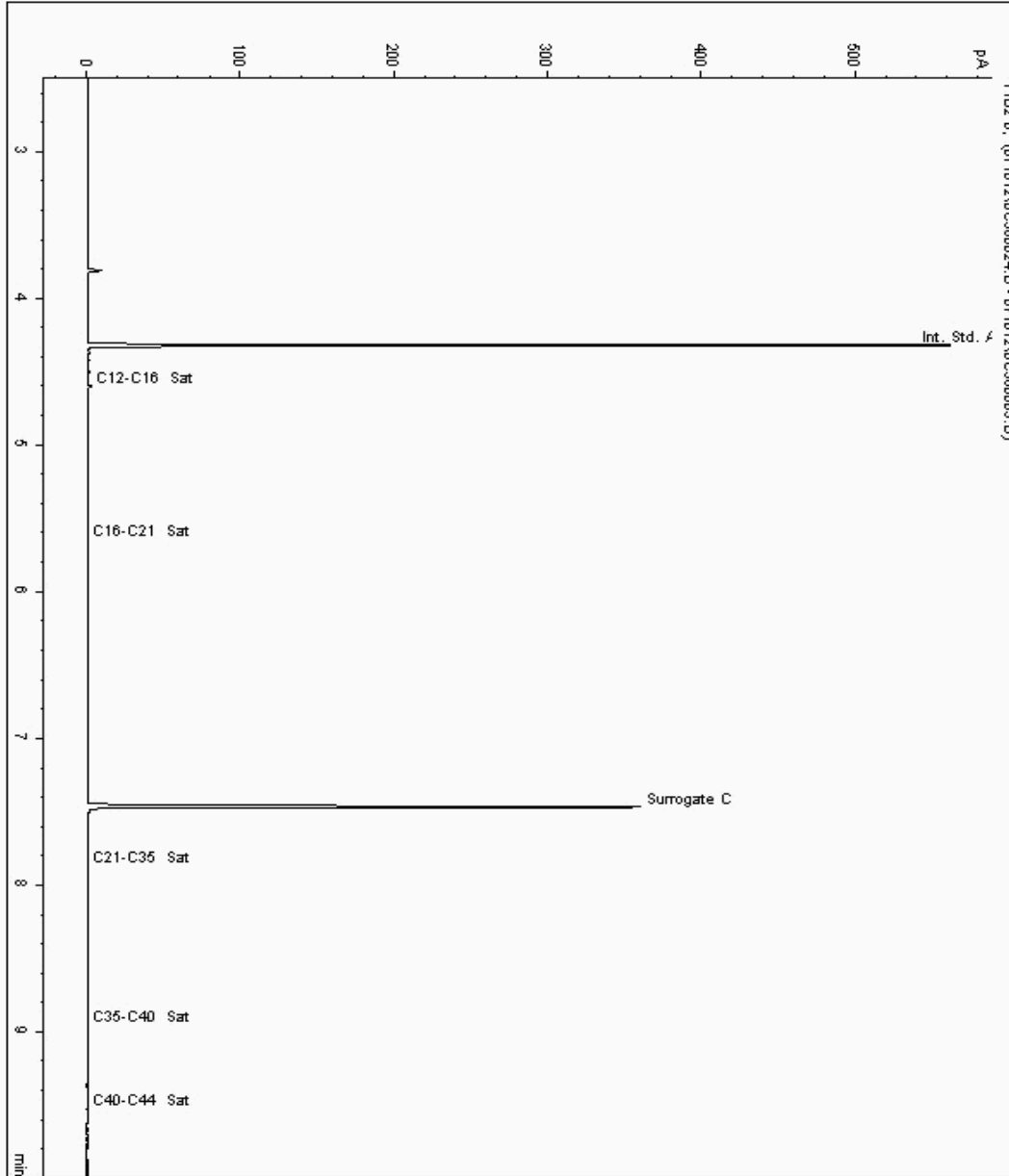
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5844913
Sample ID : 221070

Depth :

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

Sample Identity: 5686968-5844913
Date Acquired : 11/07/12 00:03:31 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

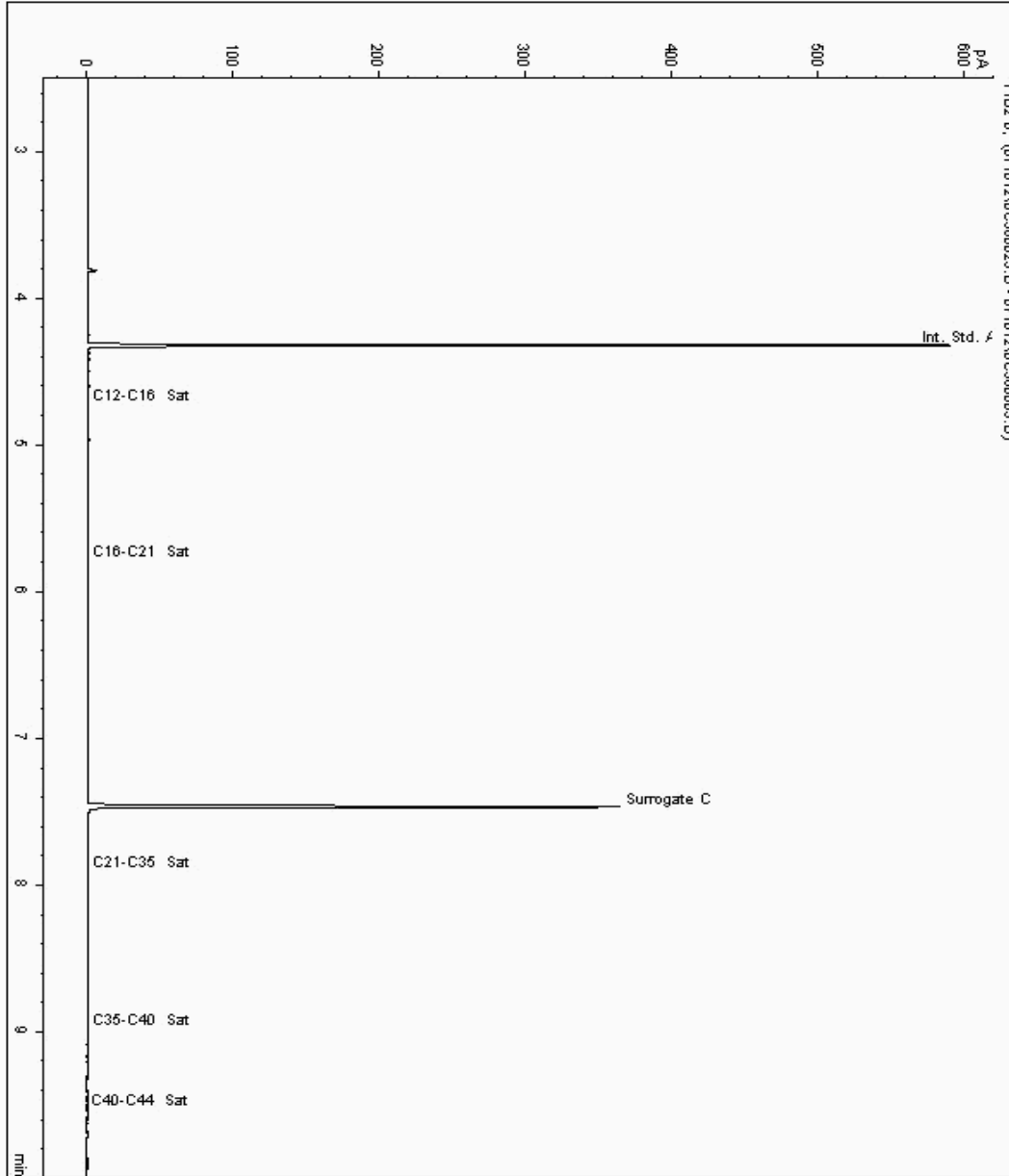
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5844998
Sample ID : 353699

Depth :

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

Sample Identity: 5686940-5844998
Date Acquired : 11/07/12 00:22:14 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

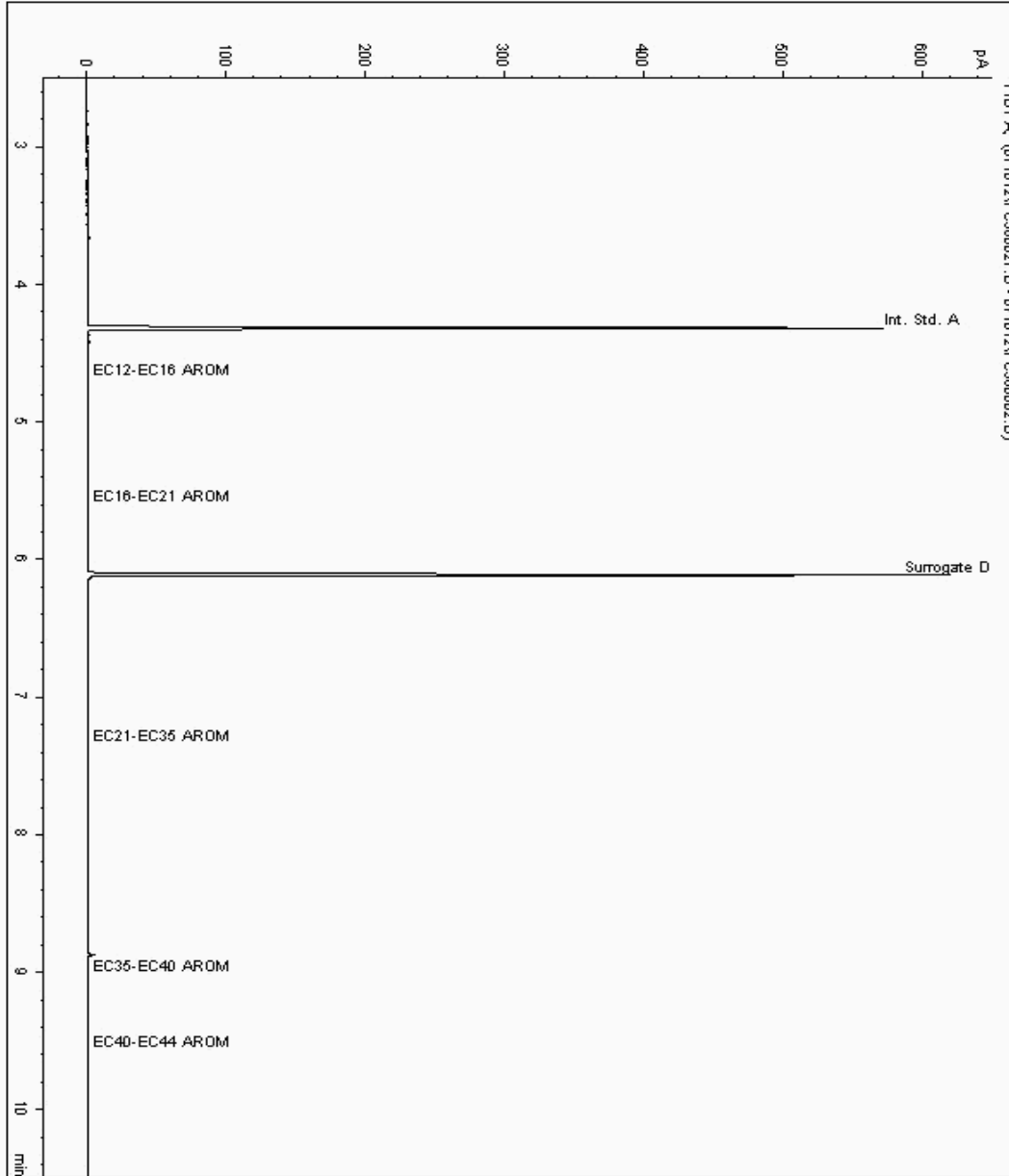
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5838935
Sample ID : 871985

Depth :

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

Sample Identity: 5686851-5838935
Date Acquired : 11/07/12 00:59:20 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

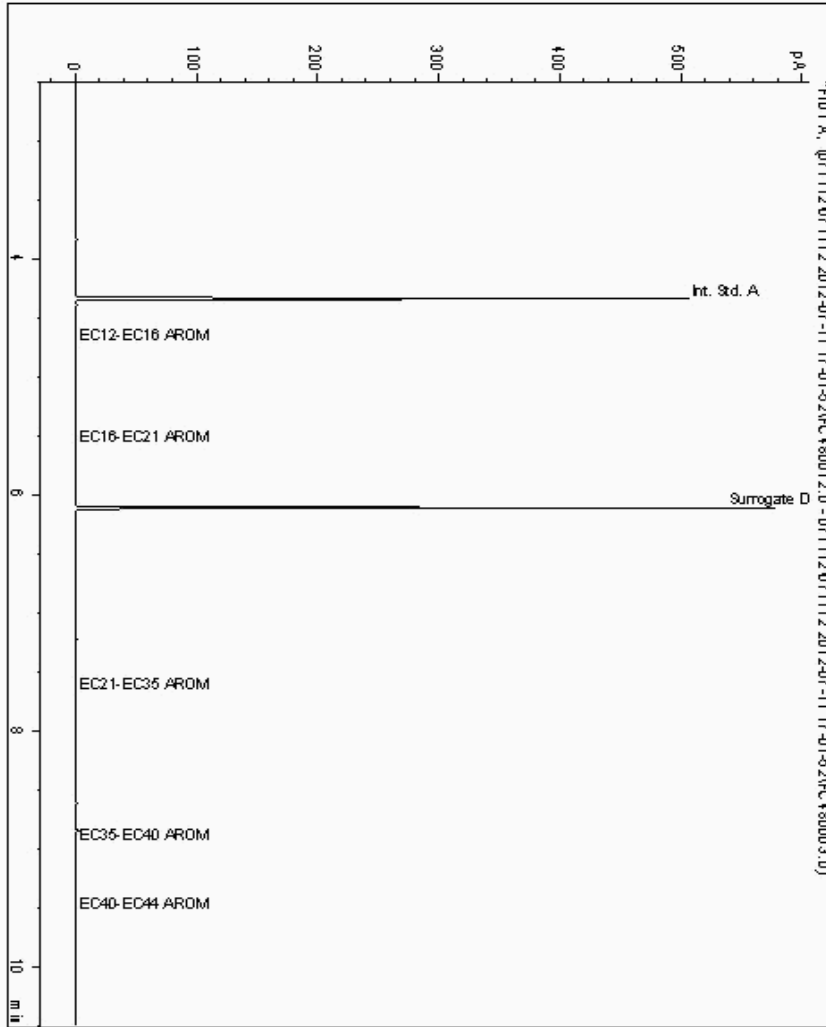
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5839030
Sample ID : 364120

Depth :

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

Sample Identity: 5686882-5839030
Date Acquired : 11/07/12 20:27:07
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

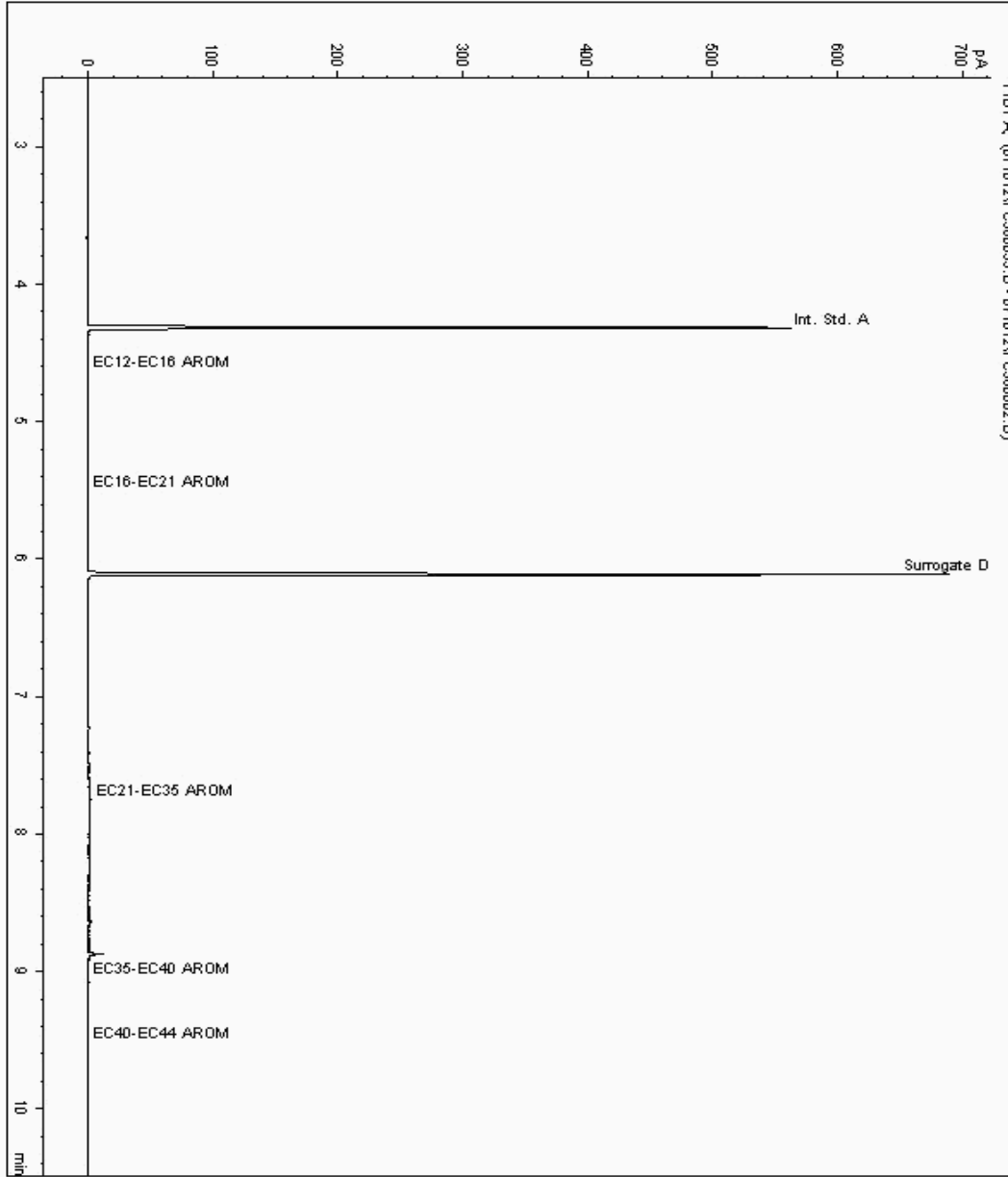
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5839051
Sample ID : 564641

Depth :

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

Sample Identity: 5686913-5839051
Date Acquired : 11/07/12 13:16:40 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

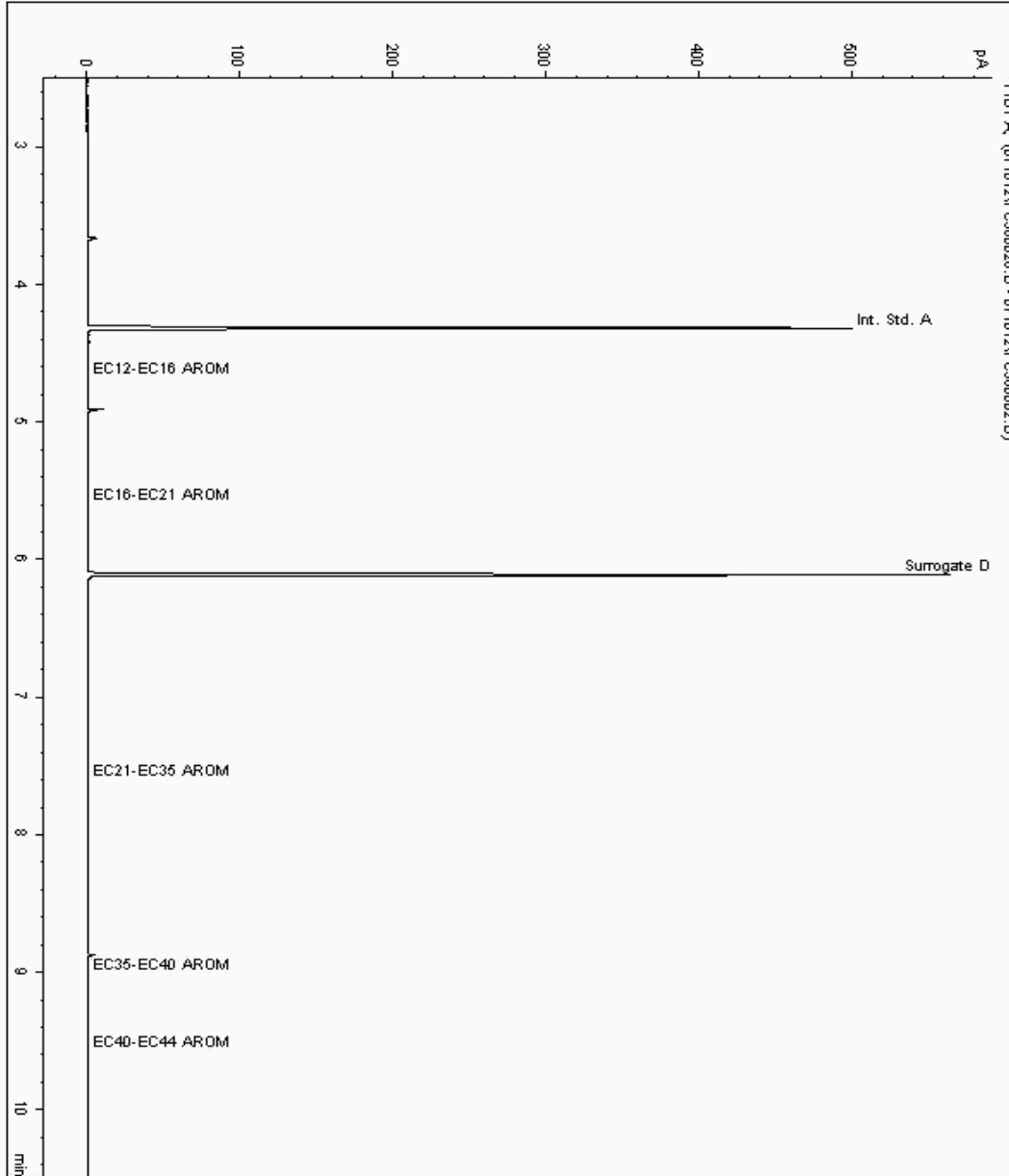
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5844432
Sample ID : 637895

Depth :

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

Sample Identity: 5687027-5844432
Date Acquired : 11/07/12 00:40:49 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

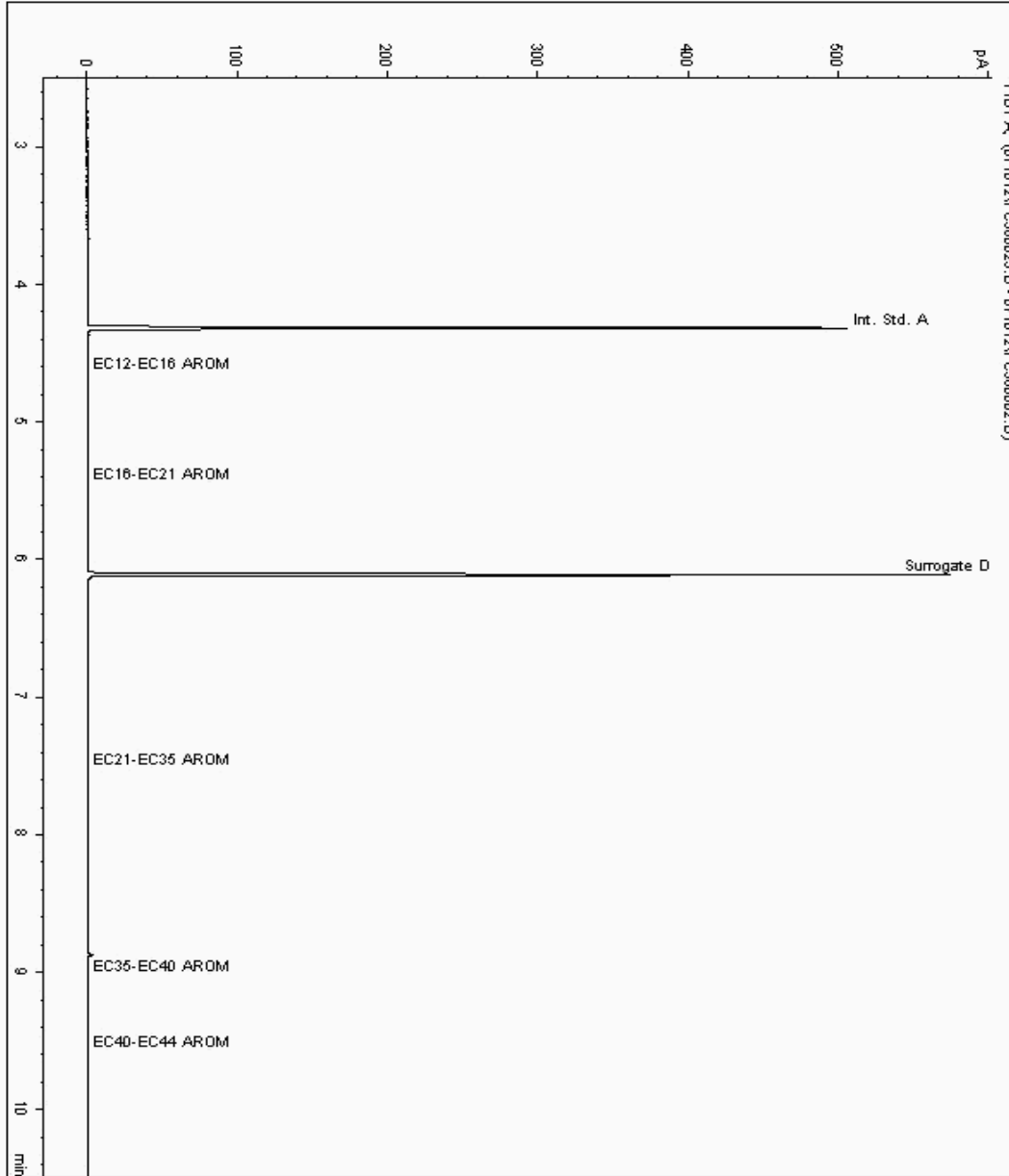
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5844796
Sample ID : 775326

Depth :

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

Sample Identity: 5687001-5844796
Date Acquired : 10/07/12 23:45:01 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

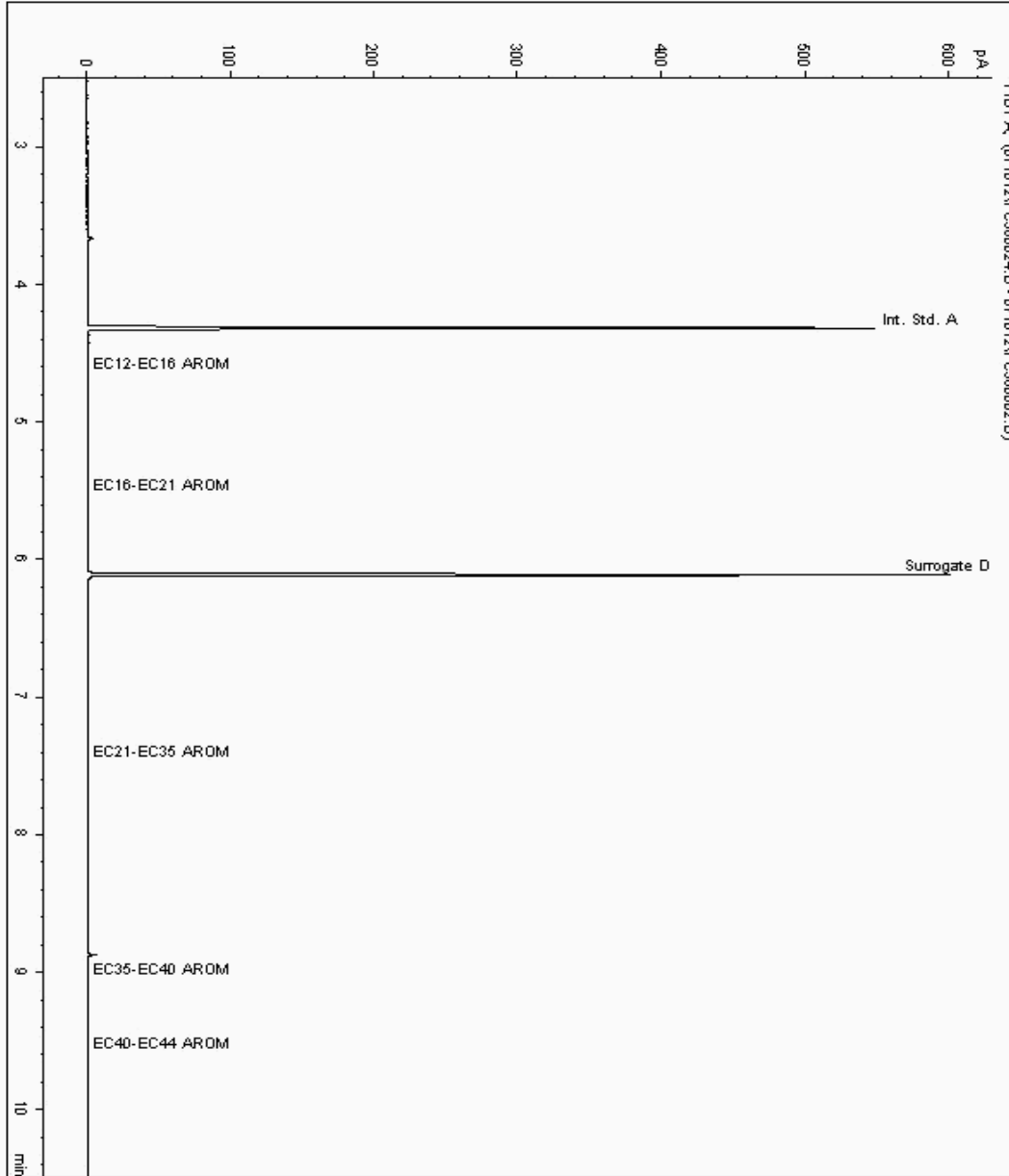
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5844913
Sample ID : 221070

Depth :

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

Sample Identity: 5686969-5844913
Date Acquired : 11/07/12 00:03:31 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

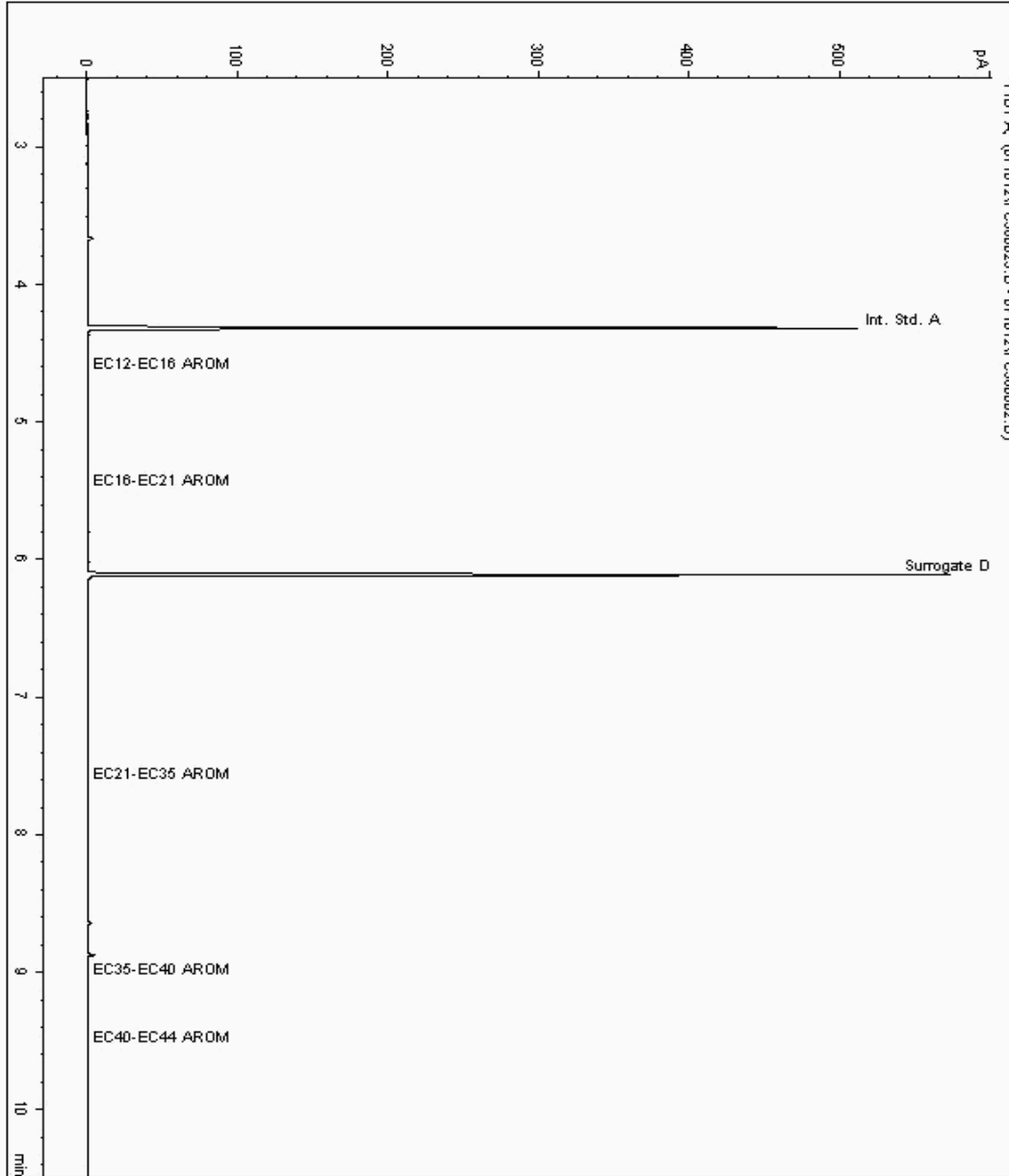
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5844998
Sample ID : 353699

Depth :

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

Sample Identity: 5686941-5844998
Date Acquired : 11/07/12 00:22:14 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

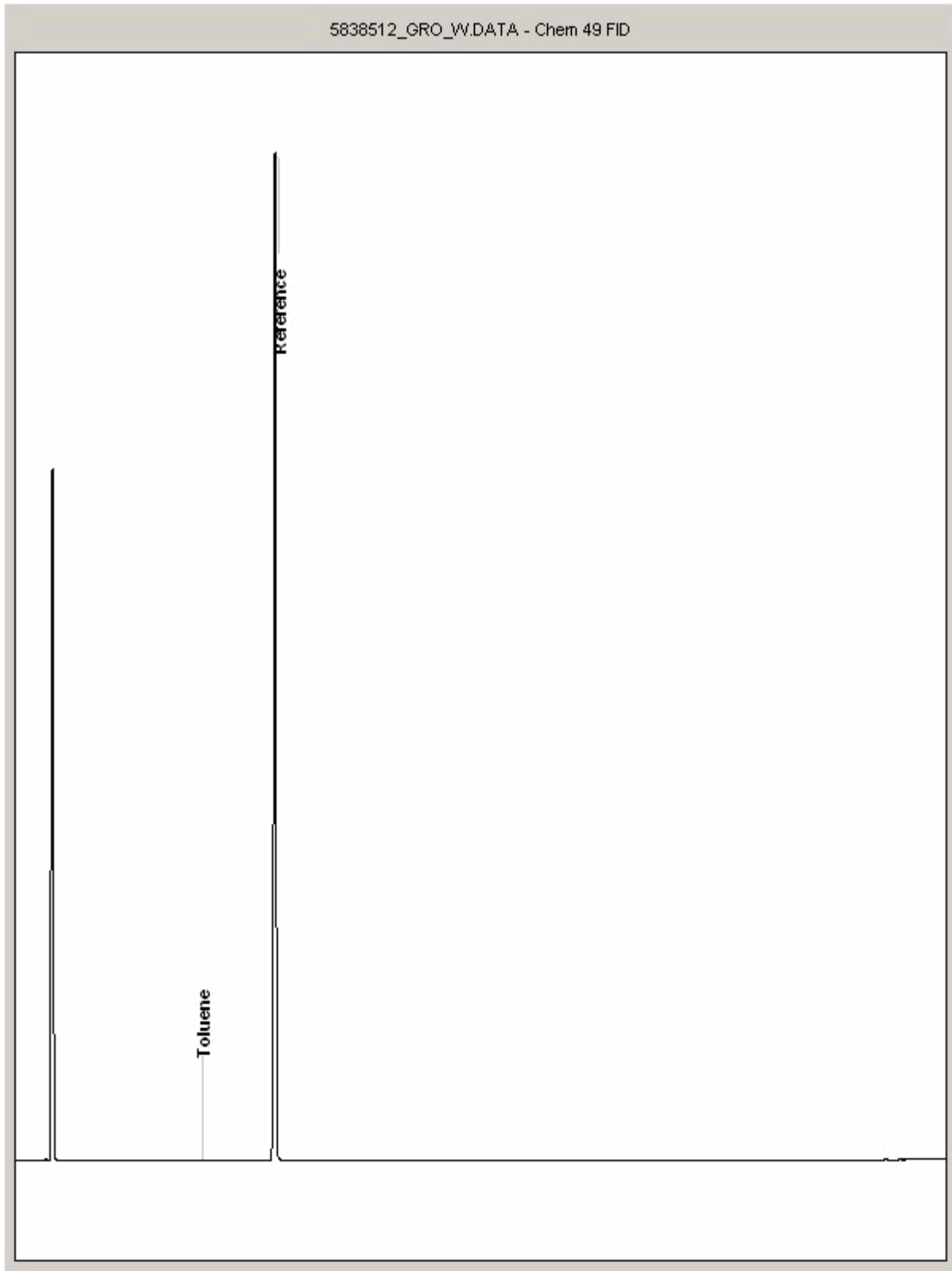
Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5838512
Sample ID : 871985

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

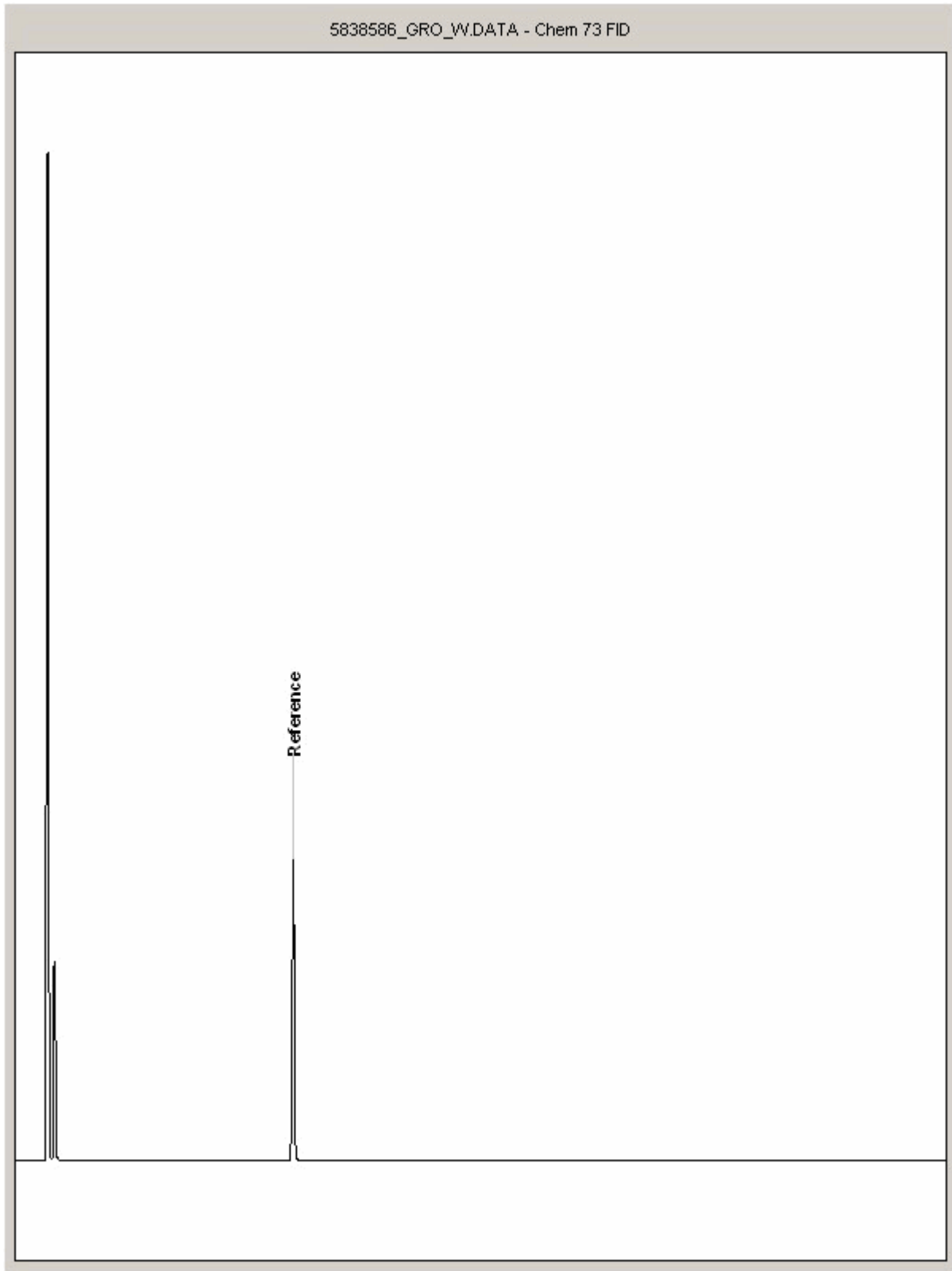
Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5838586
Sample ID : 364120

Depth :





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

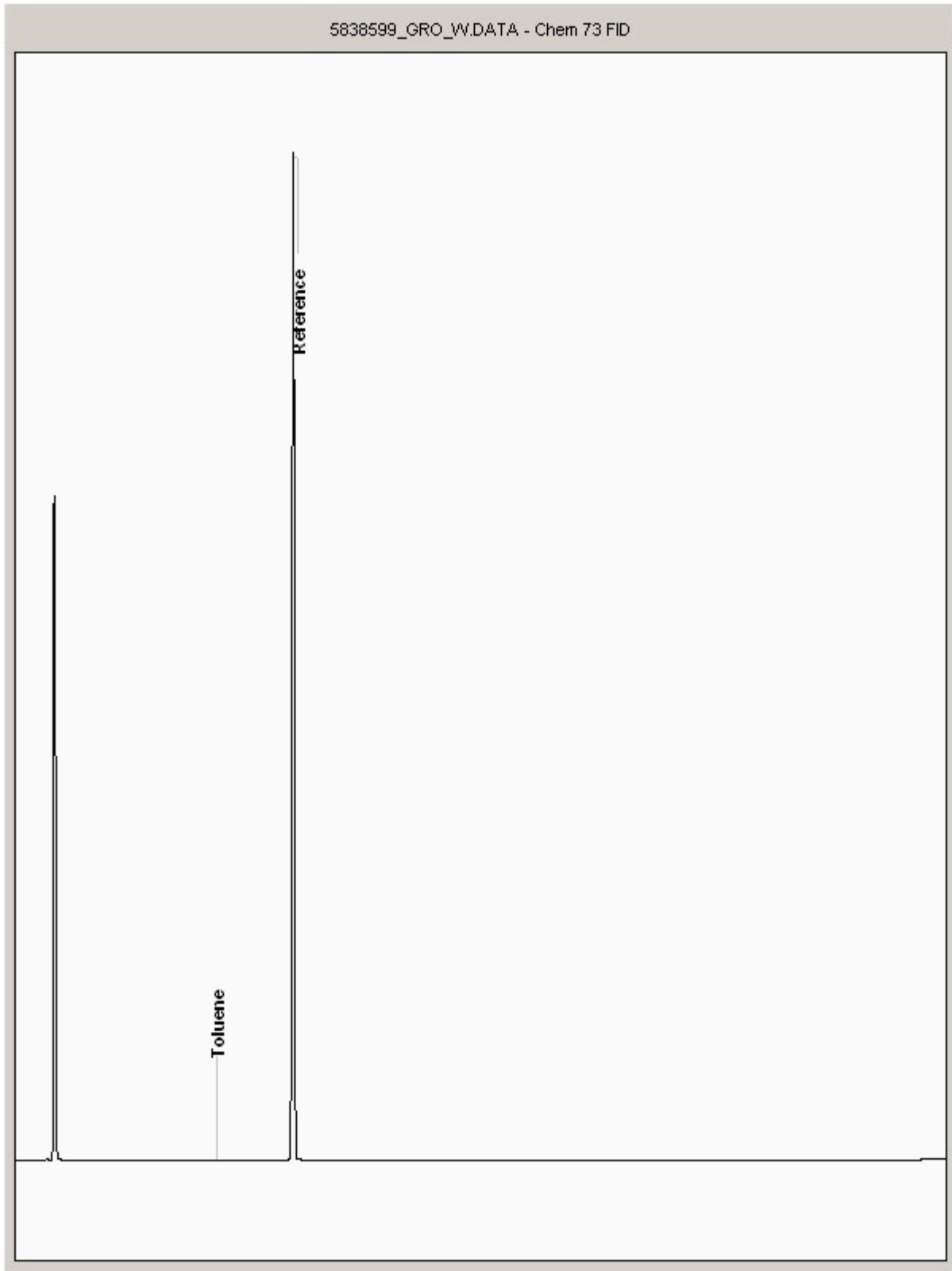
Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5838599
Sample ID : 564641

Depth :





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

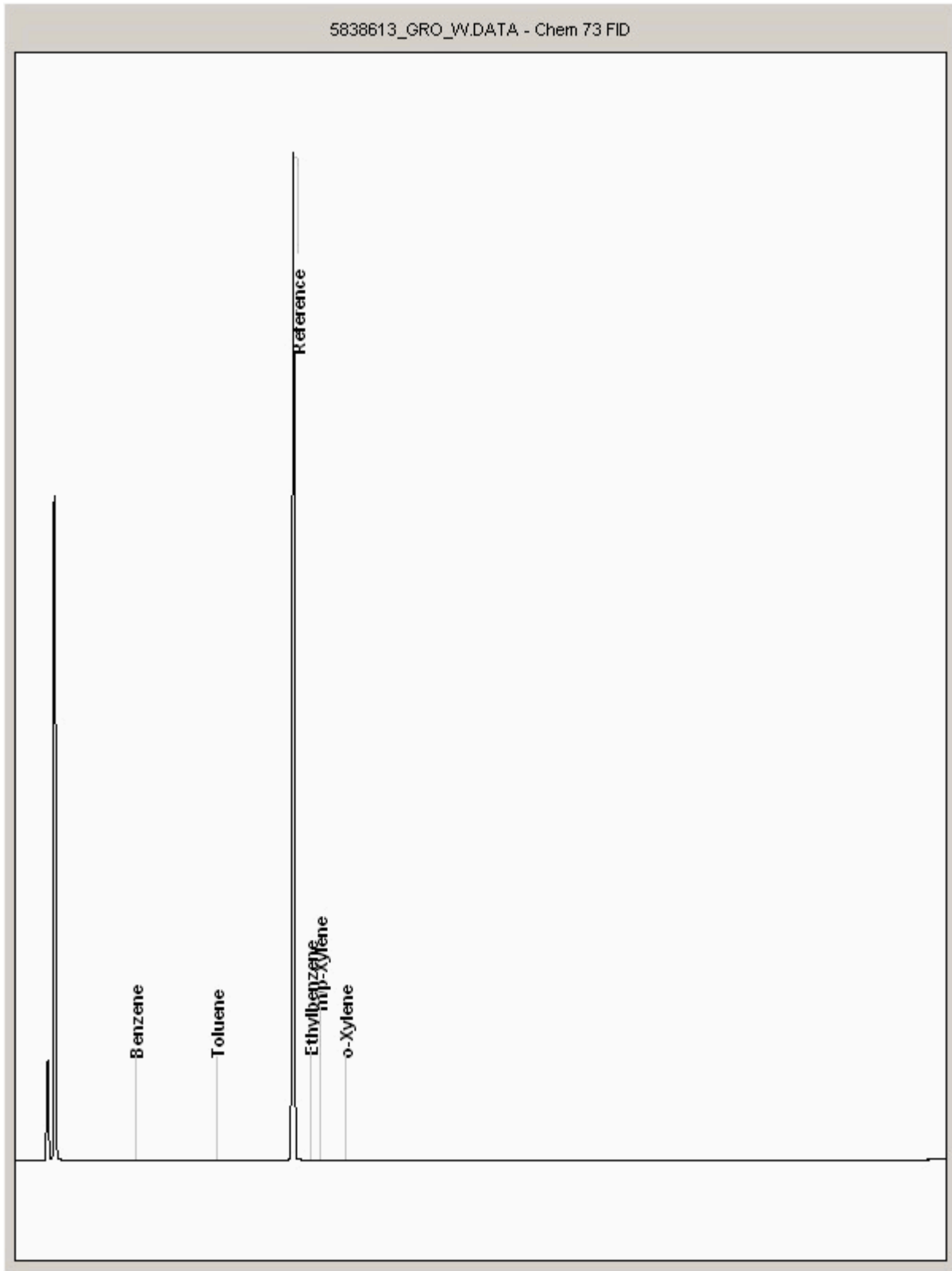
Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5838613
Sample ID : 353699

Depth :





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

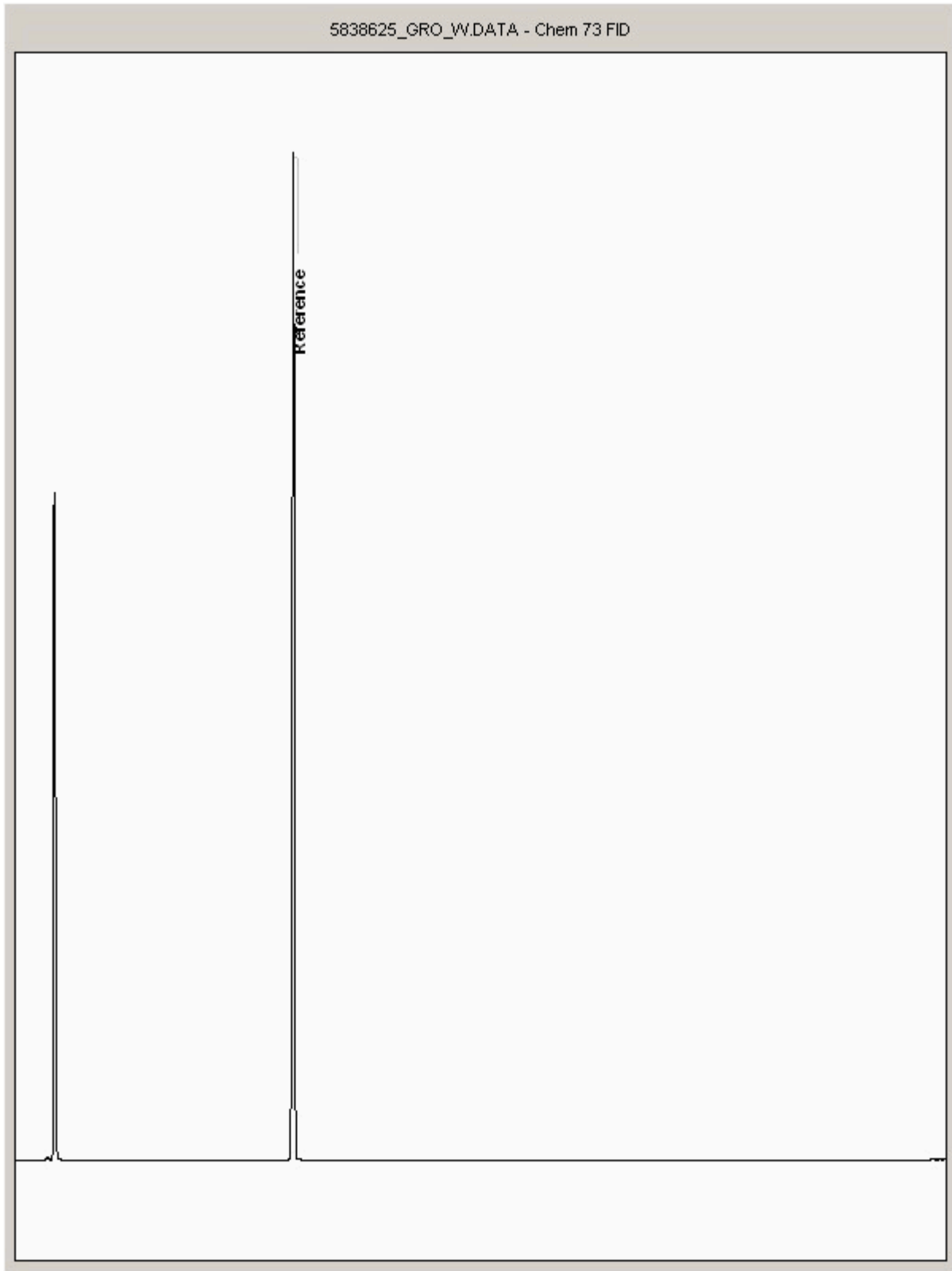
Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5838625
Sample ID : 221070

Depth :





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

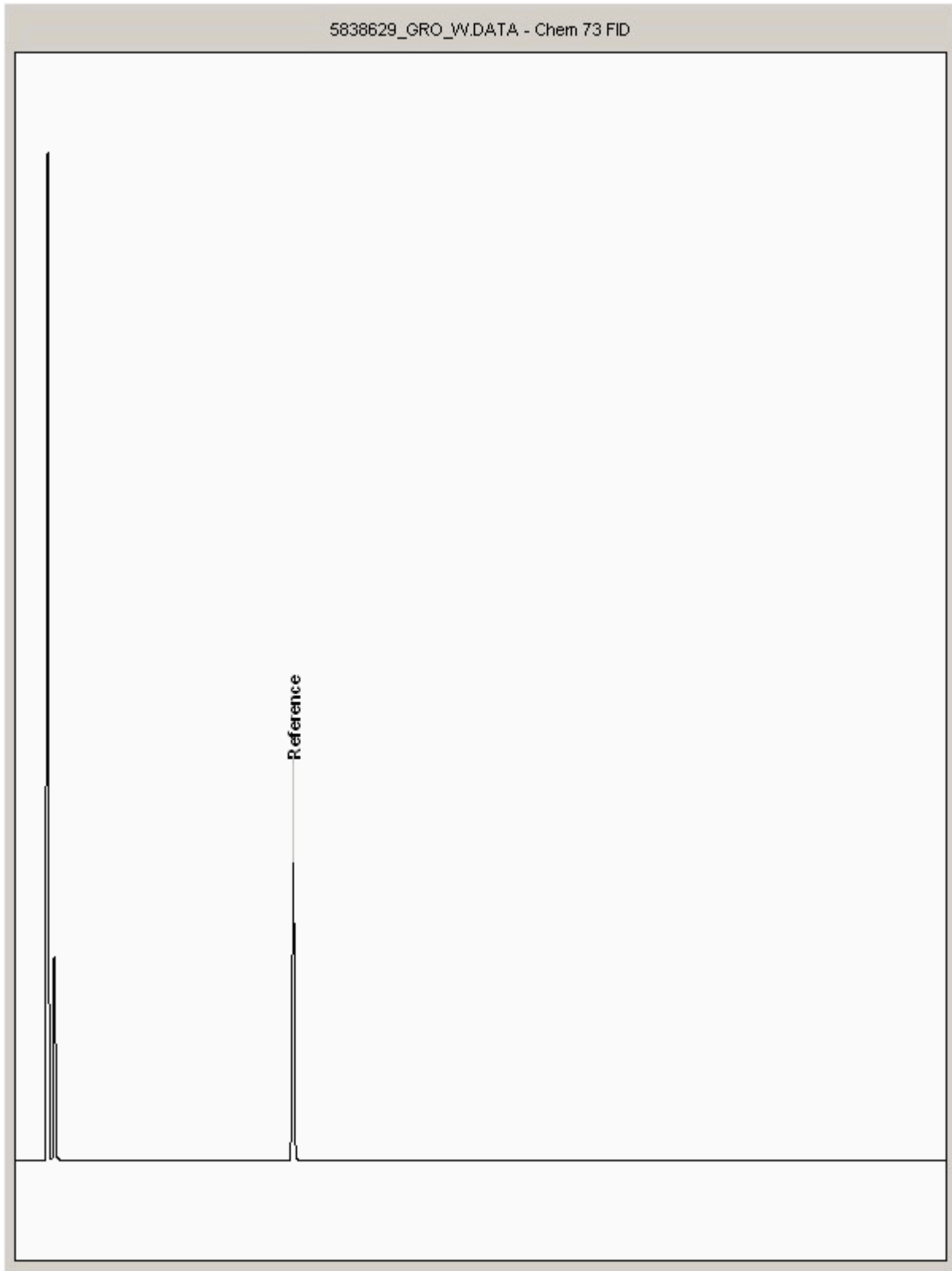
Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5838629
Sample ID : 775326

Depth :





SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

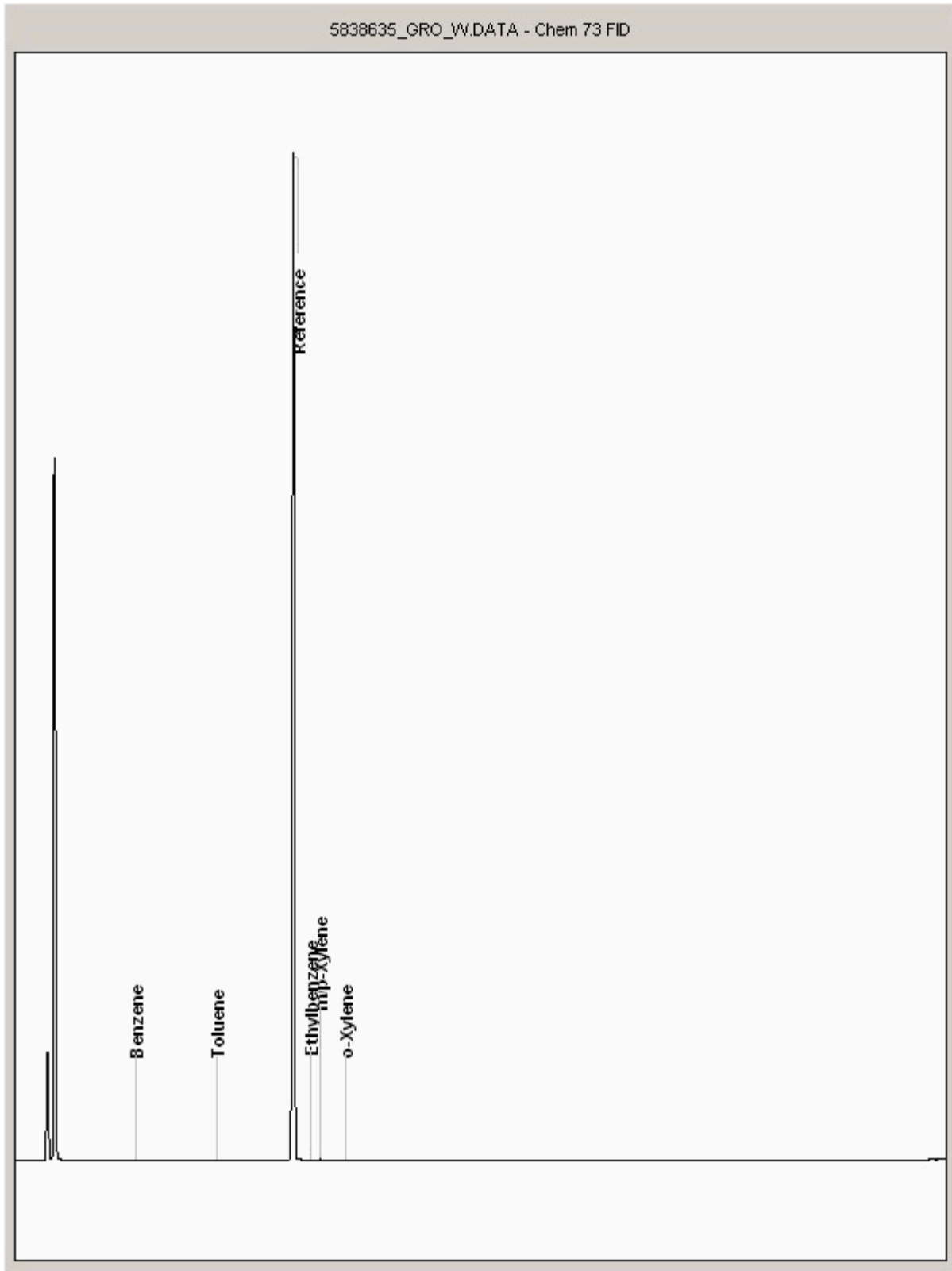
Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5838635
Sample ID : 637895

Depth :



Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 6 samples described below.

Samples Registered on:	06-Jul-2012
Analysis Started on:	14-Jul-2012
Analysis Completed on:	17-Jul-2012
Results for Batch Number	20041436
Your Purchase Order Number:	150380

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Client: ALcontrol Laboratories Chester
Folder No: 001996157
Comments: 5838819 - 871985
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 2-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	2.83	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996158
Comments: 5838881 - 364120
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 2-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	8.62	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996159
Comments: 5839143 - 775326
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 2-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	6.98	mg/l	1	None	NM	1102

Final Report

Report ID - 20041436 - 1

Batch description: Saline TOC Analysis

Reported on:
17-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001996160
Comments: 5839195 - 221070
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 2-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	4.09	mg/l	1	None	NM	1102

Final Report

Report ID - 20041436 - 1

Batch description: Saline TOC Analysis

Reported on:
17-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001996161
Comments: 5839412 - 353699
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 2-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	3.27	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996162
Comments: 5839489 - 564641
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 2-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	26.3	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041436

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

SDG: 120704-46
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 188344
Superseded Report: 187811

Appendix

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, 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 2 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.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DOM	SOX THERM	GCMS
HERBICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
PESTICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
EPH (DRO)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (MIN OIL)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (CLEANED UP)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH CWGBY GC	D&C	HEXANE ACETONE	END OVER END	GC FD
PCBAROCLOR 1254/PCBCON	D&C	HEXANE ACETONE	END OVER END	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE ACETONE	MICROWAVE TM218.	GCMS
>C6C40	WET	HEXANE ACETONE	SHAKER	GC FD
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE ACETONE	SHAKER	GC FD
SEMIVOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GCMS

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
PCB7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCBAROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVCC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL BY R	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FD

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description 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 Anorthophyllite	-
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.



Priority Geotechnical Ltd
Unit 12
Owenacurra Business Park
Midleton
Co Cork
Co Cork

Attention: Colette Kelly

CERTIFICATE OF ANALYSIS

Date: 31 July 2012
Customer: D_PRIORGEOT_CRK
Sample Delivery Group (SDG): 120705-45
Your Reference: P12030
Location: Haulbowline
Report No: 189312

This report has been revised and directly supersedes 188477 in its entirety.

We received 9 samples on Wednesday July 04, 2012 and 9 of these samples were scheduled for analysis which was completed on Tuesday July 31, 2012. 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: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5836447	158877			03/07/2012
5836446	198416			03/07/2012
5836440	254414			03/07/2012
5836442	325675			03/07/2012
5836443	435284			03/07/2012
5836451	438131			03/07/2012
5836445	923033			03/07/2012
5836444	987451			03/07/2012
5836449	989321			03/07/2012

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



SDG: 120705-45
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 189312
 Superseded Report: 188477

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	
		5836447	158877			1l green glass bottle
		5836446	198416			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle
		5836440	254414			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle
		5836442	325675			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle
	5836443	435284			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle	
	5836445	923033			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle	
	5836444	987451			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle	
	5836449	989321			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221) 1l green glass bottle	
Alkalinity as CaCO3	All	NDPs: 0 Tests: 3				
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 9				
Anions by Kone (w)	All	NDPs: 0 Tests: 9				
BOD True Total	All	NDPs: 0 Tests: 9				
COD Unfiltered	All	NDPs: 0 Tests: 9				
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9				
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9				
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 9				
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9				
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9				
Fluoride	All	NDPs: 0 Tests: 3				
Free Sulphur	All	NDPs: 0 Tests: 9				
GRO by GC-FID (W)	All	NDPs: 0 Tests: 9				
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 8				
Low Level Cyanide (W)	All	NDPs: 0 Tests: 9				



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

LEACH																		
Results Legend																		
<input checked="" type="checkbox"/> X	Test																	
<input type="checkbox"/> N	No Determination Possible																	
Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container														
5836447	158877			Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle
5836446	198416			Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle
5836440	254414			Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle
5836442	325675			Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle
5836443	435284			Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle
5836445	923033			Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle
5836444	987451			Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle
5836449	989321			Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)	11plastic (ALE221)	11 green glass bottle
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 9		X		X		X		X		X		X		X		X
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 9		X		X		X		X		X		X		X		X
Nitrite by Kone (w)	All	NDPs: 0 Tests: 9			X		X		X		X		X		X		X	
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 9		X		X		X		X		X		X		X		X
pH Value	All	NDPs: 0 Tests: 9		X		X		X		X		X		X		X		X
Phenols by ms (w)	All	NDPs: 3 Tests: 4		X		X		X										
Saline TON	All	NDPs: 0 Tests: 9		X		X		X		X		X		X		X		X
Sulphide	All	NDPs: 0 Tests: 9		X		X		X		X		X		X		X		X
TOC (Saline)*	All	NDPs: 0 Tests: 9		X		X		X		X		X		X		X		X
TPH CWG (W)	All	NDPs: 0 Tests: 9		X		X		X		X		X		X		X		X
VOC MS (W)	All	NDPs: 0 Tests: 5						X				X				X		X



SDG: 120705-45
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 189312
 Superseded Report: 188477

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	5836451			
	Customer Sample Reference	438131			
	AGS Reference				
	Depth (m)				
	Container	1l green glass bottle	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
Anions by Kone (w)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
BOD True Total	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
COD Unfiltered	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
Free Sulphur	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 9			<input checked="" type="checkbox"/>
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 8	<input checked="" type="checkbox"/>		
Low Level Cyanide (W)	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>	
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>		



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	5836451				
	Customer Sample Reference	438131				
	AGS Reference					
	Depth (m)					
	Container	1l green glass bottle	H2SO4 (ALE244)	NaOH (ALE245)	Vial (ALE297)	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 9				<input checked="" type="checkbox"/>
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>			
pH Value	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>		
Phenols by ms (w)	All	NDPs: 3 Tests: 4	<input checked="" type="checkbox"/>			
Saline TON	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>		
Sulphide	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>		
TOC (Saline)*	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>		
TPH CWG (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>			
VOC MS (W)	All	NDPs: 0 Tests: 5				<input checked="" type="checkbox"/>



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Results Legend		Customer Sample R	158877	198416	254414	325675	435284	438131
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
M	mCERTS accredited.		03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012
S	Deviating sample.							
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							
				5836447	5836446	5836440	5836442	5836443
Component	LOD/Units	Method						
TOC (Saline)*	<1 mg/l	SUB	7.6	17.1	2.22	19	14	2.63
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043	<5	<5				
BOD, unfiltered	<1 mg/l	TM045	3.47	<3	<5	<3	<3	<3
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	20.6	28.4	<0.2	9.64	37	<0.2
Sulphide	<0.01 mg/l	TM101	<0.01	0.073	<0.01	0.506	<0.01	<0.01
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5				
COD, unfiltered	<7 mg/l	TM107	350	272	174	524	214	183
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	38.4	38.2	37.6	40.7	39.4	37.9
Barium (diss.filt)	<0.03 µg/l	TM152	207	126	72.3	194	116	61.9
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Cobalt (diss.filt)	<0.06 µg/l	TM152	2.81	2.71				
Molybdenum (diss.filt)	<0.24 µg/l	TM152	11.3	15.4				
Phosphorus (diss.filt)	<6.3 µg/l	TM152	<6.3	199				
Thallium (diss.filt)	<0.96 µg/l	TM152	<0.96	<0.96				
Tin (diss.filt)	<0.36 µg/l	TM152	<0.36	<0.36				
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	0.083	<0.05	<0.05	0.076	<0.05
Sulphate	<2 mg/l	TM184	1610	1670	2040	1950	1440	1990
Chloride	<2 mg/l	TM184	17000	17500	16000	17200	18200	16600
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	0.02	<0.015	<0.015	<0.015
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	0.02	<0.015	<0.015	<0.015
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	0.02	<0.015	<0.015	<0.015
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105	<0.105	<0.105	<0.105
Phenol	<0.5 µg/l	TM205	<1.3	<1.3	<1.3			<1.3
2-methylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
3-methylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
4-methylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
2-chlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
2,4-dimethylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
4-chloro-3-methylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
2,6-dichlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
4-Chlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Results Legend		Customer Sample R	158877	198416	254414	325675	435284	438131							
#	ISO17025 accredited.														
M	mCERTS accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D 03/07/2012	Saline D 03/07/2012	Saline D 03/07/2012	Saline D 03/07/2012	Saline D 03/07/2012	Saline D 03/07/2012							
S	Deviating sample.														
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														
Component	LOD/Units								Method						
2,4-dichlorophenol	<0.5 µg/l								TM205	<0.75	<0.75	<0.5			<0.5
2-nitrophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5							
2,4,6-trichlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5							
2,4,5-trichlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5							
4-nitrophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5							
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5							
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.6							
2,4-dinitrophenol	<2.5 µg/l	TM205	<2.5	<2.5	<2.5			<2.5							
DNOC	<3 µg/l	TM205	<4.5	<4.5	<3			<3							
Pentachlorophenol	<2 µg/l	TM205	<3	<3	<2			<2							
Dinoseb	<4 µg/l	TM205	<6	<6	<4			<4							
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05							
Thiocyanate	<0.05 mg/l	TM227	0.322	<0.05	<0.05	<0.05	<0.05	<0.05							
Calcium (diss.filt)	<0.012 mg/l	TM228	457	601	452	552	451	474							
Sodium (diss.filt)	<0.076 mg/l	TM228	9310	11900	47.3	12300	9770	9730							
Magnesium (diss.filt)	<0.036 mg/l	TM228	795	1020	1020	941	856	979							
Potassium (diss.filt)	<2.335 mg/l	TM228	341	360	343	355	357	346							
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03	<0.03	<0.03							
pH	<1 pH Units	TM256	7.87	7.66	9.56	7.57	7.72	9.52							
Arsenic (Saline)	<0.5 µg/l	TM270	5.48	32.2	1.89	2.7	33.3	1.76							
Aluminium (Saline)	<3.7 µg/l	TM270	44.3	45.8	52.7	94.5	48.4	41.9							
Antimony (Saline)	<1 µg/l	TM270	<1	<1	<1	<1	<1	<1							
Boron (Saline)	<201 µg/l	TM270	2600	3020	2900	2060	3160	3270							
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15							
Chromium (Saline)	<1.5 µg/l	TM270	5.36	6.02	17.5	6.09	6.28	8.95							
Copper (Saline)	<1 µg/l	TM270	<1	2.17	3.48	<1	4.58	1.42							
Iron (Saline)	<4 µg/l	TM270	<4	<4	<4	<4	<4	<4							
Lead (Saline)	<0.2 µg/l	TM270	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2							
Manganese (Saline)	<0.3 µg/l	TM270	3260	1290	<0.3	2800	1240	<0.3							
Mercury (Saline)	<0.15 µg/l	TM270	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15							
Nickel (saline)	<1.1 µg/l	TM270	9.37	11.8	5.84	13.5	14.2	6.2							
Selenium (Saline)	<0.5 µg/l	TM270	<0.5	1.24	0.848	1.13	1.19	1.29							
Vanadium (Saline)	<4 µg/l	TM270	35.5	29.3	30.4	35.5	31.1	28.5							
Zinc (Saline)	<2.1 µg/l	TM270	<2.1	<2.1	<2.1	17.5	7.51	<2.1							



CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Table with columns for Results Legend, Customer Sample R, and various sample IDs (158877, 198416, 254414, 325675, 435284, 438131). Rows include components like Cyanide, Saline TON as NO3, Saline Nitrate as NO3, and Sulphur, Free.



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Results Legend		Customer Sample R	923033	987451	989321		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference					
M	mCERTS accredited.		Saline D	Saline D	Saline D		
S	Deviating sample.		03/07/2012	03/07/2012	03/07/2012		
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		04/07/2012	04/07/2012	04/07/2012		
	Trigger breach confirmed		120705-45	120705-45	120705-45		
(F)			5836445	5836444	5836449		
Component	LOD/Units	Method					
TOC (Saline)*	<1 mg/l	SUB	105	15.1	79.6		
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043		<5			
BOD, unfiltered	<1 mg/l	TM045	<3	<3	9.5		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	16.1	53.1	43.6	#	#
Sulphide	<0.01 mg/l	TM101	<0.01	<0.01	0.748		
Fluoride	<0.5 mg/l	TM104		<0.5			
COD, unfiltered	<7 mg/l	TM107	290	1230	1600		
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	39.2	39.7	38.5	#	#
Barium (diss.filt)	<0.03 µg/l	TM152	175	280	228		
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.07	<0.07		
Cobalt (diss.filt)	<0.06 µg/l	TM152		4.85			
Molybdenum (diss.filt)	<0.24 µg/l	TM152		2.61			
Phosphorus (diss.filt)	<6.3 µg/l	TM152		148			
Thallium (diss.filt)	<0.96 µg/l	TM152		<9.6			
Tin (diss.filt)	<0.36 µg/l	TM152		<3.6			
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	<0.05	<0.05		
Sulphate	<2 mg/l	TM184	1920	664	1170		
Chloride	<2 mg/l	TM184	17600	18000	17700		
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105		
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05		
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05		
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05		
Calcium (diss.filt)	<0.012 mg/l	TM228	0.13	219	321		
Sodium (diss.filt)	<0.076 mg/l	TM228	0.247	9550	9880		
Magnesium (diss.filt)	<0.036 mg/l	TM228	<0.036	933	1020		
Potassium (diss.filt)	<2.335 mg/l	TM228	<2.34	330	308		
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03	<0.03	<0.03	#	#
pH	<1 pH Units	TM256	7.66	7.72	7.65		



CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Table with columns for Results Legend, Customer Sample R, and three sample IDs (923033, 987451, 989321). Rows list various chemical components like Arsenic, Aluminium, Antimony, etc., with their respective LOD/Units, Methods, and measured values.



CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

TPH CWG (W)

Table with columns for Results Legend, Customer Sample R, Depth (m), Sample Type, Date Sampled, Date Received, SDG Ref, Lab Sample No.(s), AGS Reference, Component, LOD/Units, Method, and numerical results for various chemical components like GRO Surrogate %, Methyl tertiary butyl ether (MTBE), Benzene, etc.



CERTIFICATE OF ANALYSIS

SDG: 120705-45	Location: Haulbowline	Order Number:
Job: D_PRIORGEOT_CRK-44	Customer: Priority Geotechnical Ltd	Report Number: 189312
Client Reference: P12030	Attention: Colette Kelly	Superseded Report: 188477

TPH CWG (W)

Results Legend		Customer Sample R	923033	987451	989321		
#	ISO17025 accredited.	Depth (m)					
M	mCERTS accredited.	Sample Type	Saline D	Saline D	Saline D		
S	Deviating sample.	Date Sampled	03/07/2012	03/07/2012	03/07/2012		
aq	Aqueous / settled sample.	Sampled Time					
diss.filt	Dissolved / filtered sample.	Date Received	04/07/2012	04/07/2012	04/07/2012		
tot.unfilt	Total / unfiltered sample.	SDG Ref	120705-45	120705-45	120705-45		
*	Subcontracted test.	Lab Sample No.(s)	5836445	5836444	5836449		
**	% 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	AGS Reference					
(F)	Trigger breach confirmed						
Component	LOD/Units	Method					
GRO Surrogate % recovery**	%	TM245	92	93	90		
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3		
Benzene	<7 µg/l	TM245	<7	<7	<7		
Toluene	<4 µg/l	TM245	<4	<4	<4		
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5		
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8		
o-Xylene	<3 µg/l	TM245	<3	<3	<3		
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11		
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28		
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10		
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	50	33	<10		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	50	33	<10		
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10		
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	61	44	13		



SDG: 120705-45
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 189312
 Superseded Report: 188477

VOC MS (W)

Results Legend		Customer Sample R	254414	325675	438131	923033	989321	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.		03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012
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		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
(F)	Trigger breach confirmed		120705-45	120705-45	120705-45	120705-45	120705-45	120705-45
			5836440	5836442	5836451	5836445	5836449	
Component	LOD/Units	Method						
Dibromofluoromethane**	%	TM208	105	107	104	105	105	
Toluene-d8**	%	TM208	99.5	101	99	98.6	101	
4-Bromofluorobenzene**	%	TM208	99.9	101	98.8	91.9	97.9	
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	1.5	<1	
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloroform	<1 µg/l	TM208	<1	<1	1.19	<1	<1	
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Benzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

VOC MS (W)

Results Legend		Customer Sample R	254414	325675	438131	923033	989321	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	
S	Deviating sample.		03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	
aq	Aqueous / settled sample.							
diss.fit	Dissolved / filtered sample.							
tot.unfit	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 Trigger breach confirmed		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	
(F)			120705-45	120705-45	120705-45	120705-45	120705-45	
		5836440	5836442	5836451	5836445	5836449		
Component	LOD/Units	Method						
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dibromo-3-chloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	



CERTIFICATE OF ANALYSIS

Validated

SDG: 120705-45 **Location:** Haulbowline **Order Number:**
Job: D_PRIORGEOT_CRK-44 **Customer:** Priority Geotechnical Ltd **Report Number:** 189312
Client Reference: P12030 **Attention:** Colette Kelly **Superseded Report:** 188477

Notification of NDPs (No determination possible)

Date Received : 05/07/2012 10:48:53

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
5836442	325675		Phenols by ms (w)	Sample unsuitable for extraction
5836445	923033		Phenols by ms (w)	Sample unsuitable for extraction
5836449	989321		Phenols by ms (w)	Sample unsuitable for extraction



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM270	Thermo Electron Application Note AN_E0640: X Series ICP-MS: Using automated collision cell ICP-MS with rapid in-sample switching to achieve ultimate performance in environmental analysis.	Dissolved Metals in Saline Matrices by CCT ICP-MS		
TM279		Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser		
TM281		The Determination of Total Oxidized Nitrogen in Saline Matrices using the Kone Spectrophotometric Analysers		
TM294		Determination of Free Sulphur in liquids by HPLC		

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



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
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Location: Haulbowline
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Order Number:
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Superseded Report: 188477

Test Completion Dates

Lab Sample No(s) Customer Sample Ref.	5836447	5836446	5836440	5836442	5836443	5836451	5836445	5836444	5836449
	158877	198416	254414	325675	435284	438131	923033	987451	989321
AGS Ref.									
Depth									
Type	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D
Alkalinity as CaCO3	09-Jul-2012	06-Jul-2012						06-Jul-2012	
Ammoniacal Nitrogen	12-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	10-Jul-2012	12-Jul-2012	11-Jul-2012	11-Jul-2012	10-Jul-2012
Anions by Kone (w)	09-Jul-2012	11-Jul-2012	06-Jul-2012	06-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
BOD True Total	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
COD Unfiltered	08-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
Conductivity (at 20 deg.C)	09-Jul-2012	05-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
Cyanide Comp/Free/Total/Thiocyanate	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	06-Jul-2012
Dissolved Metals by ICP-MS	11-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
EPH CWG (Aliphatic) Aqueous GC (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
EPH CWG (Aromatic) Aqueous GC (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Fluoride	09-Jul-2012	06-Jul-2012						09-Jul-2012	
Free Sulphur	10-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012	10-Jul-2012
GRO by GC-FID (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
Hexavalent Chromium (w)		11-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	11-Jul-2012
Low Level Cyanide (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
Metals analysis (Saline Sample)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Metals by iCap-OES Dissolved (W)	11-Jul-2012	11-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	11-Jul-2012	12-Jul-2012	12-Jul-2012	11-Jul-2012
Nitrite by Kone (w)	07-Jul-2012	07-Jul-2012	07-Jul-2012	07-Jul-2012	07-Jul-2012	10-Jul-2012	07-Jul-2012	07-Jul-2012	06-Jul-2012
PCB Congeners - Aqueous (W)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
pH Value	09-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
Phenols by ms (w)	31-Jul-2012	31-Jul-2012	31-Jul-2012				31-Jul-2012		
Saline TON	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Sulphide	11-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	11-Jul-2012	06-Jul-2012	11-Jul-2012	11-Jul-2012	06-Jul-2012
TOC (Saline)*	24-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012
TPH CWG (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
VOC MS (W)			09-Jul-2012	09-Jul-2012		09-Jul-2012	09-Jul-2012		09-Jul-2012



CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

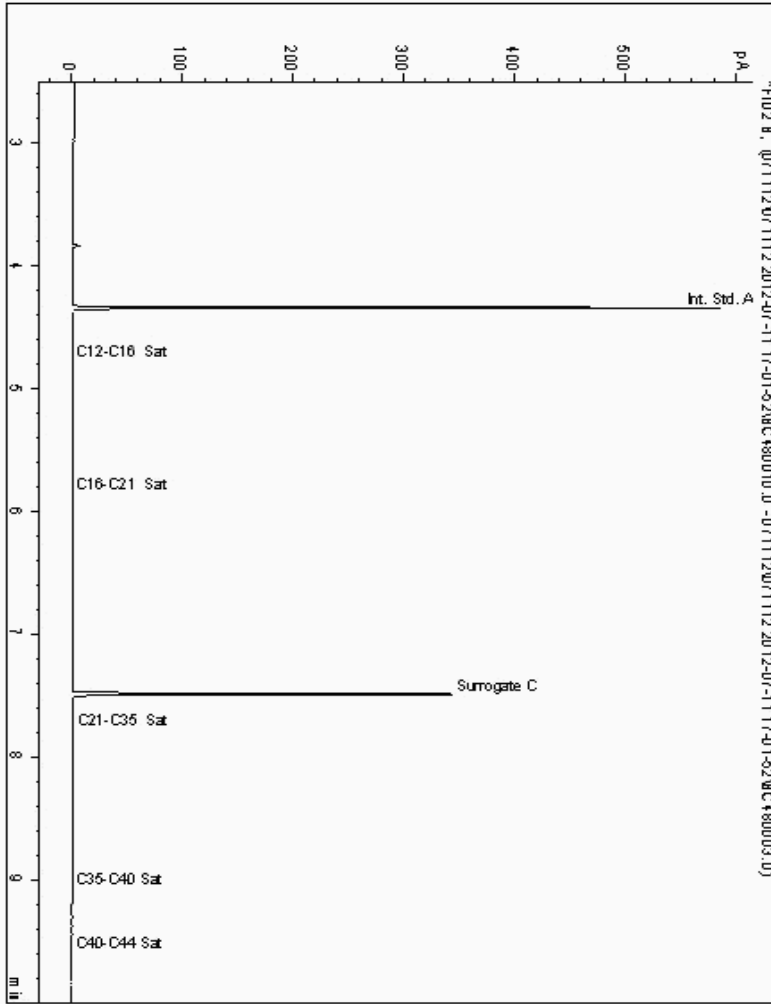
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841225
Sample ID : 923033

Depth :

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

Sample Identity: 5688177-5841225
Date Acquired : 11/07/12 19:49:20
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
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Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

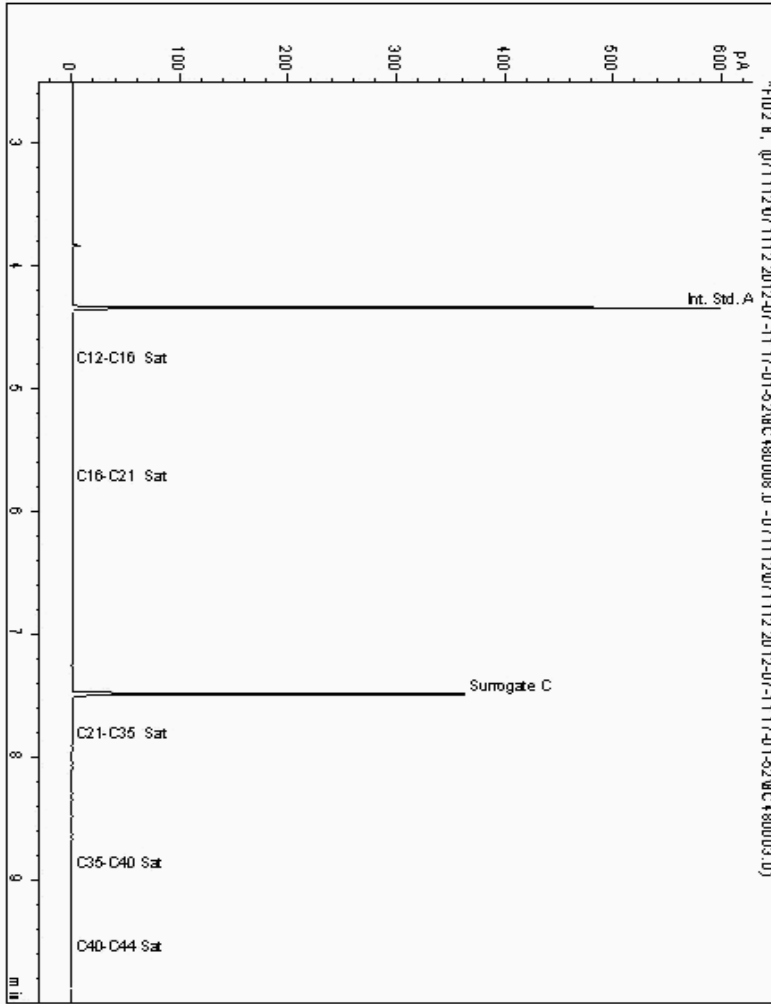
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841274
Sample ID : 435284

Depth :

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

Sample Identity: 5688119-5841274
Date Acquired : 11/07/12 19:11:34
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

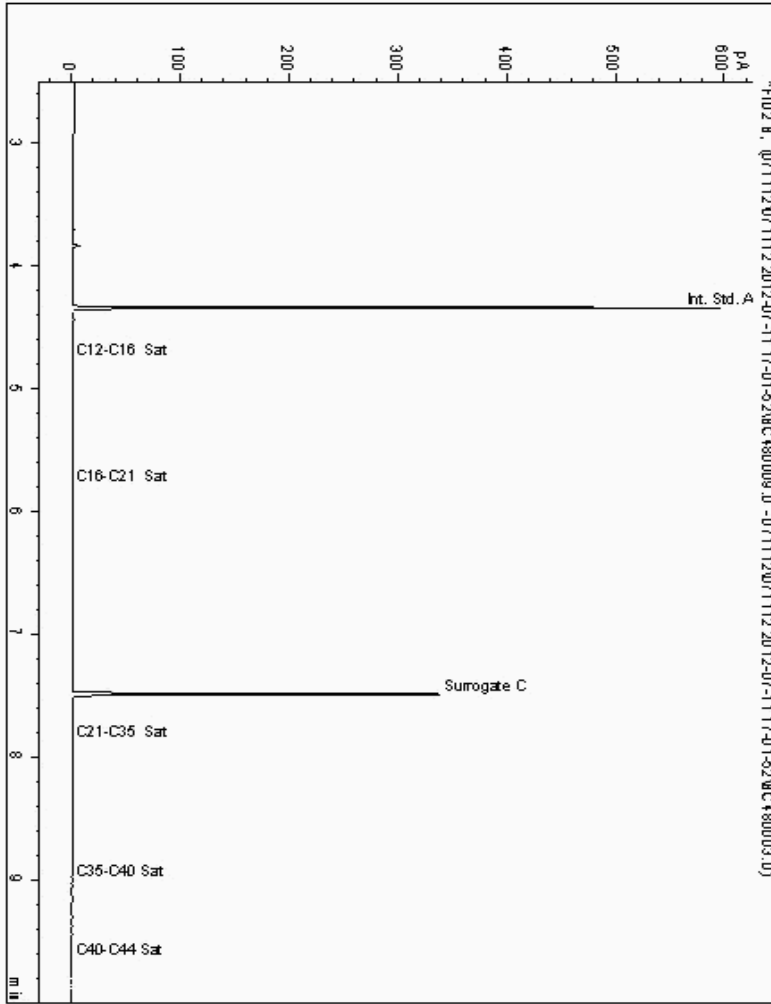
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841323
Sample ID : 254414

Depth :

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

Sample Identity: 5688066-5841323
Date Acquired : 11/07/12 19:30:36
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

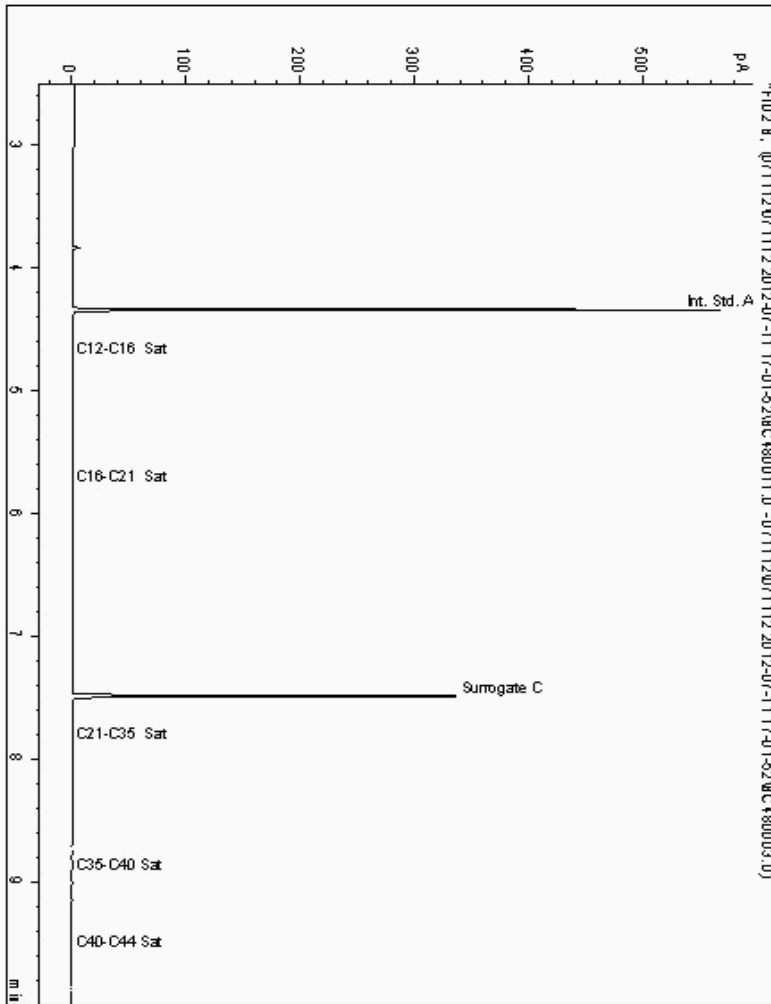
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841352
Sample ID : 325675

Depth :

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

Sample Identity: 5688093-5841352
Date Acquired : 11/07/12 20:08:12
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

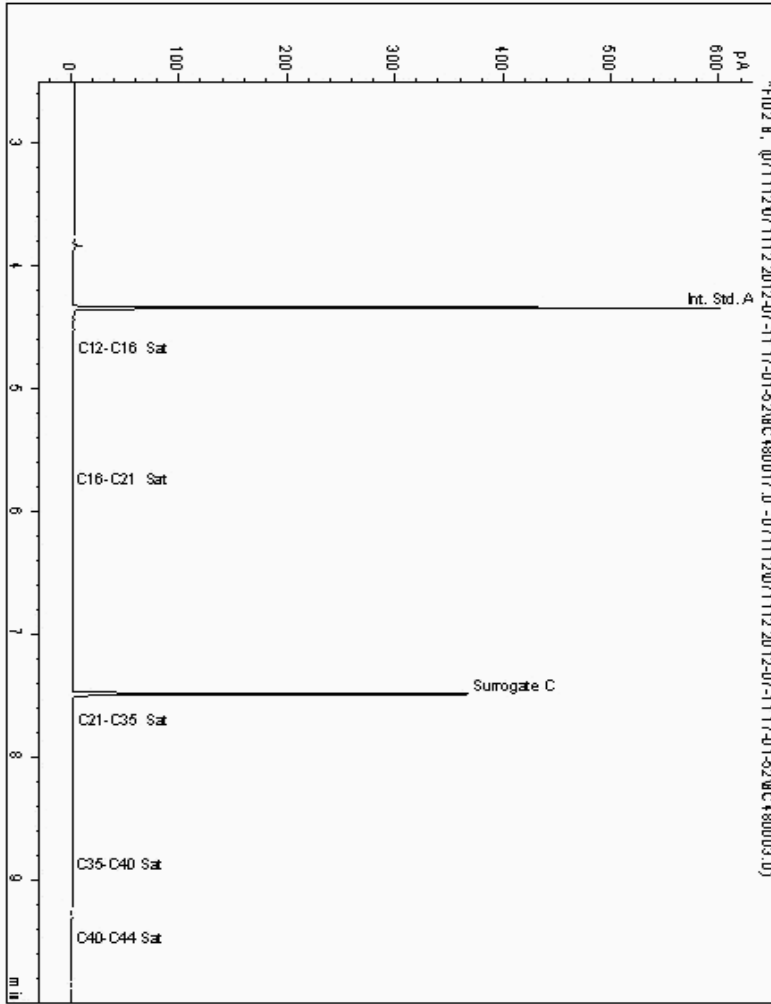
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841384
Sample ID : 987451

Depth :

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

Sample Identity: 5688145-5841384
Date Acquired : 11/07/12 22:02:10
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

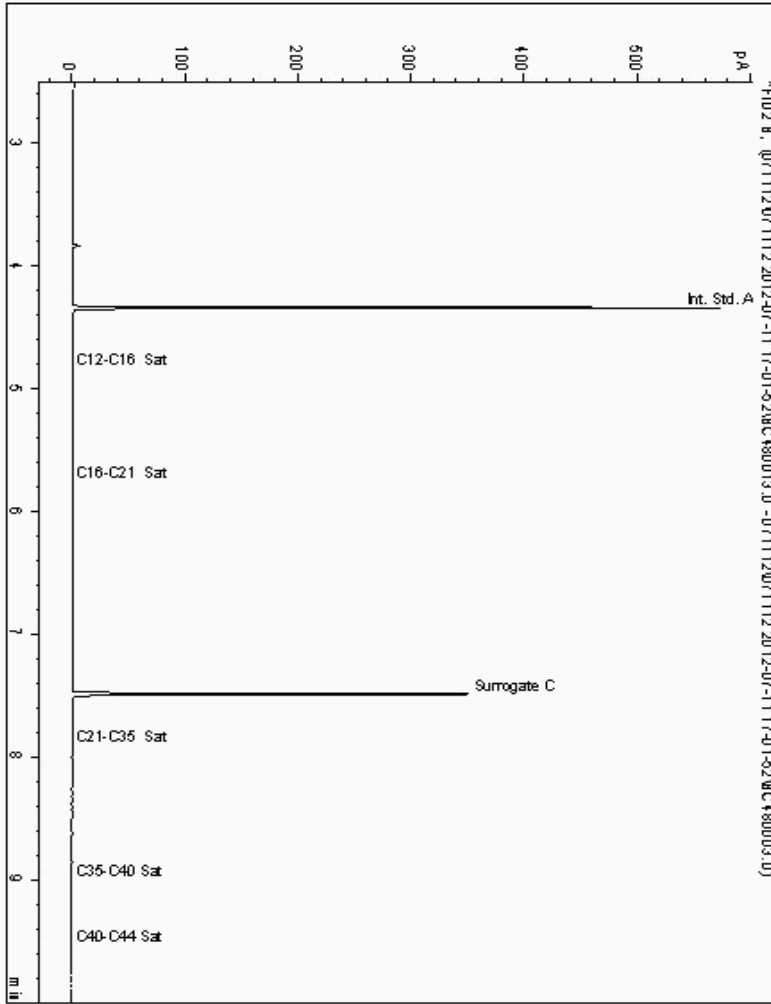
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5843255
Sample ID : 989321

Depth :

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

Sample Identity: 5688256-5843255
Date Acquired : 11/07/12 20:46:18
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

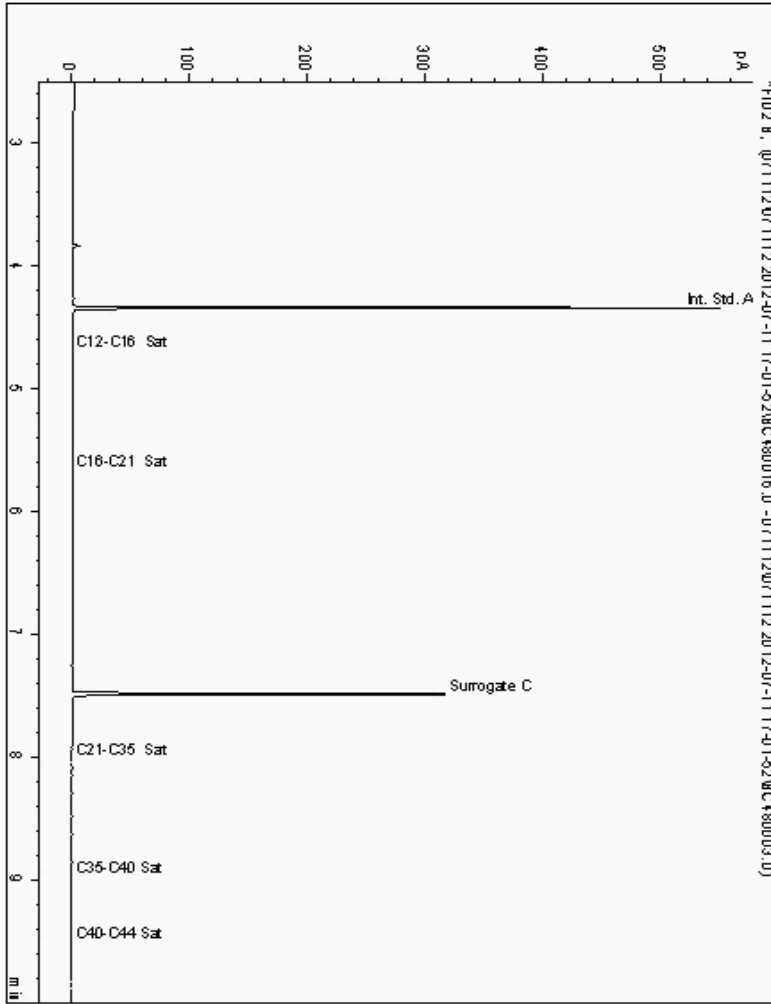
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5843314
Sample ID : 158877

Depth :

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

Sample Identity: 5689937-5843314
Date Acquired : 11/07/12 21:43:07
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

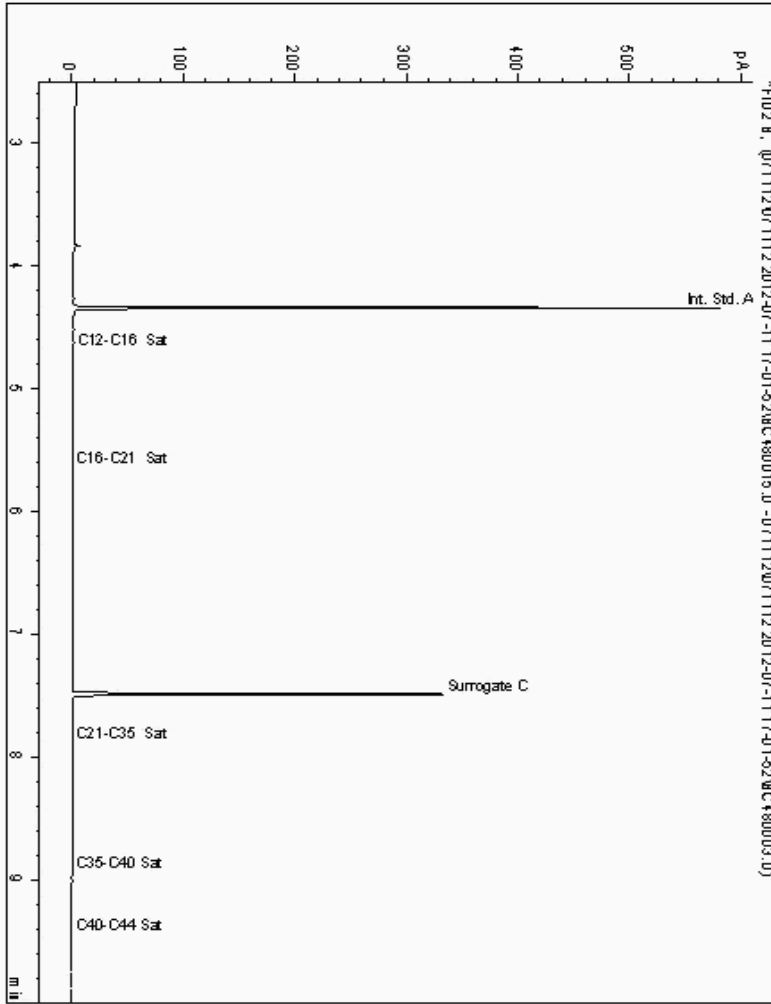
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5843344
Sample ID : 438131

Depth :

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

Sample Identity: 5688301-5843344
Date Acquired : 11/07/12 21:24:07
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

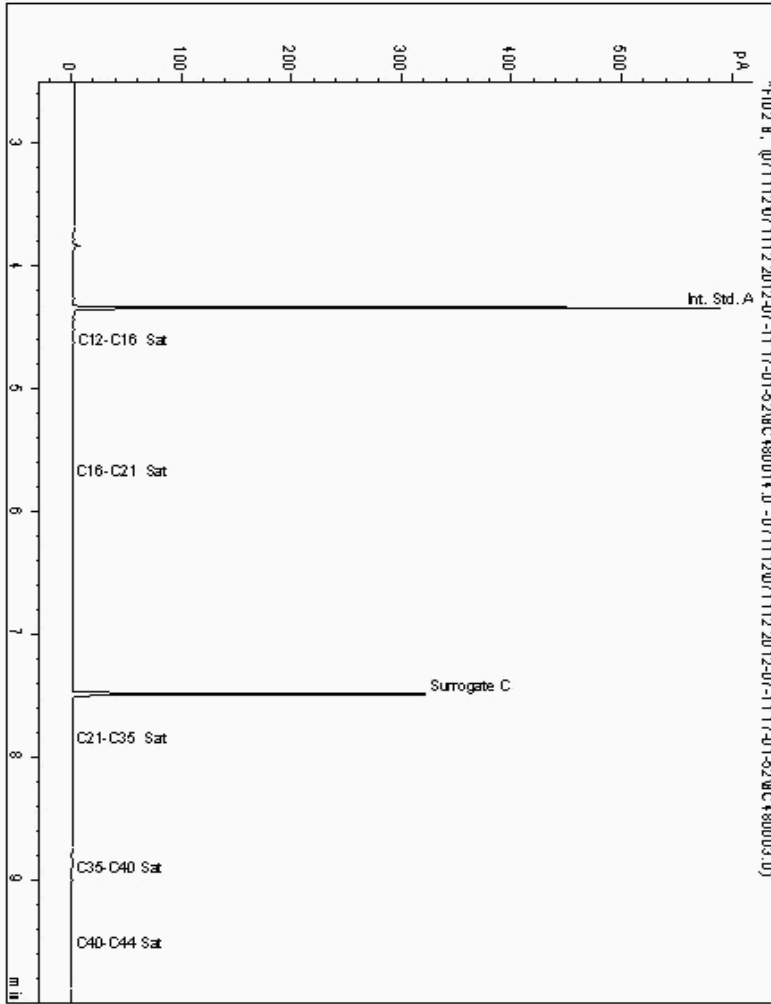
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5843403
Sample ID : 198416

Depth :

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

Sample Identity: 5688203-5843403
Date Acquired : 11/07/12 21:05:09
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

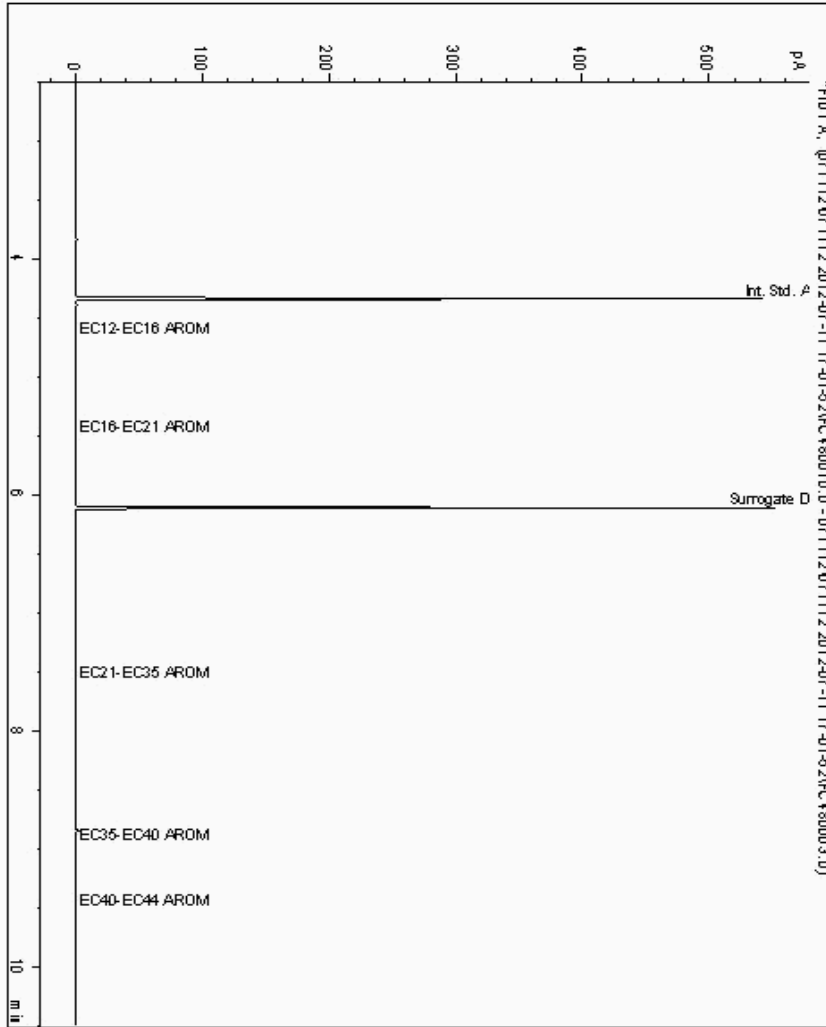
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841225
Sample ID : 923033

Depth :

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

Sample Identity: 5688178-5841225
Date Acquired : 11/07/12 19:49:21
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

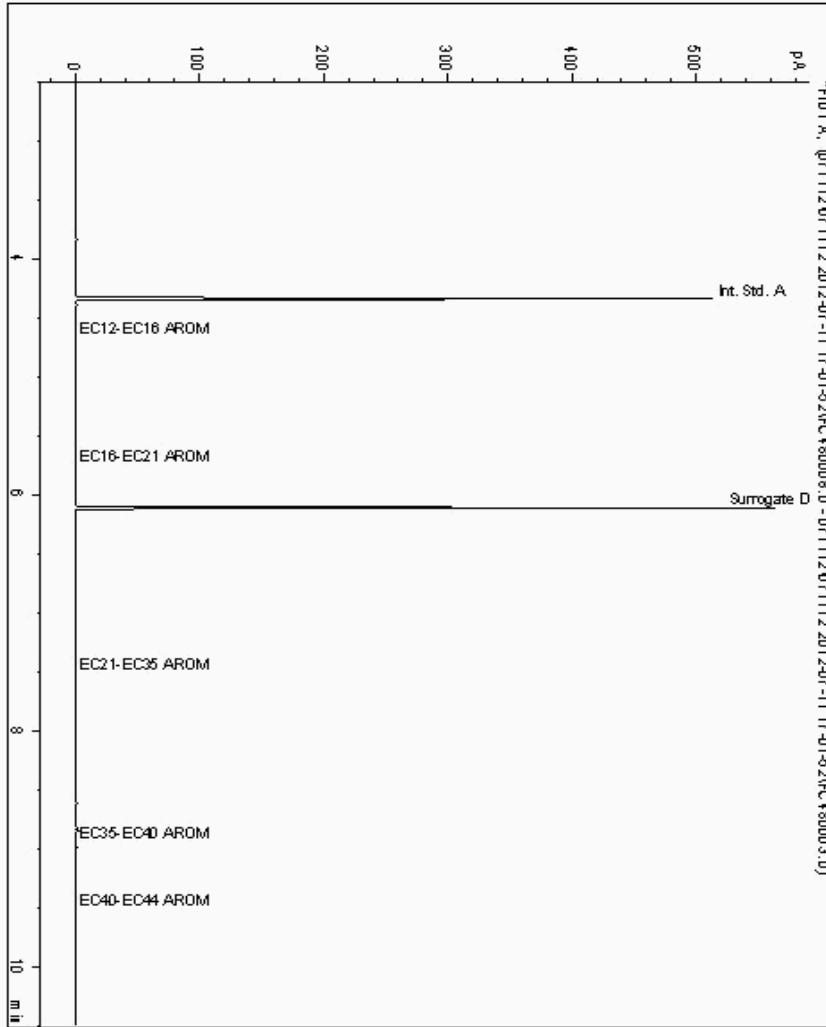
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841274
Sample ID : 435284

Depth :

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

Sample Identity: 5688120-5841274
Date Acquired : 11/07/12 19:11:35
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

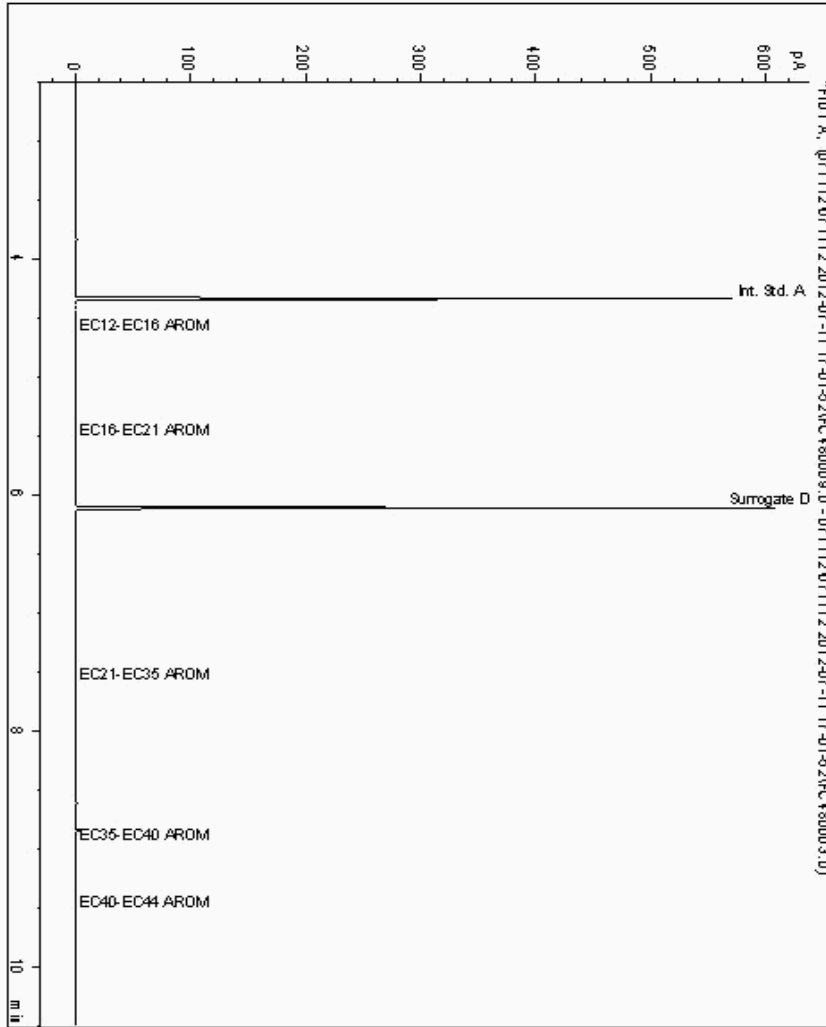
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841323
Sample ID : 254414

Depth :

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

Sample Identity: 5688067-5841323
Date Acquired : 11/07/12 19:30:35
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

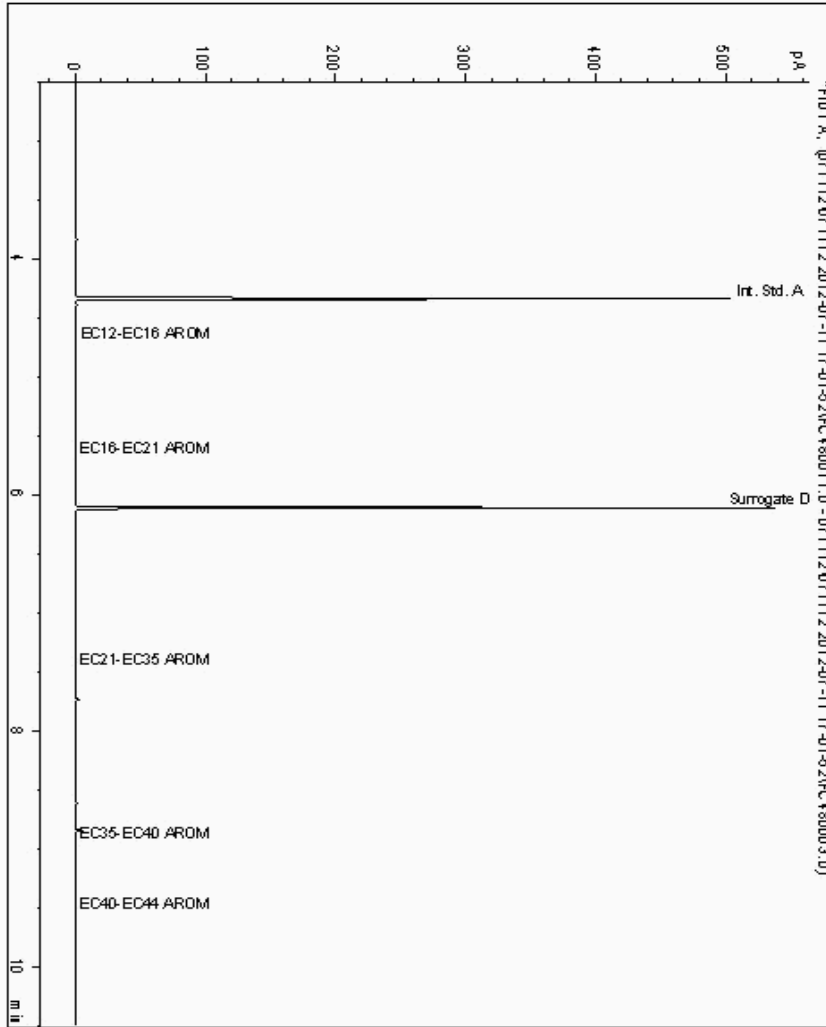
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841352
Sample ID : 325675

Depth :

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

Sample Identity: 5688094-5841352
Date Acquired : 11/07/12 20:08:12
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

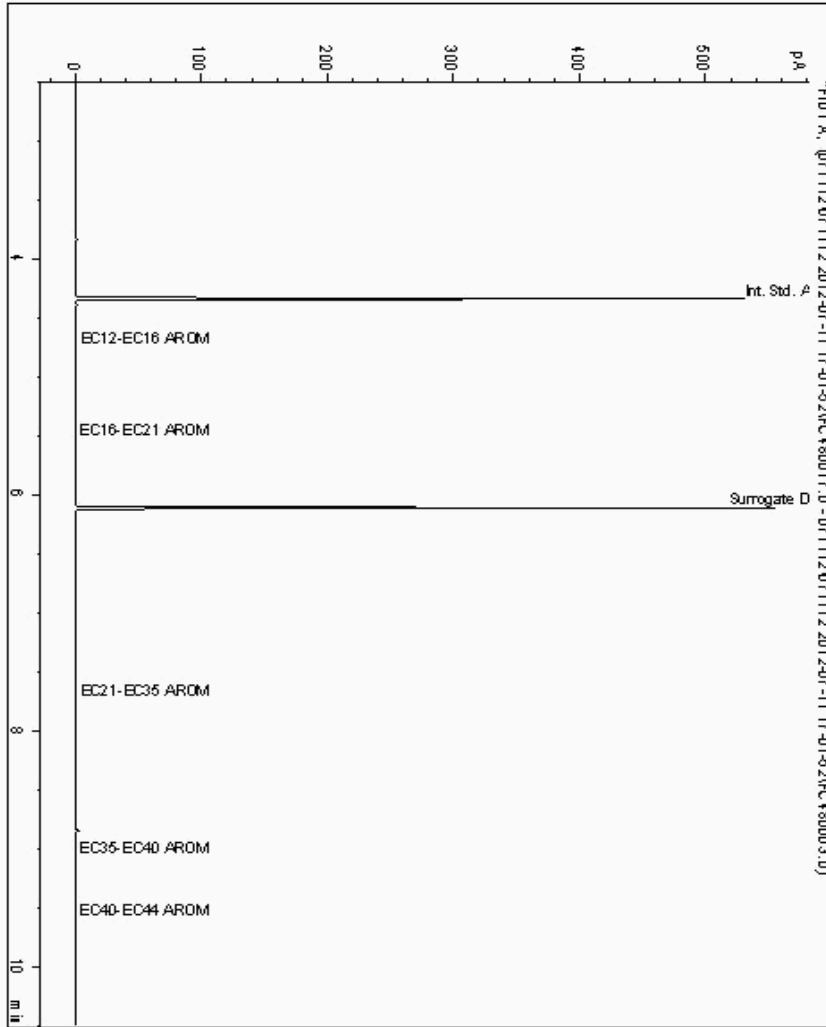
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841384
Sample ID : 987451

Depth :

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

Sample Identity: 5688146-5841384
Date Acquired : 11/07/12 22:02:10
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

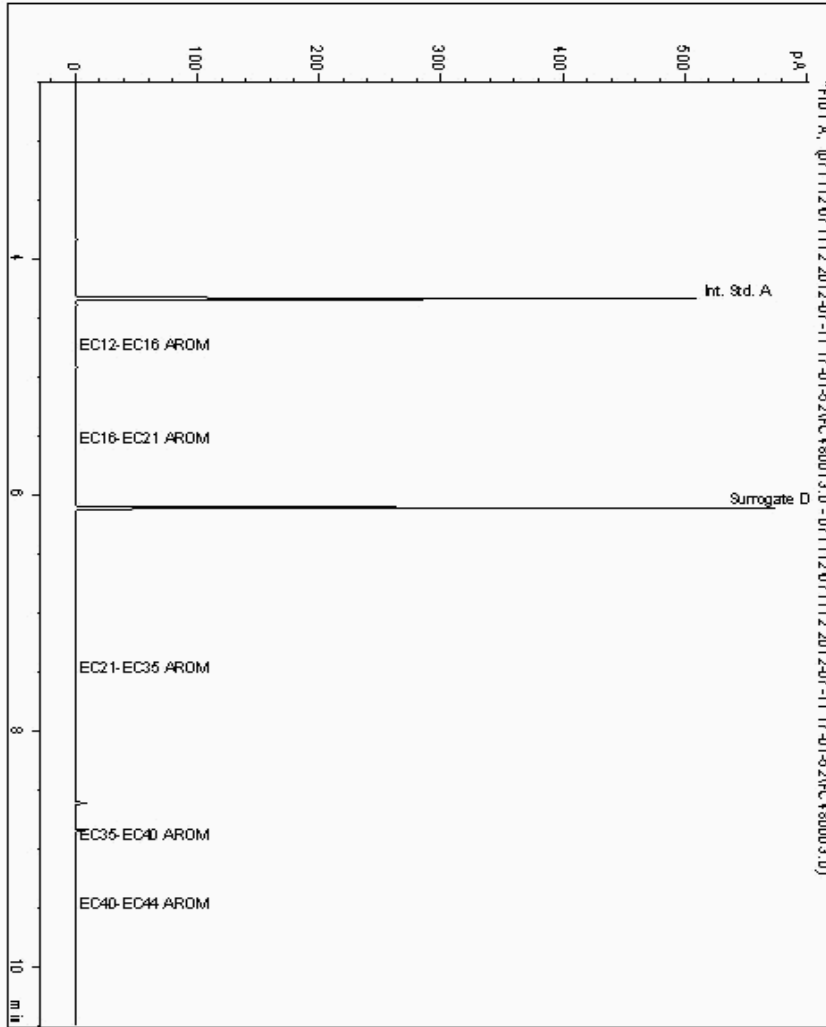
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5843255
Sample ID : 989321

Depth :

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

Sample Identity: 5688257-5843255
Date Acquired : 11/07/12 20:46:19
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

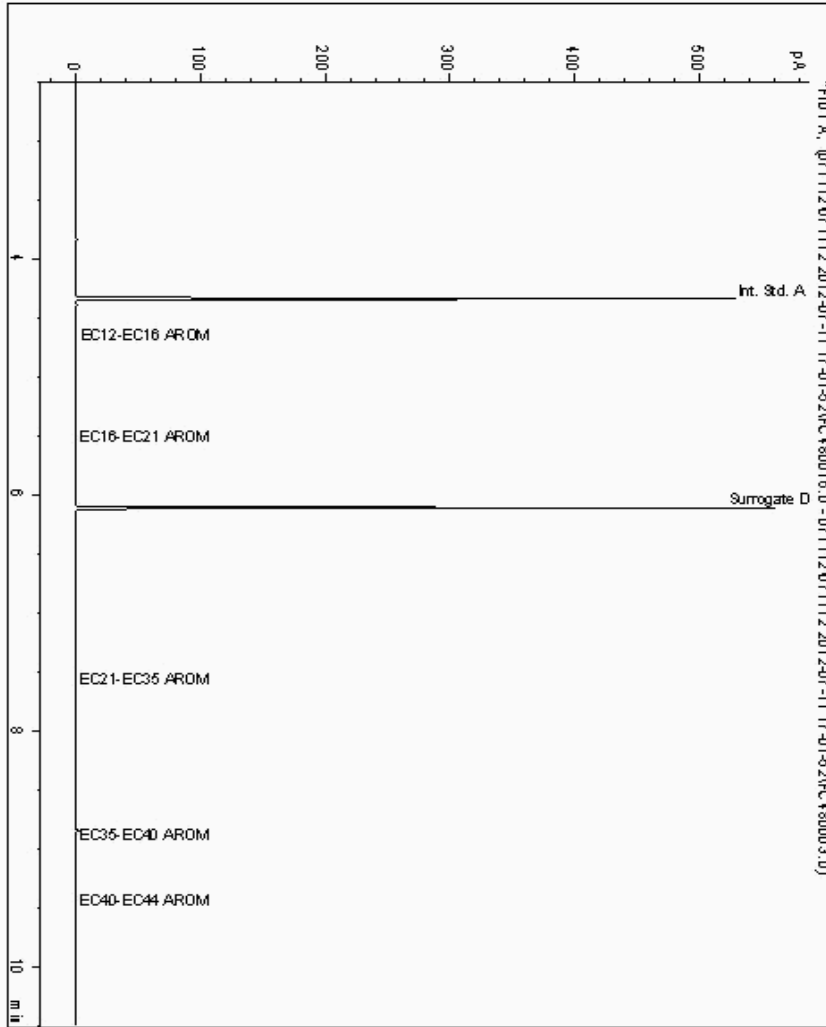
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5843314
Sample ID : 158877

Depth :

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

Sample Identity: 5689938-5843314
Date Acquired : 11/07/12 21:43:06
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

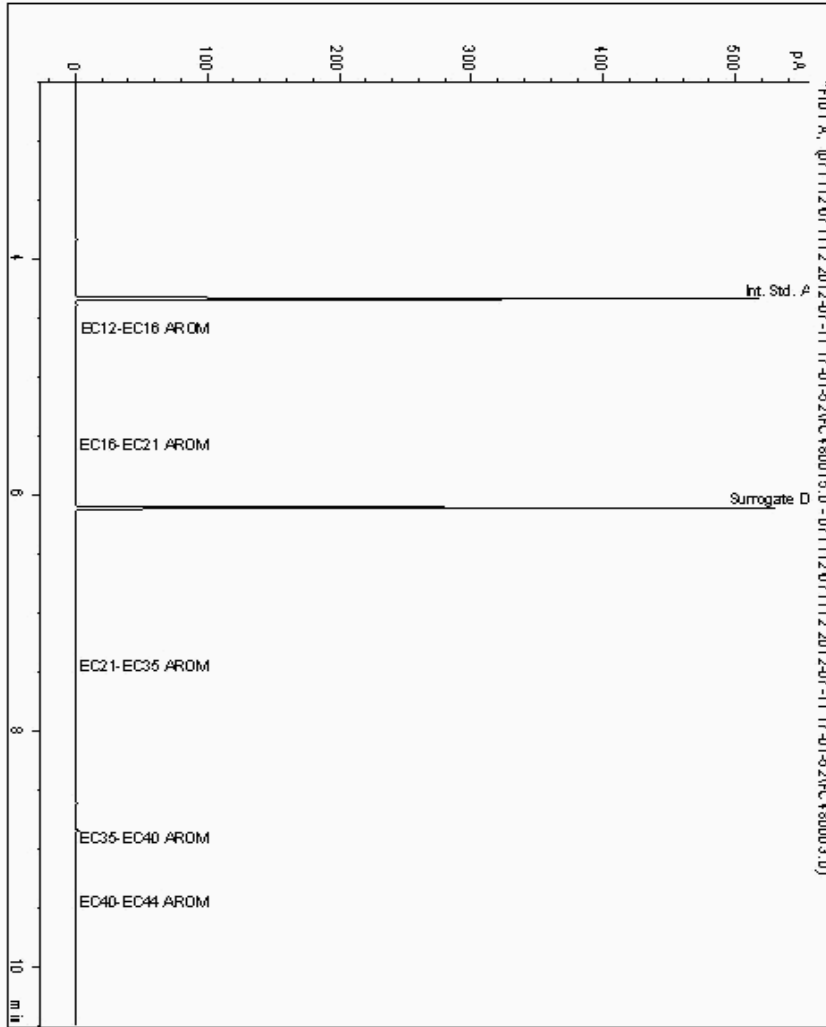
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5843344
Sample ID : 438131

Depth :

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

Sample Identity: 5688302-5843344
Date Acquired : 11/07/12 21:24:07
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

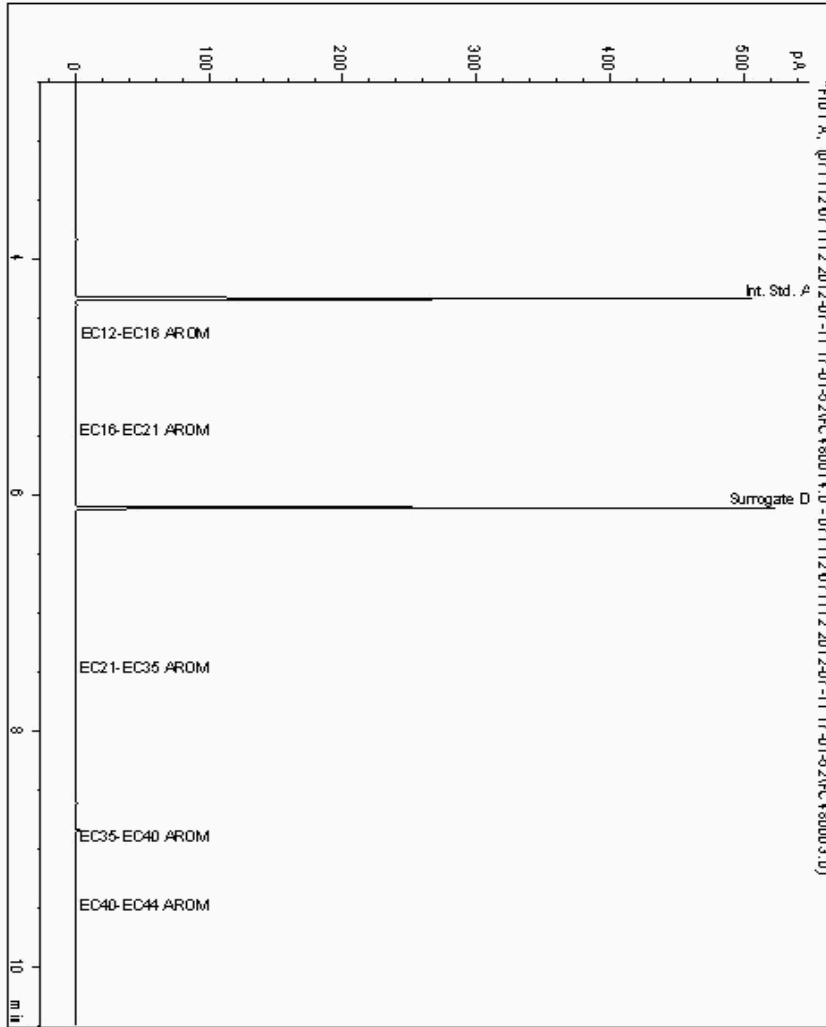
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5843403
Sample ID : 198416

Depth :

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

Sample Identity: 5688204-5843403
Date Acquired : 11/07/12 21:05:10
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

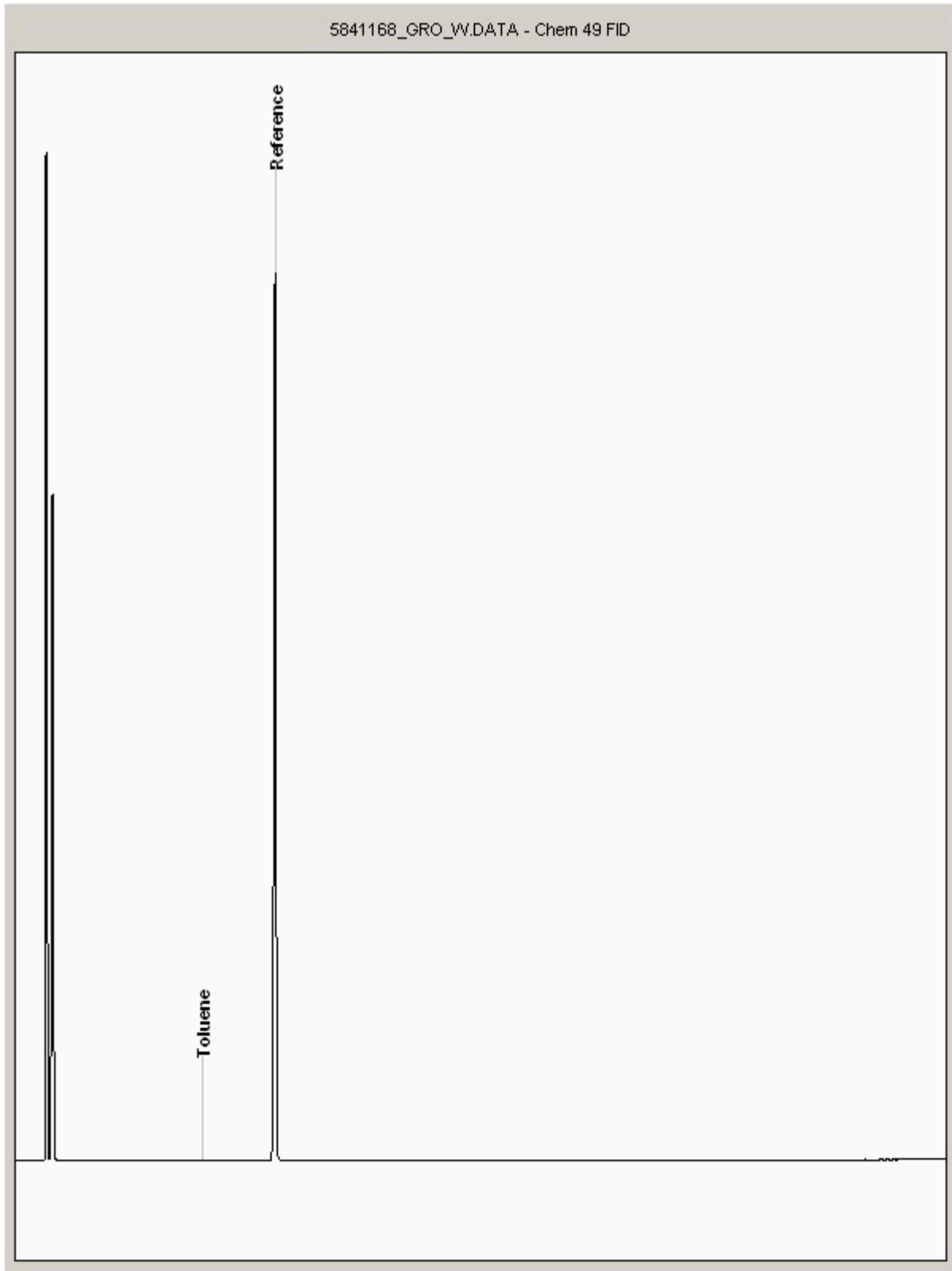
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841168
Sample ID : 198416

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

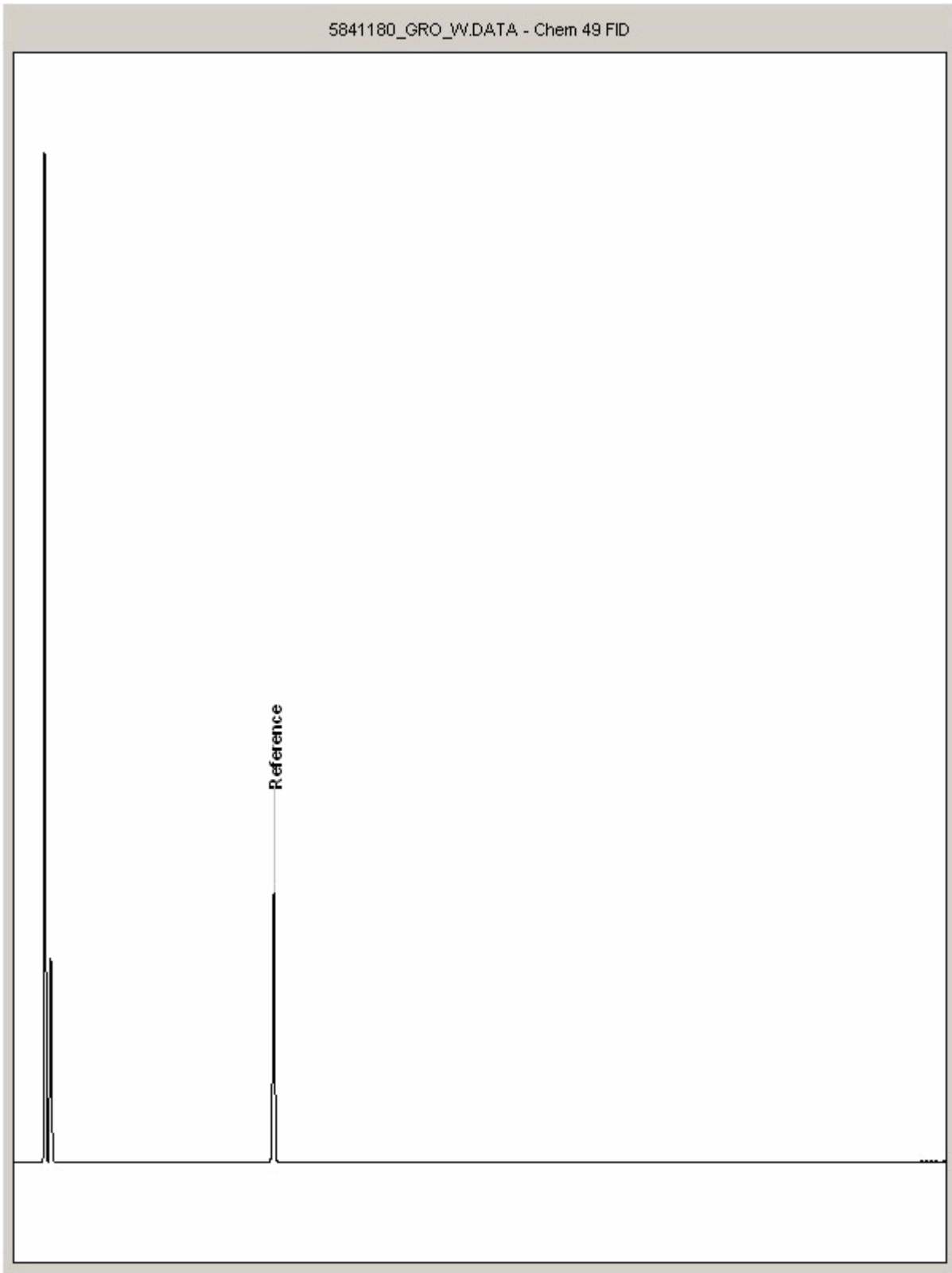
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841180
Sample ID : 158877

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

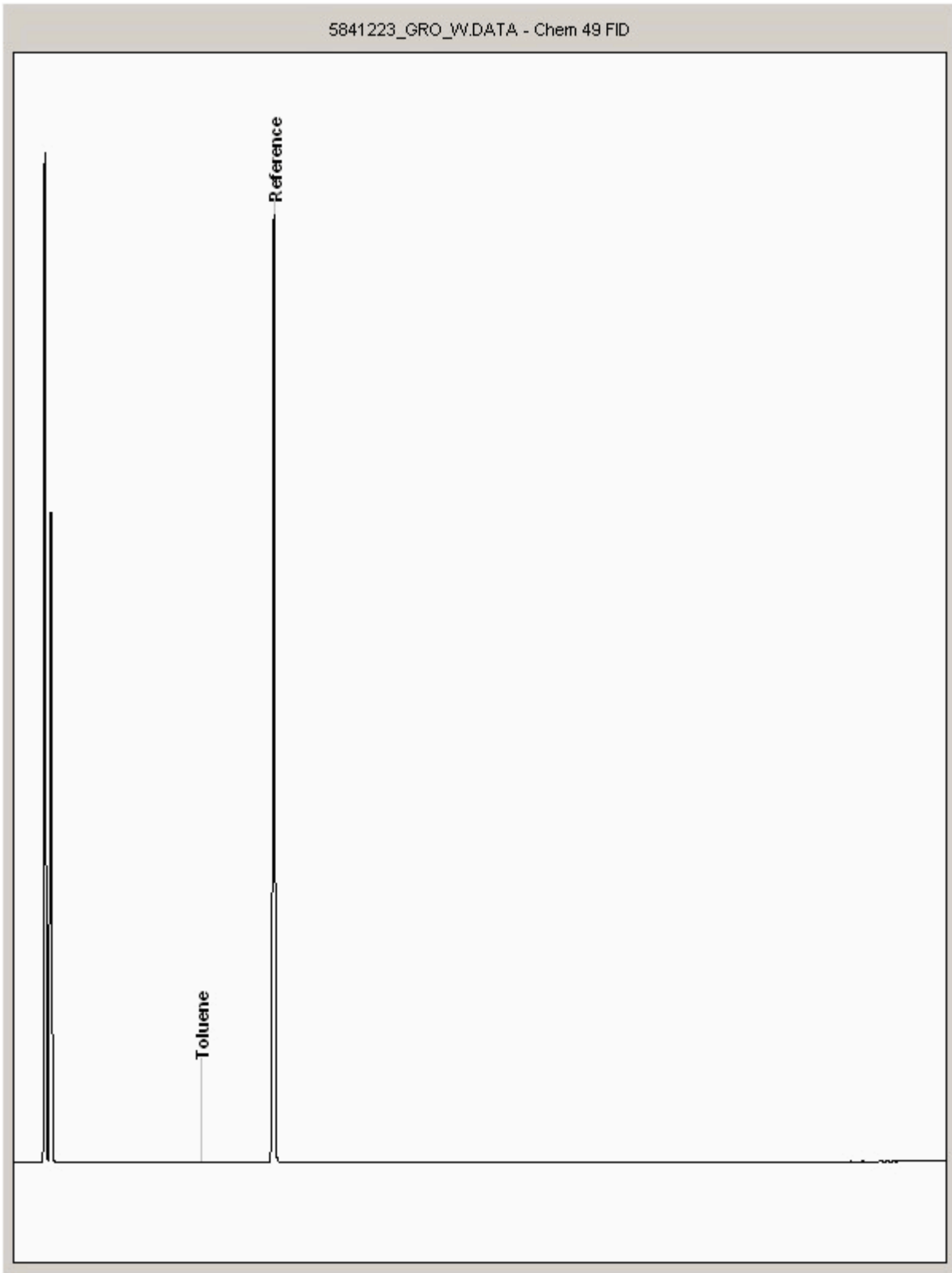
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841223
Sample ID : 435284

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

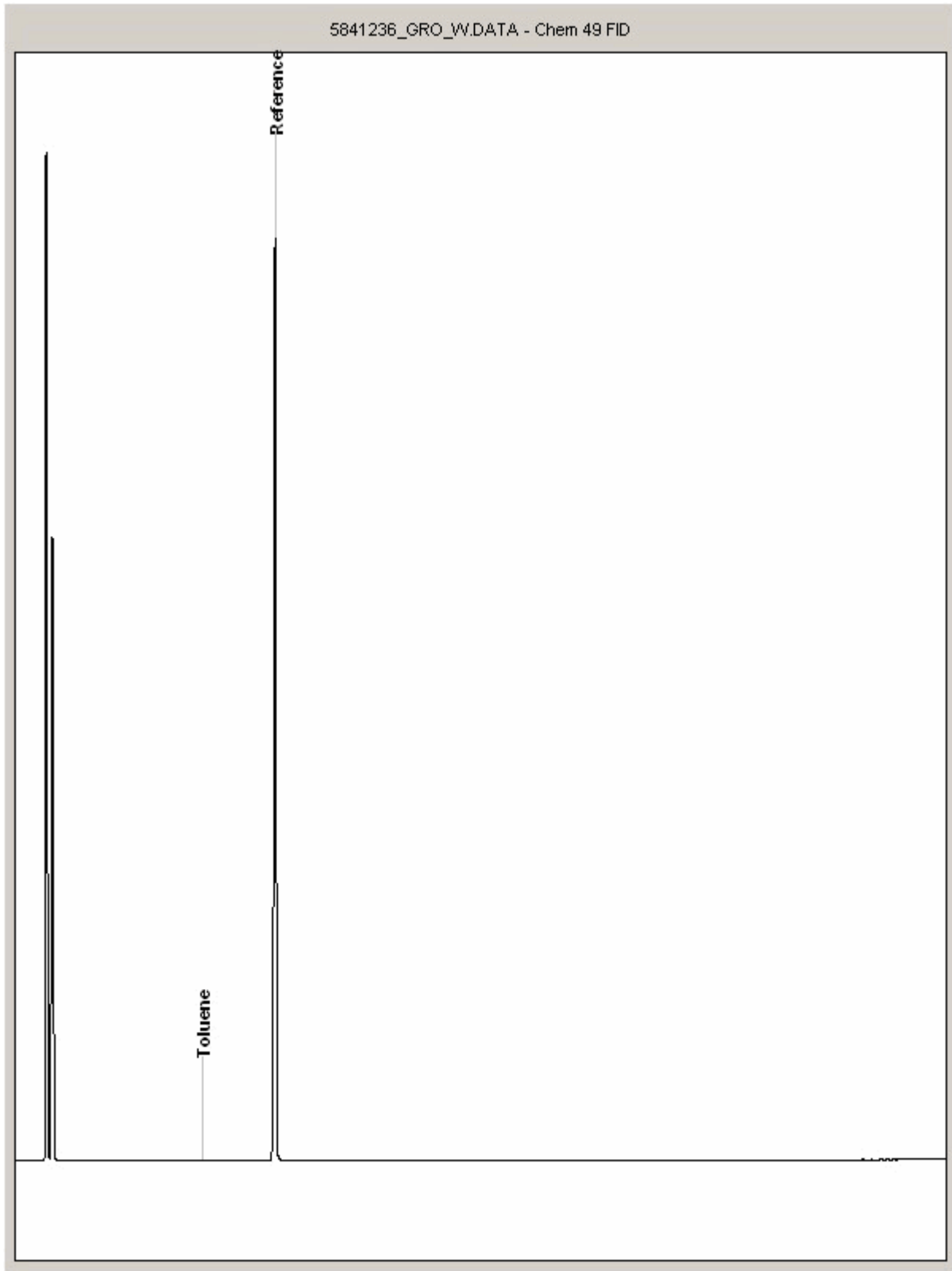
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841236
Sample ID : 987451

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

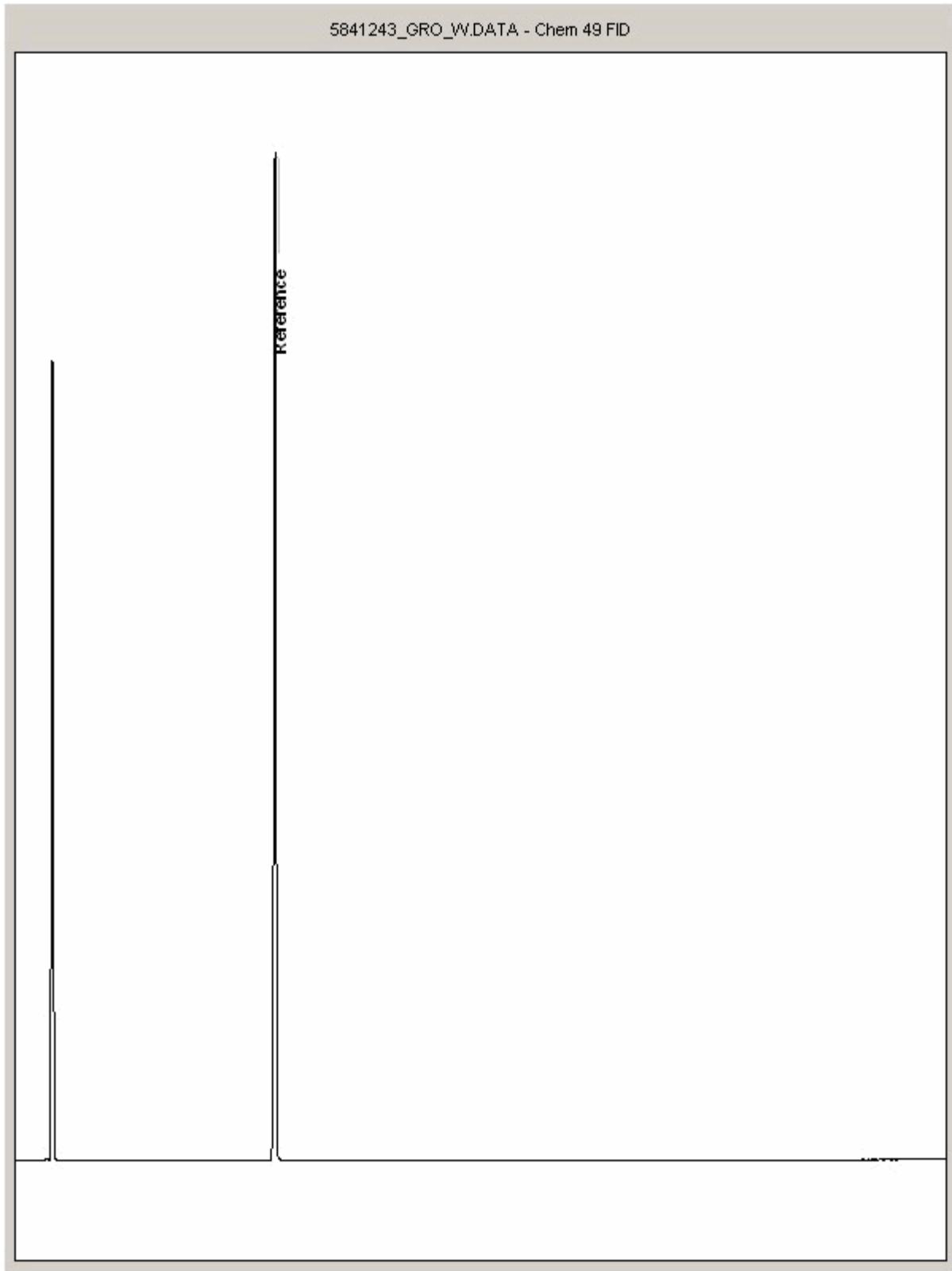
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841243
Sample ID : 438131

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

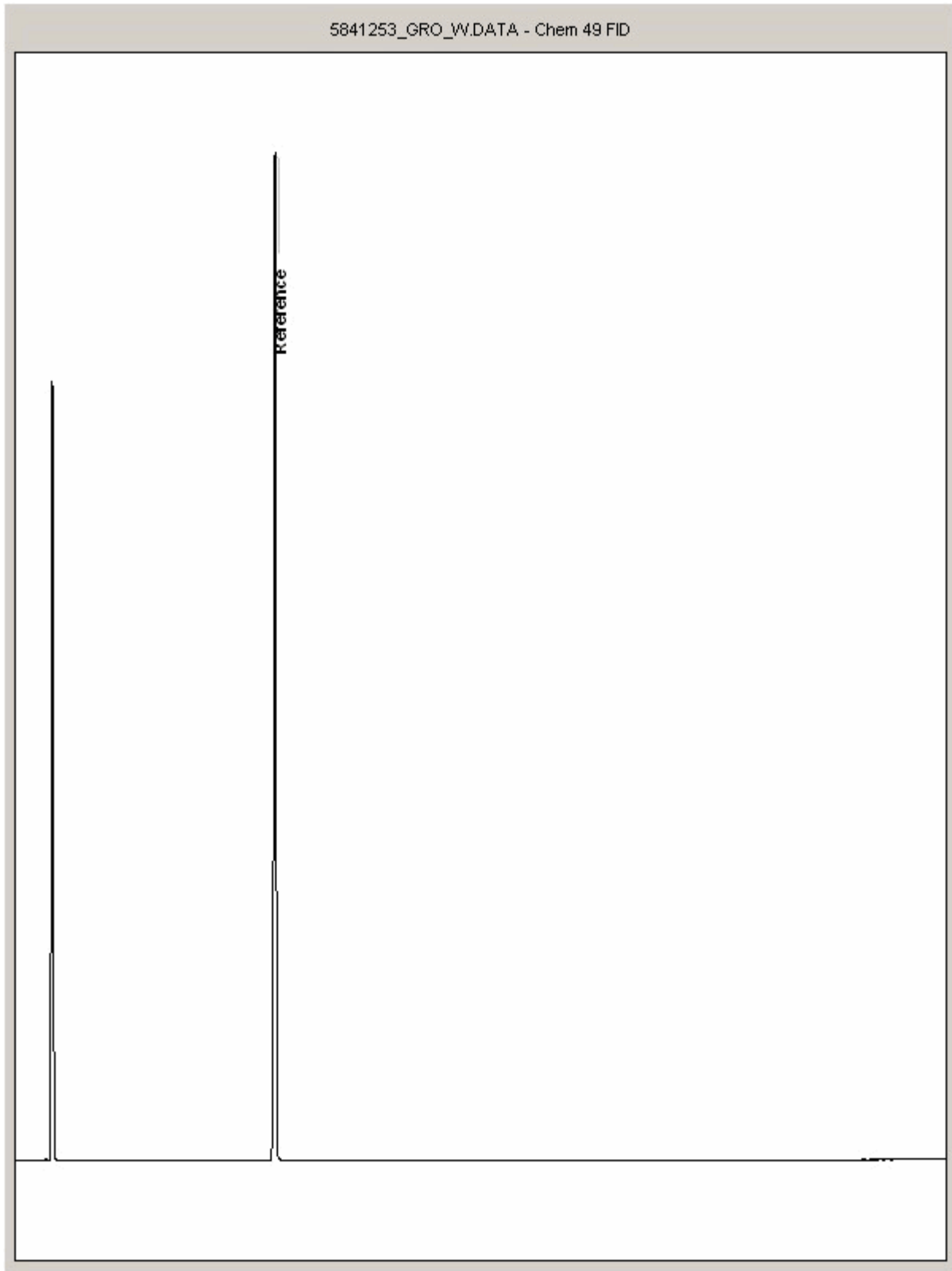
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841253
Sample ID : 254414

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

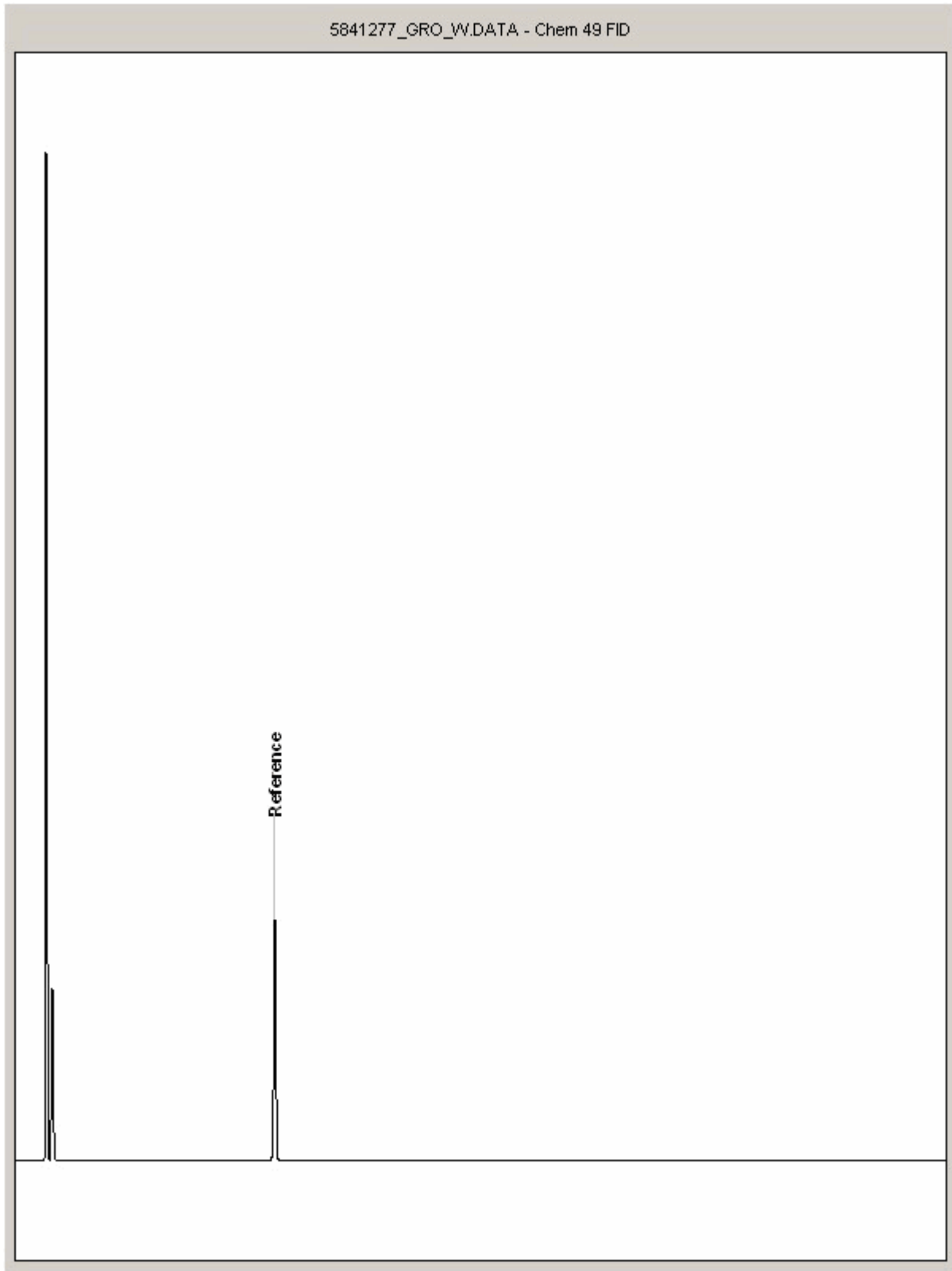
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841277
Sample ID : 989321

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

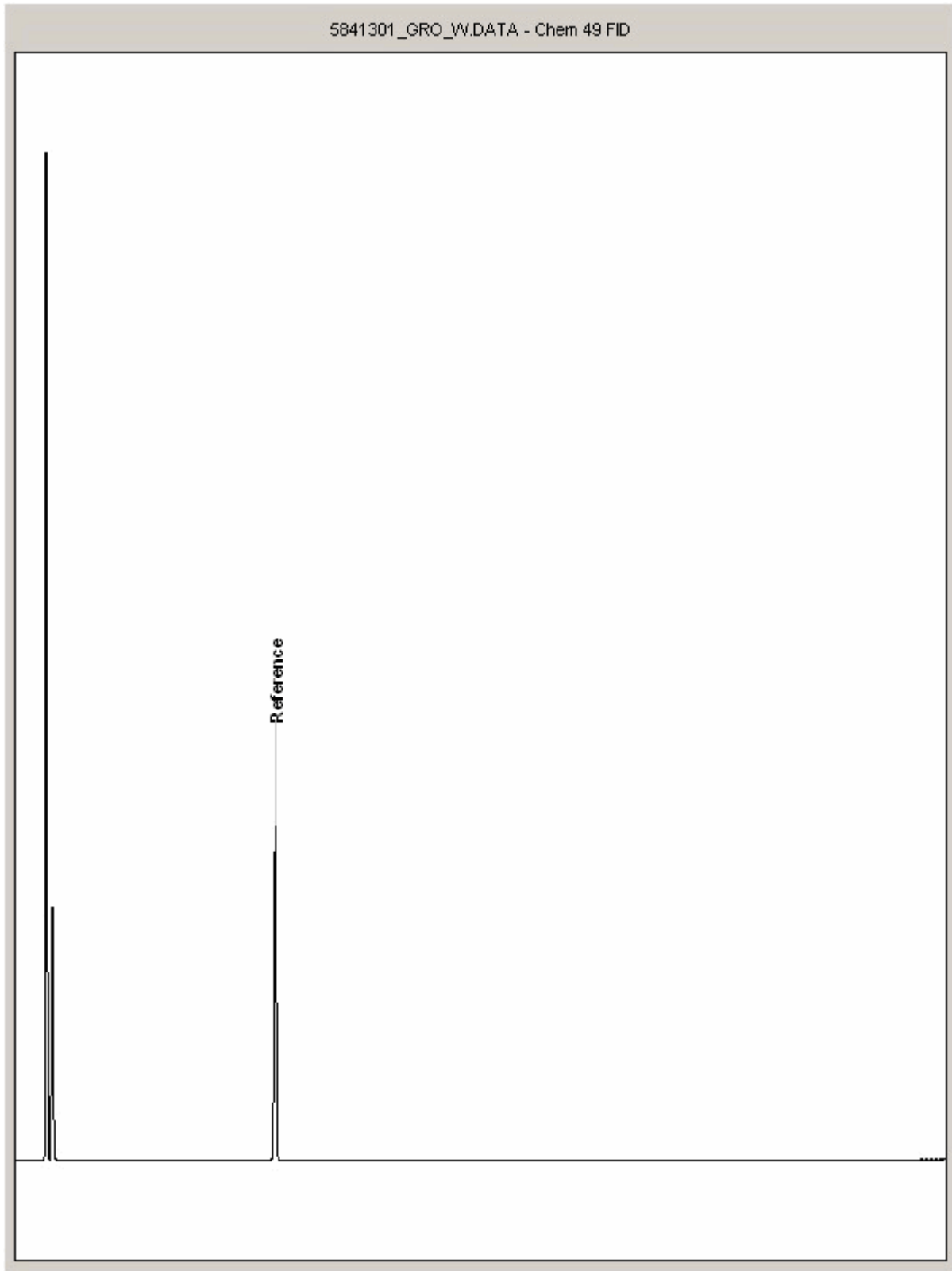
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841301
Sample ID : 923033

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

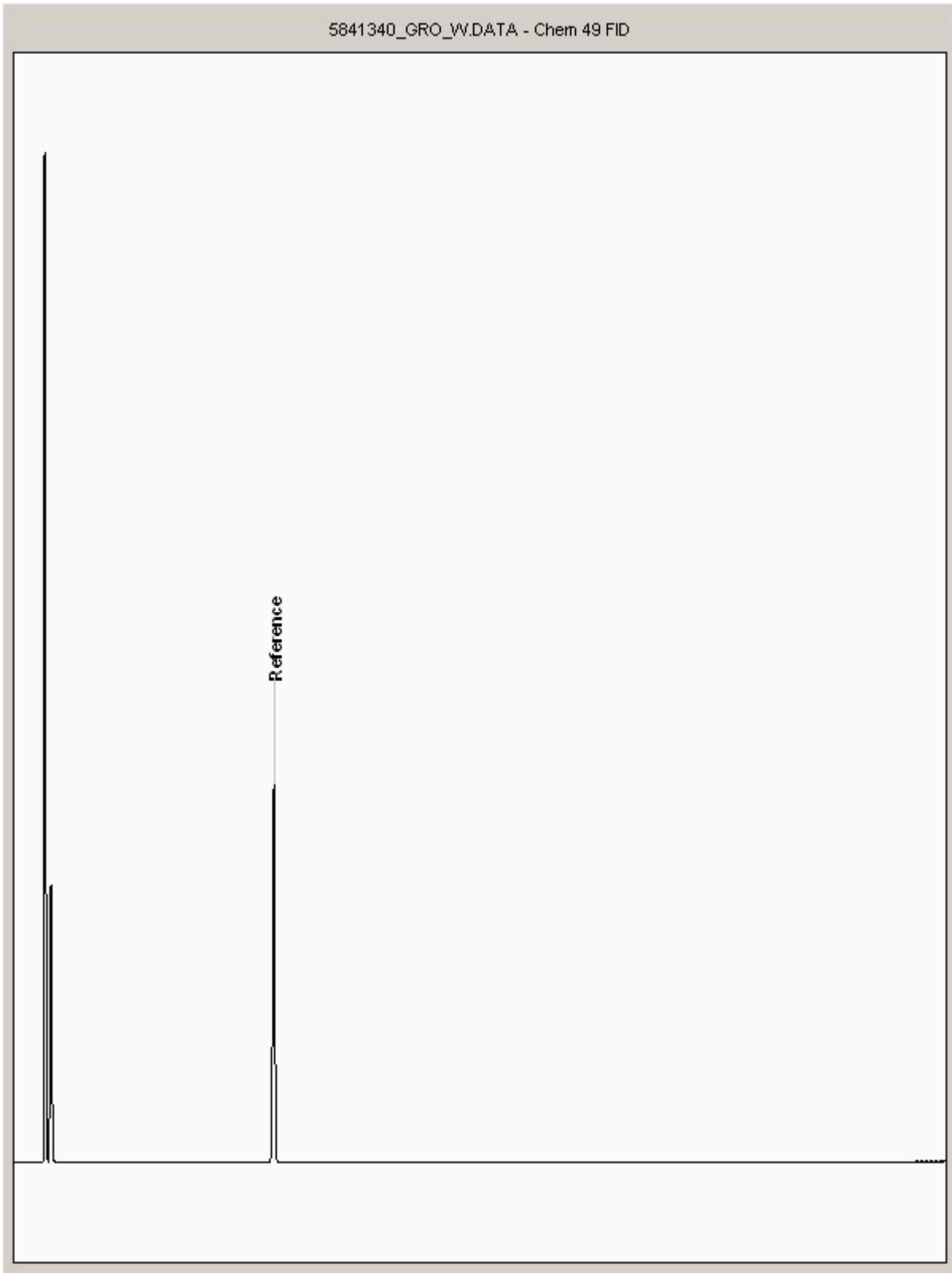
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841340
Sample ID : 325675

Depth :



Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 8 samples described below.

Samples Registered on:	06-Jul-2012
Analysis Started on:	14-Jul-2012
Analysis Completed on:	17-Jul-2012
Results for Batch Number	20041435
Your Purchase Order Number:	150380

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Final Report

Report ID - 20041435 - 1

Batch description: Saline TOC Analysis

Reported on:
17-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001996149
Comments: 5839829 - 198416
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	17.1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996150
Comments: 5839897 - 438131
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	2.63	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996151
Comments: 5839898 - 325675
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	19.0	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996152
Comments: 5839907 - 254414
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	2.22	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996153
Comments: 5839937 - 435284
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	14.0	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996154
Comments: 5839945 - 989321
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)
Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	79.6	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996155
Comments: 5839955 - 987451
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	15.1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996156
Comments: 5839957 - 923033
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)
Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	105	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041435

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 1 samples described below.

Samples Registered on:	10-Jul-2012
Analysis Started on:	23-Jul-2012
Analysis Completed on:	24-Jul-2012
Results for Batch Number	20041525
Your Purchase Order Number:	150537

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Final Report

Report ID - 20041525 - 1

Batch description: 120705 - 45 TOC Saline

Reported on:
24-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001998480
Comments: 5843065 - 158877
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	7.60	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041525

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Appendix

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, 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 2 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.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DOM	SOX THERM	GCMS
HERBICIDES	D&C	HEXANE/ACETONE	SOX THERM	GCMS
PESTICIDES	D&C	HEXANE/ACETONE	SOX THERM	GCMS
EPH (DFO)	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 CWGBY GC	D&C	HEXANE/ACETONE	END OVER END	GC-FID
PCBAROCLOR 1254/PCBCON	D&C	HEXANE/ACETONE	END OVER END	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE/ACETONE	MICROWAVE TM218.	GCMS
>C6-C40	WET	HEXANE/ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE/ACETONE	SHAKER	GC-FID
SEMIVOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GCMS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	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
PCB7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCBAROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVCC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL BY R	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC-FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description 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 Anorthophyllite	-
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.



Priority Geotechnical Ltd
Unit 12
Owenacurra Business Park
Midleton
Co Cork
Co Cork

Attention: Colette Kelly

CERTIFICATE OF ANALYSIS

Date: 19 September 2012
Customer: D_PRIORGEOT_CRK
Sample Delivery Group (SDG): 120706-80
Your Reference: P12030
Location: Haulbowline
Report No: 194771

We received 9 samples on Friday July 06, 2012 and 9 of these samples were scheduled for analysis which was completed on Wednesday September 19, 2012. 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: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5846142	261020			04/07/2012
5846139	266498			04/07/2012
5846145	534284			04/07/2012
5846138	770734			04/07/2012
5846147	798741			04/07/2012
5846144	832111			04/07/2012
5846146	963090			04/07/2012
5846141	966135			04/07/2012
5846140	987654			04/07/2012

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



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

LEACH Results Legend	Lab Sample No(s)		5846142	5846139	5846145	5846138	5846144	5846146	5846141	5846140
	Customer Sample Reference		261020	266498	534284	770734	832111	963090	966135	987654
	AGS Reference									
	Depth (m)									
	Container		1l green glass bottle	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	1l green glass bottle	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	1l green glass bottle	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
BOD True Total	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9		X	X		X	X	X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
Fluoride	All	NDPs: 0 Tests: 2				X				X
Free Sulphur	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 9		X	X	X	X	X	X	X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 9	X	X	X	X	X	X	X	X



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

LEACH Results Legend X Test N No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container
	5846142	261020			1l green glass bottle
	5846139	266498			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l green glass bottle
	5846145	534284			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l green glass bottle
	5846138	770734			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l green glass bottle
5846144	832111			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l green glass bottle	
5846146	963090			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l green glass bottle	
5846141	966135			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l green glass bottle	
5846140	987654			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l green glass bottle	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 9			X X X X X X X X X
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 9			X X X X X X X X X
pH Value	All	NDPs: 0 Tests: 9			X X X X X X X X X
Phenols by ms (w)	All	NDPs: 0 Tests: 6			X X X X X X X X X
Saline TON	All	NDPs: 0 Tests: 9			X X X X X X X X X
Sulphide	All	NDPs: 0 Tests: 9			X X X X X X X X X
TOC (Saline)*	All	NDPs: 0 Tests: 9			X X X X X X X X X
TPH CWG (W)	All	NDPs: 0 Tests: 9			X X X X X X X X X
VOC MS (W)	All	NDPs: 0 Tests: 5			X X X X X X X X X



SDG: 120706-80
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 194771
 Superseded Report:

LEACH Results Legend X Test N No Determination Possible	Lab Sample No(s)	5846147				
	Customer Sample Reference	798741				
	AGS Reference					
	Depth (m)					
	Container	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1(l)plastic (ALE221) 1l green glass bottle				
Alkalinity as CaCO3	All	NDPs: 0 Tests: 1	X			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 9		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 9	X			
BOD True Total	All	NDPs: 0 Tests: 9	X			
COD Unfiltered	All	NDPs: 0 Tests: 9	X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9	X			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 9	X			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	X			
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	X			
Free Sulphur	All	NDPs: 0 Tests: 9	X			
GRO by GC-FID (W)	All	NDPs: 0 Tests: 9				X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 9	X			
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 9	X			
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 9	X			



SDG: 120706-80
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 194771
 Superseded Report:

LEACH Results Legend X Test N No Determination Possible	Lab Sample No(s)	5846147			
	Customer Sample Reference	798741			
	AGS Reference				
	Depth (m)				
	Container	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1(l)plastic (ALE221) 1l green glass bottle			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 9			X
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 9	X		
pH Value	All	NDPs: 0 Tests: 9	X		
Saline TON	All	NDPs: 0 Tests: 9	X		
Sulphide	All	NDPs: 0 Tests: 9	X		
TOC (Saline)*	All	NDPs: 0 Tests: 9	X		
TPH CWG (W)	All	NDPs: 0 Tests: 9	X		



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Results Legend		Customer Sample R	261020	266498	534284	770734	798741	832111
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
M	mCERTS accredited.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
S	Deviating sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012
aq	Aqueous / settled sample.		120706-80	120706-80	120706-80	120706-80	120706-80	120706-80
diss.filt	Dissolved / filtered sample.		5846142	5846139	5846145	5846138	5846147	5846144
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							
Component	LOD/Units		Method					
TOC (Saline)*	<1 mg/l	SUB	40.9	<1	<1	3.11	<1	50.3
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043					<5	
BOD, unfiltered	<1 mg/l	TM045	17.5	<5	<2	<2	<2	17.7
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	2.26	2	<0.2	3.28	3.06	2.52
Sulphide	<0.01 mg/l	TM101	<0.01	0.014	<0.01	<0.01	<0.01	<0.01
Fluoride	<0.5 mg/l	TM104				<0.5		
COD, unfiltered	<7 mg/l	TM107	506	464	386	568	355	466
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	30.7	42.6	41.9	41.3	42.5	30.9
Barium (diss.filt)	<0.03 µg/l	TM152	170	54.9	3.12	106	23.1	183
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.7	1.86	<0.07	<0.7	<0.07	<0.7
Cobalt (diss.filt)	<0.06 µg/l	TM152				1.18		
Molybdenum (diss.filt)	<0.24 µg/l	TM152				17.6		
Phosphorus (diss.filt)	<6.3 µg/l	TM152				<63		
Thallium (diss.filt)	<0.96 µg/l	TM152				<9.6		
Tin (diss.filt)	<0.36 µg/l	TM152				9.32		
Nitrite as NO2	<0.05 mg/l	TM184	0.232	1.1	<0.05	<0.05	1.5	0.248
Sulphate	<2 mg/l	TM184	1300	2350	2190	2170	2320	1300
Chloride	<2 mg/l	TM184	13200	17800	17500	17200	18000	12600
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	0.02
PCB congener 52	<0.015 µg/l	TM197	0.03	<0.015	<0.015	<0.015	<0.015	0.05
PCB congener 101	<0.015 µg/l	TM197	0.03	<0.015	<0.015	<0.015	<0.015	0.05
PCB congener 118	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015	<0.015	0.04
PCB congener 138	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015	<0.015	0.04
PCB congener 153	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015	<0.015	0.03
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	0.13	<0.105	<0.105	<0.105	<0.105	0.23
Phenol	<0.5 µg/l	TM205	9.89		<2.8	<3		9.51
2-methylphenol	<0.5 µg/l	TM205	1.31		<0.5	<0.5		1.25
3-methylphenol	<0.5 µg/l	TM205	3.81		<0.5	<0.5		3.58
4-methylphenol	<0.5 µg/l	TM205	6.76		<0.5	<0.5		3.47
2-chlorophenol	<0.5 µg/l	TM205	1.13		<0.5	<0.5		<0.5
2,4-dimethylphenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		1.03
4-chloro-3-methylphenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
2,6-dichlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
4-Chlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Results Legend		Customer Sample R	261020	266498	534284	770734	798741	832111
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
M	mCERTS accredited.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
S	Deviating sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012
aq	Aqueous / settled sample.		120706-80	120706-80	120706-80	120706-80	120706-80	120706-80
diss.filt	Dissolved / filtered sample.		5846142	5846139	5846145	5846138	5846147	5846144
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							
Component	LOD/Units		Method					
2,4-dichlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
2-nitrophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
2,4,6-trichlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
2,4,5-trichlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
4-nitrophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
2,4-dinitrophenol	<2.5 µg/l	TM205	<5		<5	<2.5		<5
DNOC	<3 µg/l	TM205	<6		<6	<3		<6
Pentachlorophenol	<2 µg/l	TM205	<2		<2	<2		<2
Dinoseb	<4 µg/l	TM205	<8		<8	<4		<8
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	<0.012 mg/l	TM228	1530	445	485	485	425	1750
Sodium (diss.filt)	<0.076 mg/l	TM228	8270	10300	9300	9890	9840	7100
Magnesium (diss.filt)	<0.036 mg/l	TM228	27.8	1030	992	909	1070	0.845
Potassium (diss.filt)	<2.335 mg/l	TM228	305	362	299	338	360	278
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03 #	<0.03 #	<0.03 #	<0.03 #	<0.03 #	<0.03 #
pH	<1 pH Units	TM256	10.4	8.02	7.54	8.6	7.82	11.4
Arsenic (Saline)	<0.5 µg/l	TM270	3.11 #	1.51 #	2.47 #	2.16 #	2.44 #	3.06 #
Aluminium (Saline)	<3.7 µg/l	TM270	69.9 #	60.7 #	44.7 #	54.3 #	139 #	36.4 #
Antimony (Saline)	<1 µg/l	TM270	1.46 #	<1 #	<1 #	<1 #	<1 #	1.55 #
Boron (Saline)	<201 µg/l	TM270	560 #	2740 #	2150 #	2310 #	3100 #	505 #
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15 #	<0.15 #	0.904 #	<0.15 #	1.42 #	<0.15 #
Chromium (Saline)	<1.5 µg/l	TM270	4.91 #	4.32 #	6 #	3.7 #	3.87 #	5.46 #
Copper (Saline)	<1 µg/l	TM270	146 #	1.45 #	<1 #	<1 #	1.65 #	249 #
Iron (Saline)	<4 µg/l	TM270	<4 #	<4 #	<4 #	<4 #	<4 #	<4 #
Lead (Saline)	<0.2 µg/l	TM270	7.79 #	<0.2 #	<0.2 #	<0.2 #	<0.2 #	64.2 #
Manganese (Saline)	<0.3 µg/l	TM270	<0.3 #	1370 #	59.7 #	727 #	850 #	<0.3 #
Mercury (Saline)	<0.15 µg/l	TM270	<0.15 #	<0.15 #	<0.15 #	<0.15 #	<0.15 #	<0.15 #
Nickel (saline)	<1.1 µg/l	TM270	41.4 #	18.5 #	5.29 #	5.21 #	24.1 #	50.1 #
Selenium (Saline)	<0.5 µg/l	TM270	1.15 #	0.516 #	0.548 #	<0.5 #	<0.5 #	1.54 #
Vanadium (Saline)	<4 µg/l	TM270	22.7 #	26.1 #	39.6 #	29.2 #	37.2 #	14 #



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Table with columns for Results Legend, Customer Sample R, and various sample IDs (261020, 266498, 534284, 770734, 798741, 832111). Rows include components like Zinc (Saline), Saline TON as NO3, Saline Nitrate as NO3, and Sulphur, Free, with associated LOD/Units and Method columns.



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Results Legend		Customer Sample R	963090	966135	987654		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference					
M	mCERTS accredited.		Saline D	Saline D	Saline D		
S	Deviating sample.		04/07/2012	04/07/2012	04/07/2012		
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.		06/07/2012	06/07/2012	06/07/2012		
tot.unfilt	Total / unfiltered sample.		120706-80	120706-80	120706-80		
**	Subcontracted test.		5846146	5846141	5846140		
	% 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						
Component	LOD/Units		Method				
TOC (Saline)*	<1 mg/l	SUB	3.16	<1	278		
BOD, unfiltered	<1 mg/l	TM045	<2	<2	18.4		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	2.99	<0.2	0.447		
Sulphide	<0.01 mg/l	TM101	<0.01	<0.01	<0.01		
Fluoride	<0.5 mg/l	TM104			<0.5		
COD, unfiltered	<7 mg/l	TM107	283	624	1220		
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	37.6	38.3	31		
Barium (diss.filt)	<0.03 µg/l	TM152	121	12.7	114		
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.7	<0.07		
Cobalt (diss.filt)	<0.06 µg/l	TM152			1.41		
Molybdenum (diss.filt)	<0.24 µg/l	TM152			51.5		
Phosphorus (diss.filt)	<6.3 µg/l	TM152			<6.3		
Thallium (diss.filt)	<0.96 µg/l	TM152			<0.96		
Tin (diss.filt)	<0.36 µg/l	TM152			<0.36		
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	<0.05	0.464		
Sulphate	<2 mg/l	TM184	2250	2150	1610		
Chloride	<2 mg/l	TM184	16900	17600	13100		
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105		
Phenol	<0.5 µg/l	TM205		<2.8	<2.8		
2-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5		
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5		
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5		
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5		



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Results Legend			Customer Sample R			963090	966135	987654		
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D				
M	mCERTS accredited.			04/07/2012	04/07/2012	04/07/2012				
S	Deviating sample.			06/07/2012	06/07/2012	06/07/2012				
aq	Aqueous / settled sample.			120706-80	120706-80	120706-80				
diss.filt	Dissolved / filtered sample.			5846146	5846141	5846140				
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									
Component	LOD/Units	Method								
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5					
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,4-dinitrophenol	<2.5 µg/l	TM205		<5	<5					
DNOC	<3 µg/l	TM205		<6	<6					
Pentachlorophenol	<2 µg/l	TM205		<2	<2					
Dinoseb	<4 µg/l	TM205		<8	<8					
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05					
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05					
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05					
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05					
Calcium (diss.filt)	<0.012 mg/l	TM228	551	622	837					
Sodium (diss.filt)	<0.076 mg/l	TM228	9730	13600	7330					
Magnesium (diss.filt)	<0.036 mg/l	TM228	934	1280	382					
Potassium (diss.filt)	<2.335 mg/l	TM228	354	384	274					
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03 #	<0.03 #	<0.03 #					
pH	<1 pH Units	TM256	8.56	7.71	9.68					
Arsenic (Saline)	<0.5 µg/l	TM270	2.87 #	2.07 #	2.43 #					
Aluminium (Saline)	<3.7 µg/l	TM270	43.4 #	50.3 #	40.5 #					
Antimony (Saline)	<1 µg/l	TM270	<1 #	<1 #	3.43 #					
Boron (Saline)	<201 µg/l	TM270	2130 #	2140 #	1420 #					
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15 #	0.636 #	<0.15 #					
Chromium (Saline)	<1.5 µg/l	TM270	4.38 #	4.59 #	4.85 #					
Copper (Saline)	<1 µg/l	TM270	<1 #	<1 #	6.66 #					
Iron (Saline)	<4 µg/l	TM270	<4 #	<4 #	<4 #					
Lead (Saline)	<0.2 µg/l	TM270	<0.2 #	<0.2 #	1.23 #					
Manganese (Saline)	<0.3 µg/l	TM270	709 #	128 #	<0.3 #					
Mercury (Saline)	<0.15 µg/l	TM270	<0.15 #	<0.15 #	<0.15 #					
Nickel (saline)	<1.1 µg/l	TM270	5.06 #	6.69 #	7.59 #					
Selenium (Saline)	<0.5 µg/l	TM270	1.22 #	<0.5 #	1.26 #					
Vanadium (Saline)	<4 µg/l	TM270	37.8 #	36.1 #	33.7 #					
Zinc (Saline)	<2.1 µg/l	TM270	<2.1 #	13.4 #	<2.1 #					



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Table with columns for Results Legend, Customer Sample R (963090, 966135, 987654), Component, LOD/Units, Method, and numerical results for Saline TON as NO3, Saline Nitrate as NO3, and Sulphur, Free.



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample R	261020	534284	832111	966135	987654	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
aq	Aqueous / settled sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012
diss.filt	Dissolved / filtered sample.		120706-80	120706-80	120706-80	120706-80	120706-80	120706-80
tot.unfilt	Total / unfiltered sample.		5846142	5846145	5846144	5846141	5846140	5846140
*	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							
Component	LOD/Units		Method					
Dibromofluoromethane**	%	TM208	97.8	100	2.78	99.8	105	
Toluene-d8**	%	TM208	102	101	99.5	100	101	
4-Bromofluorobenzene**	%	TM208	98.4	101	96	97.1	97.8	
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Benzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Notification of Deviating Samples

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5958792	798741		SALINE_D	Alkalinity as CaCO3	Saline Carbonate Alkalinity as CaCO3	Sample holding time exceeded

Note : Test results may be compromised



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM270	Thermo Electron Application Note AN_E0640: X Series ICP-MS: Using automated collision cell ICP-MS with rapid in-sample switching to achieve ultimate performance in environmental analysis.	Dissolved Metals in Saline Matrices by CCT ICP-MS		
TM281		The Determination of Total Oxidized Nitrogen in Saline Matrices using the Kone Spectrophotometric Analysers		
TM294		Determination of Free Sulphur in liquids by HPLC		

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



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Test Completion Dates

Lab Sample No(s)	5846142	5846139	5846145	5846138	5846147	5846144	5846146	5846141	5846140
Customer Sample Ref.	261020	266498	534284	770734	798741	832111	963090	966135	987654
AGS Ref.									
Depth									
Type	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D
Alkalinity as CaCO3					31-Jul-2012				
Ammoniacal Nitrogen	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012
Anions by Kone (w)	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	16-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012
BOD True Total	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
COD Unfiltered	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Conductivity (at 20 deg.C)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Cyanide Comp/Free/Total/Thiocyanate	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Dissolved Metals by ICP-MS	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
EPH CWG (Aliphatic) Aqueous GC (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
EPH CWG (Aromatic) Aqueous GC (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
Fluoride				11-Jul-2012					11-Jul-2012
Free Sulphur	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
GRO by GC-FID (W)	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012
Hexavalent Chromium (w)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Metals analysis (Saline Sample)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Metals by iCap-OES Dissolved (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Nitrite by Kone (w)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
PCB Congeners - Aqueous (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
pH Value	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	13-Jul-2012	11-Jul-2012
Phenols by ms (w)	16-Jul-2012		16-Jul-2012	19-Sep-2012		16-Jul-2012		16-Jul-2012	16-Jul-2012
Saline TON	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012
Sulphide	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012
TOC (Saline)*	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012
TPH CWG (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
VOC MS (W)	12-Jul-2012		12-Jul-2012			15-Jul-2012		12-Jul-2012	12-Jul-2012



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

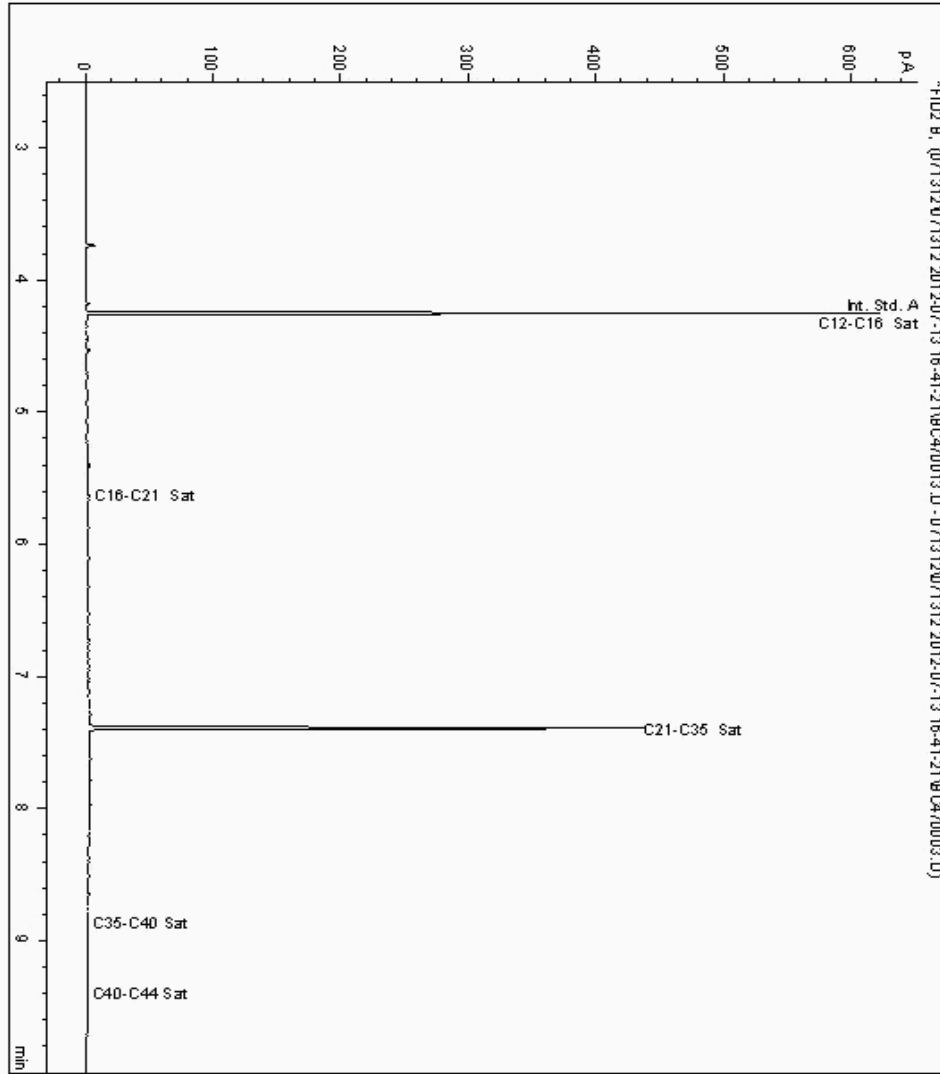
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858118
Sample ID : 261020

Depth :

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

Sample Identity: 5704465-5858118
Date Acquired : 13/07/12 20:26:12
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

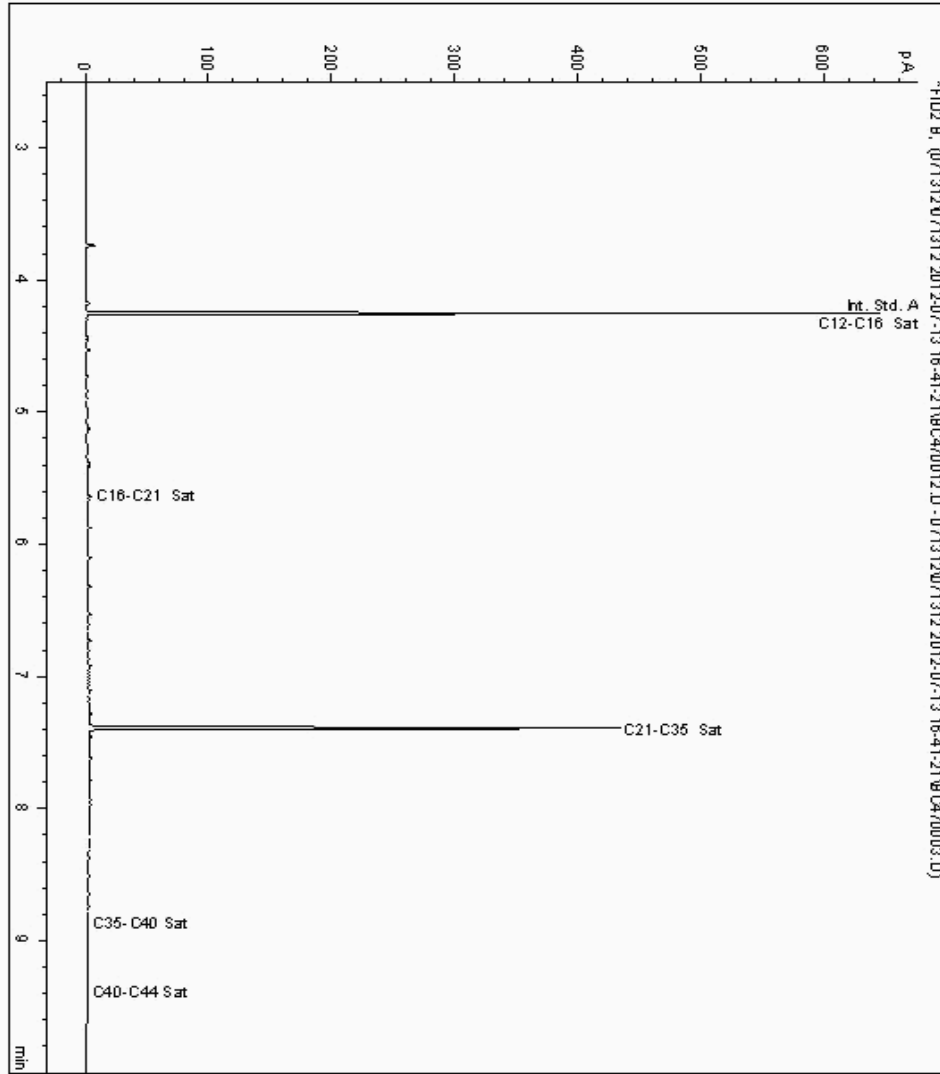
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858288
Sample ID : 832111

Depth :

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

Sample Identity: 5704494-5858288
Date Acquired : 13/07/12 20:07:07
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

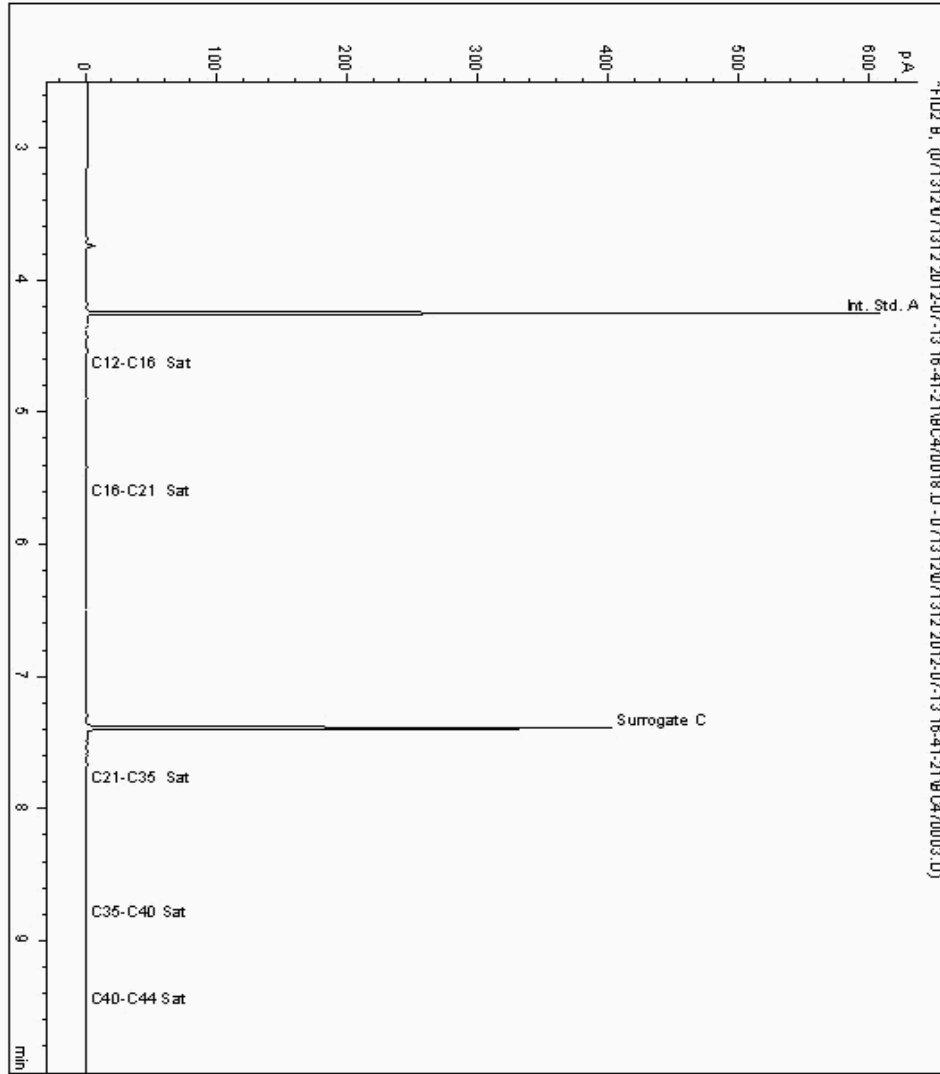
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858378
Sample ID : 963090

Depth :

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

Sample Identity: 5704552-5858378
Date Acquired : 13/07/12 22:01:10
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

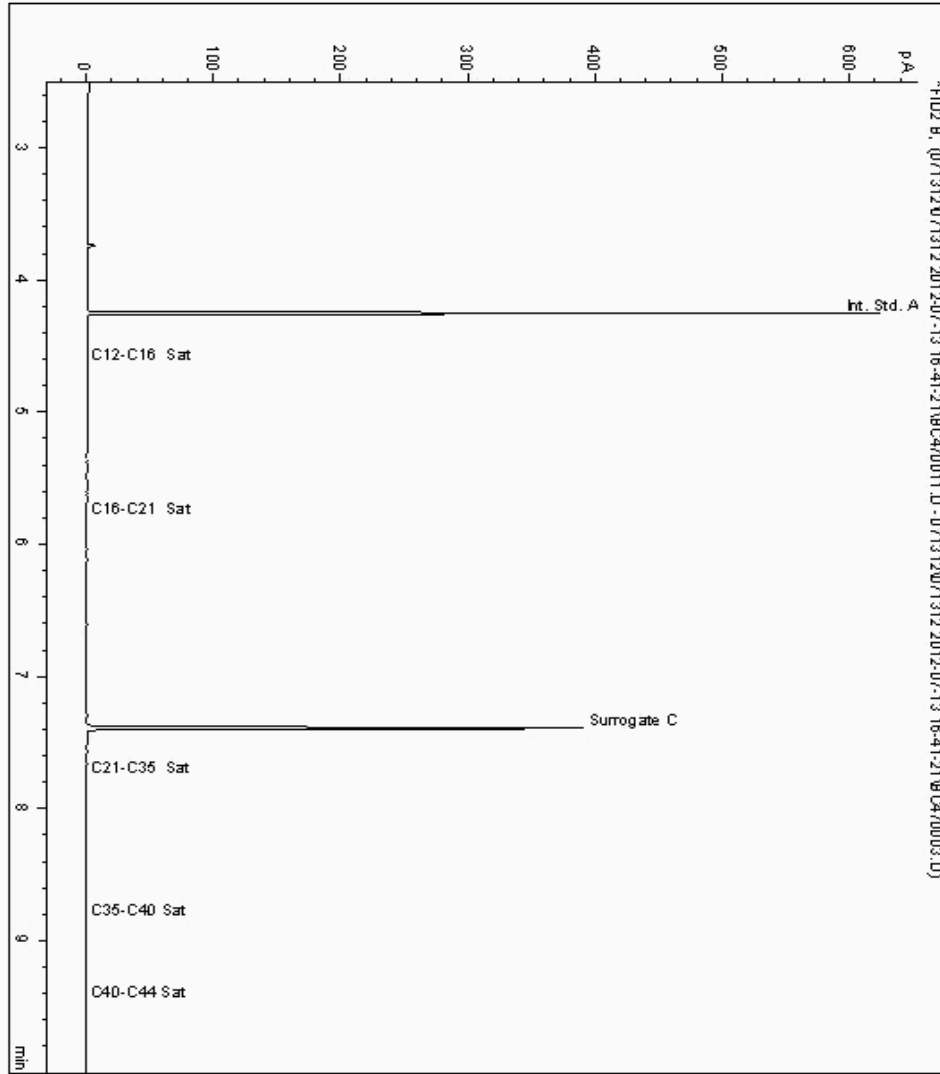
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858399
Sample ID : 534284

Depth :

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

Sample Identity: 5704523-5858399
Date Acquired : 13/07/12 19:48:13
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

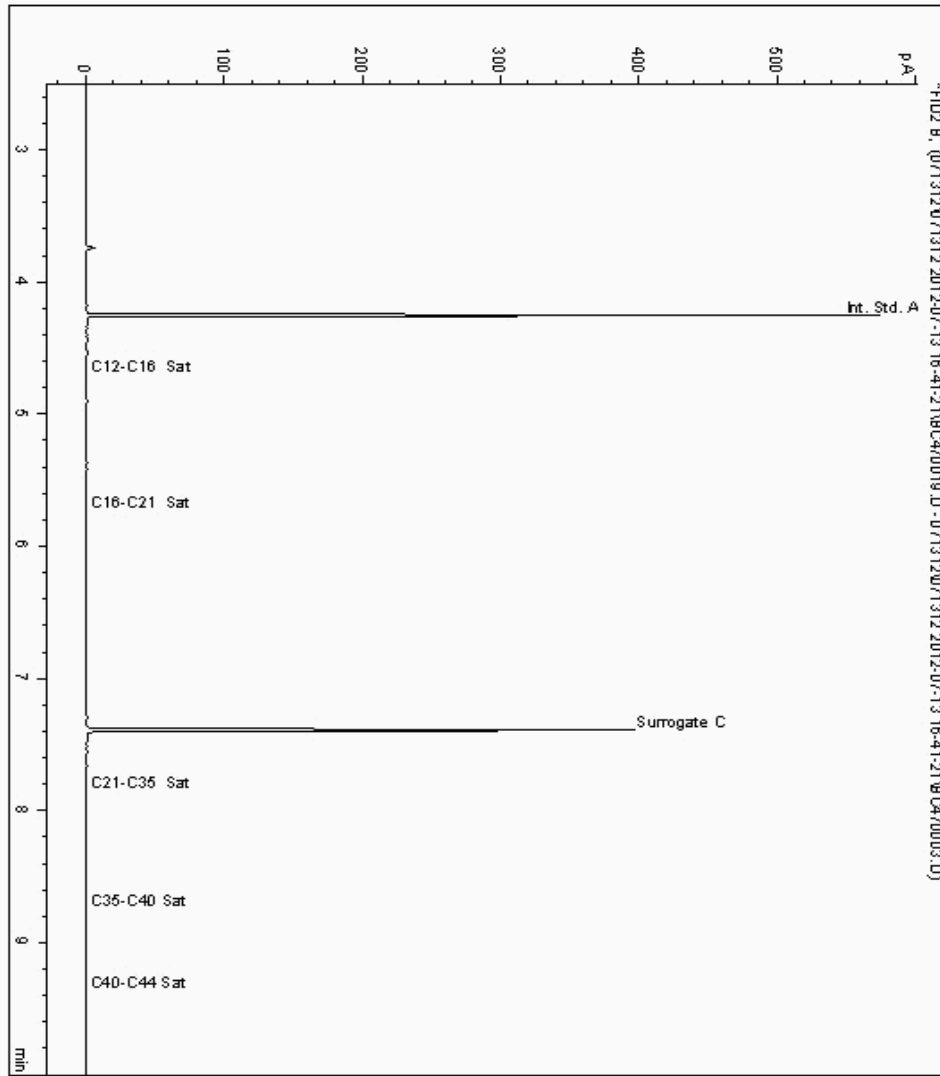
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858453
Sample ID : 798741

Depth :

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

Sample Identity: 5704579-5858453
Date Acquired : 13/07/12 22:20:13
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

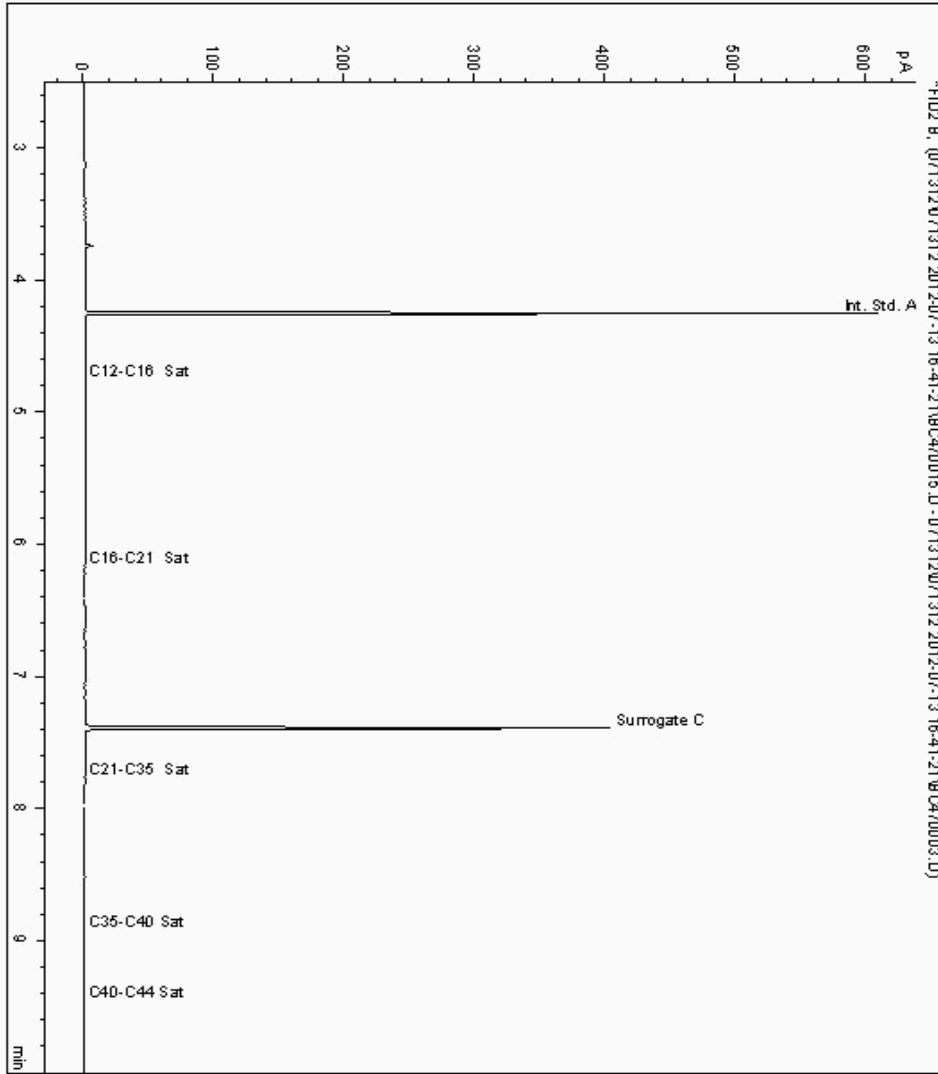
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858564
Sample ID : 770734

Depth :

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

Sample Identity: 5704341-5858564
Date Acquired : 13/07/12 21:04:06
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

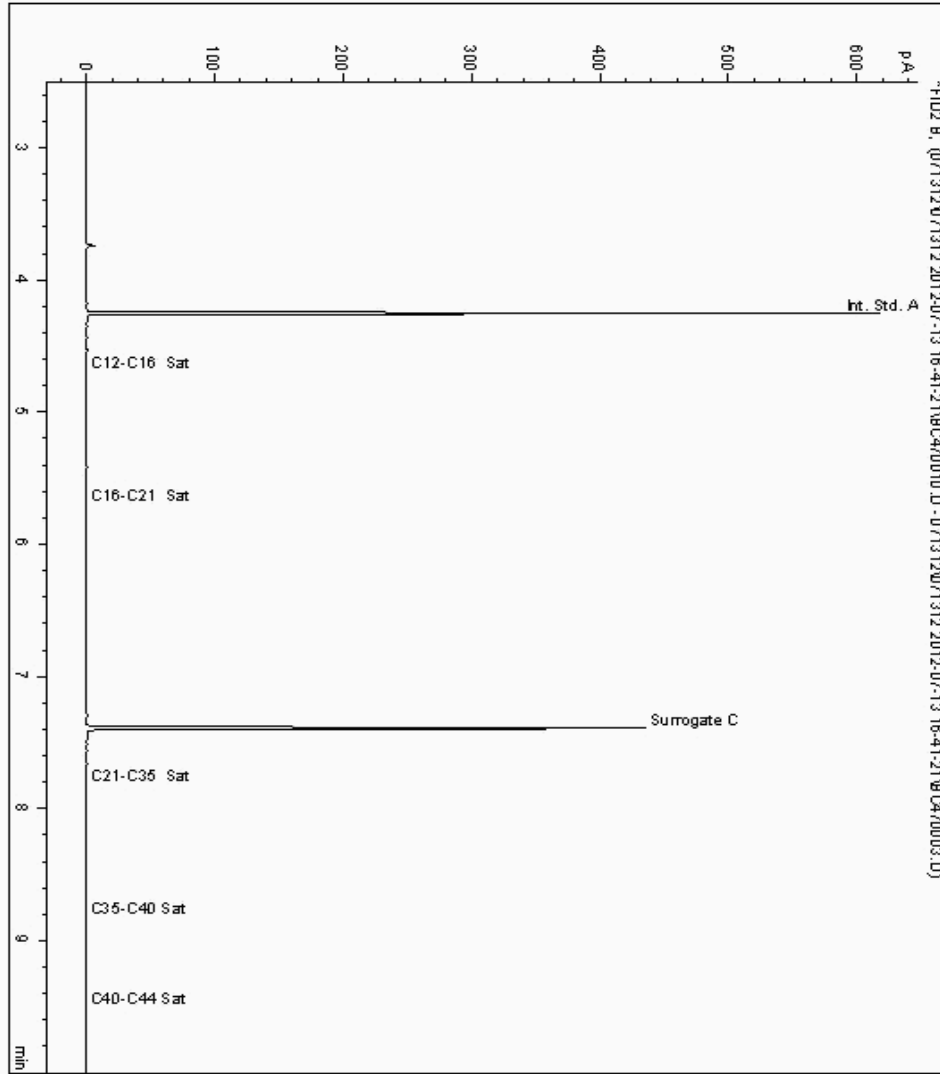
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858588
Sample ID : 266498

Depth :

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

Sample Identity: 5704372-5858588
Date Acquired : 13/07/12 19:29:22
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

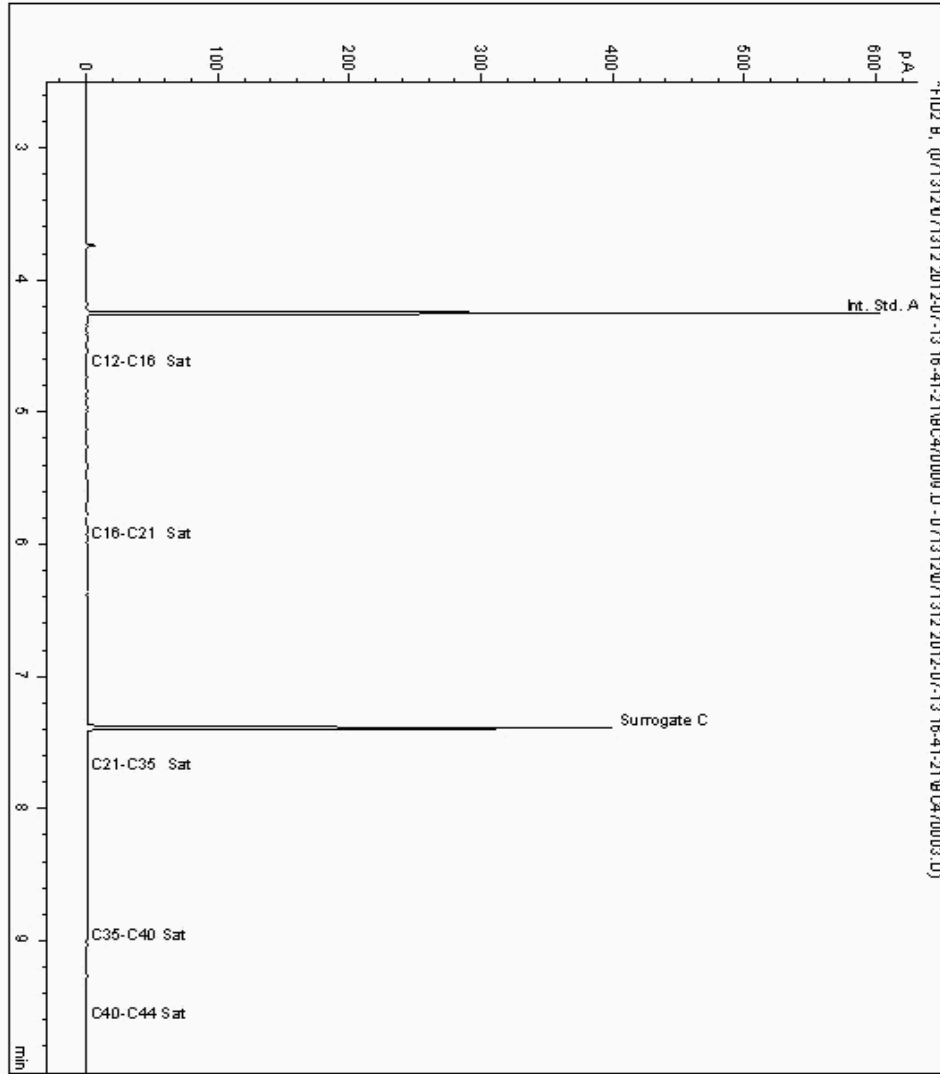
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858598
Sample ID : 987654

Depth :

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

Sample Identity: 5704400-5858598
Date Acquired : 13/07/12 19:10:31
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

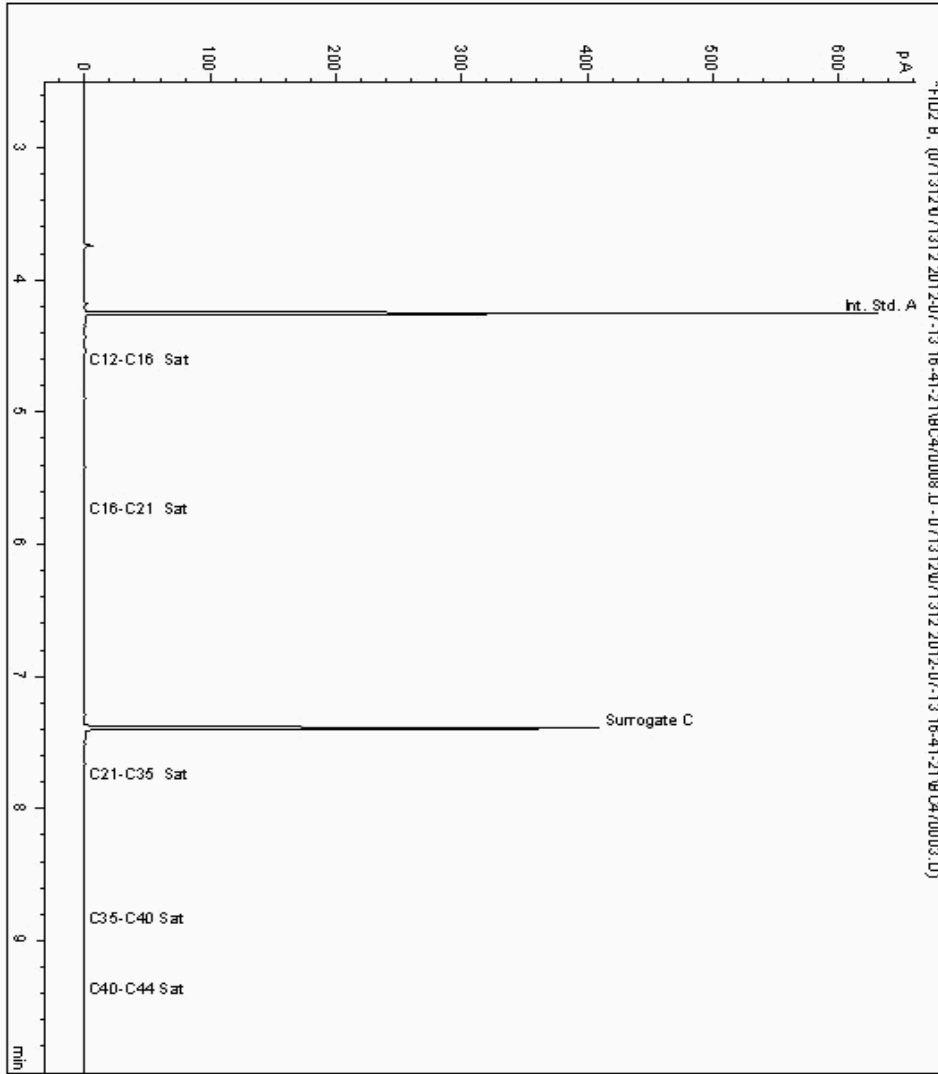
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858639
Sample ID : 966135

Depth :

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

Sample Identity: 5704436-5858639
Date Acquired : 13/07/12 18:51:27
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

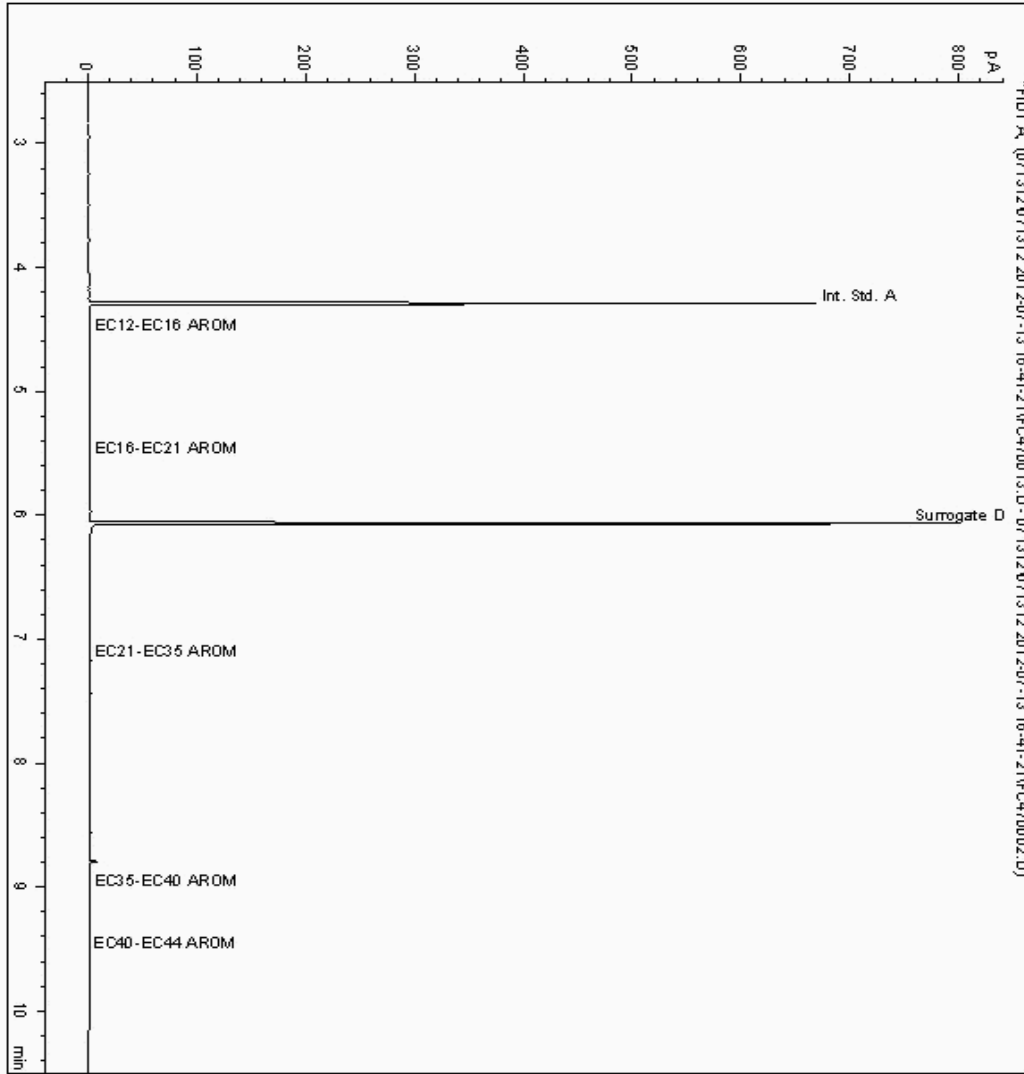
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858118
Sample ID : 261020

Depth :

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

Sample Identity: 5704466-5858118
Date Acquired : 13/07/12 20:26:12
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

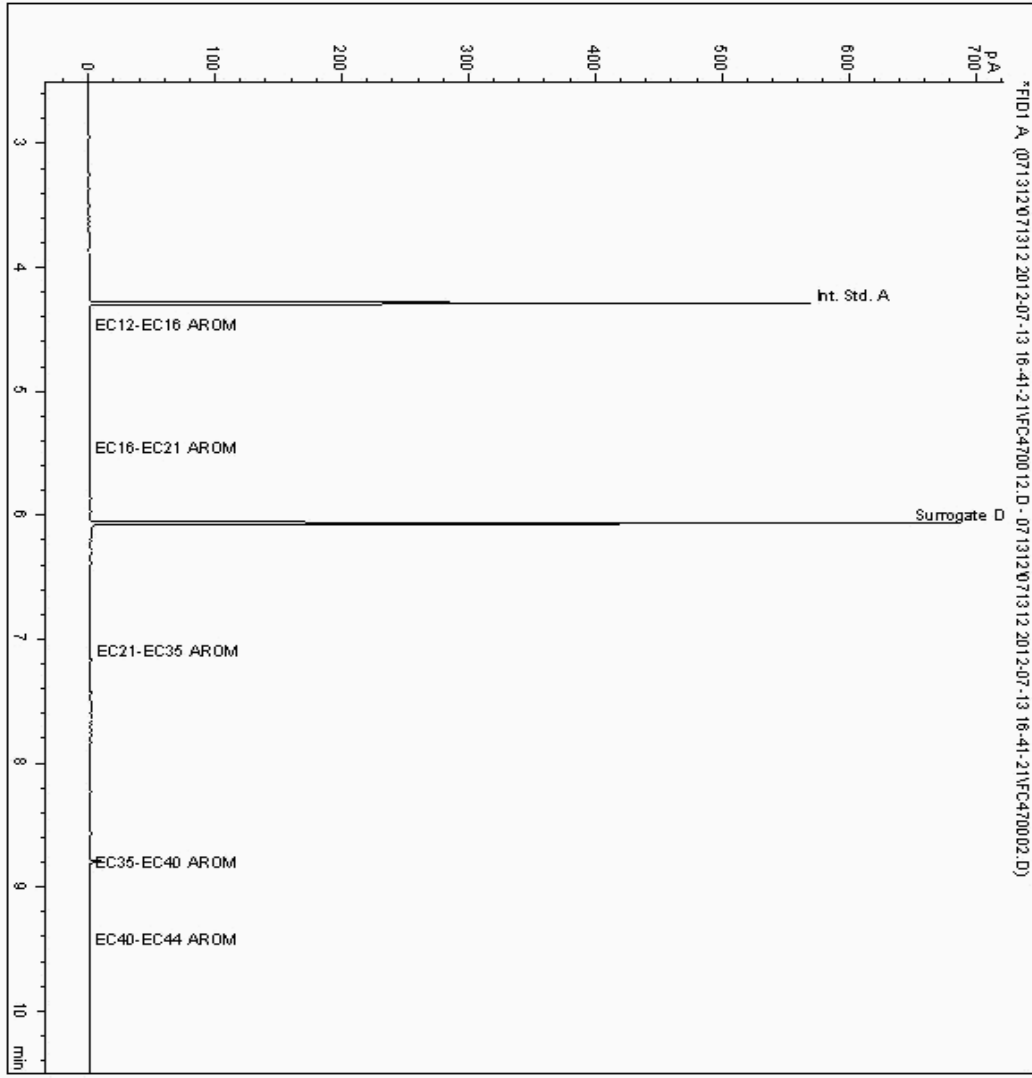
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858288
Sample ID : 832111

Depth :

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

Sample Identity: 5704495-5858288
Date Acquired : 13/07/12 20:07:07
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

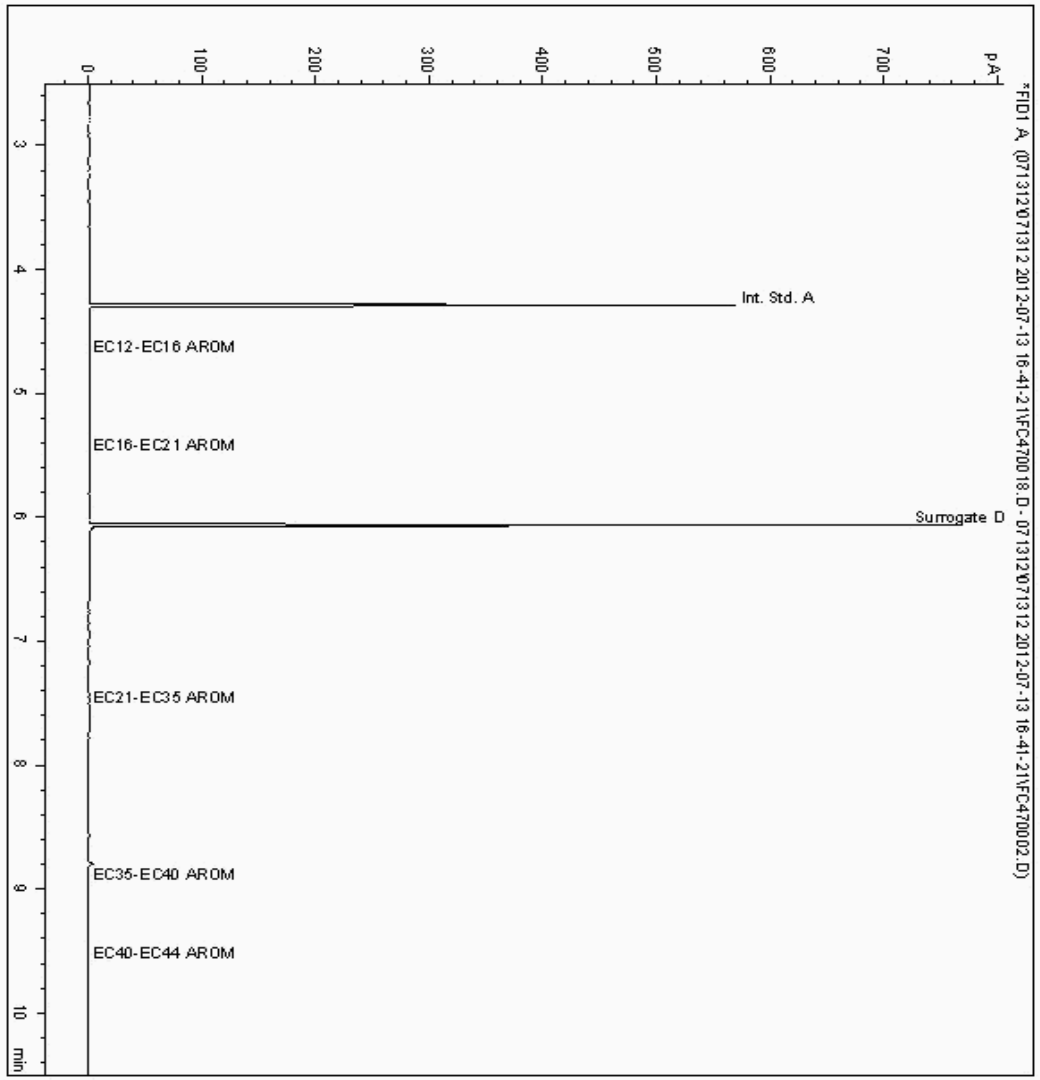
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858378
Sample ID : 963090

Depth :

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

Sample Identity: 5704553-5858378
Date Acquired : 13/07/12 22:01:10
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

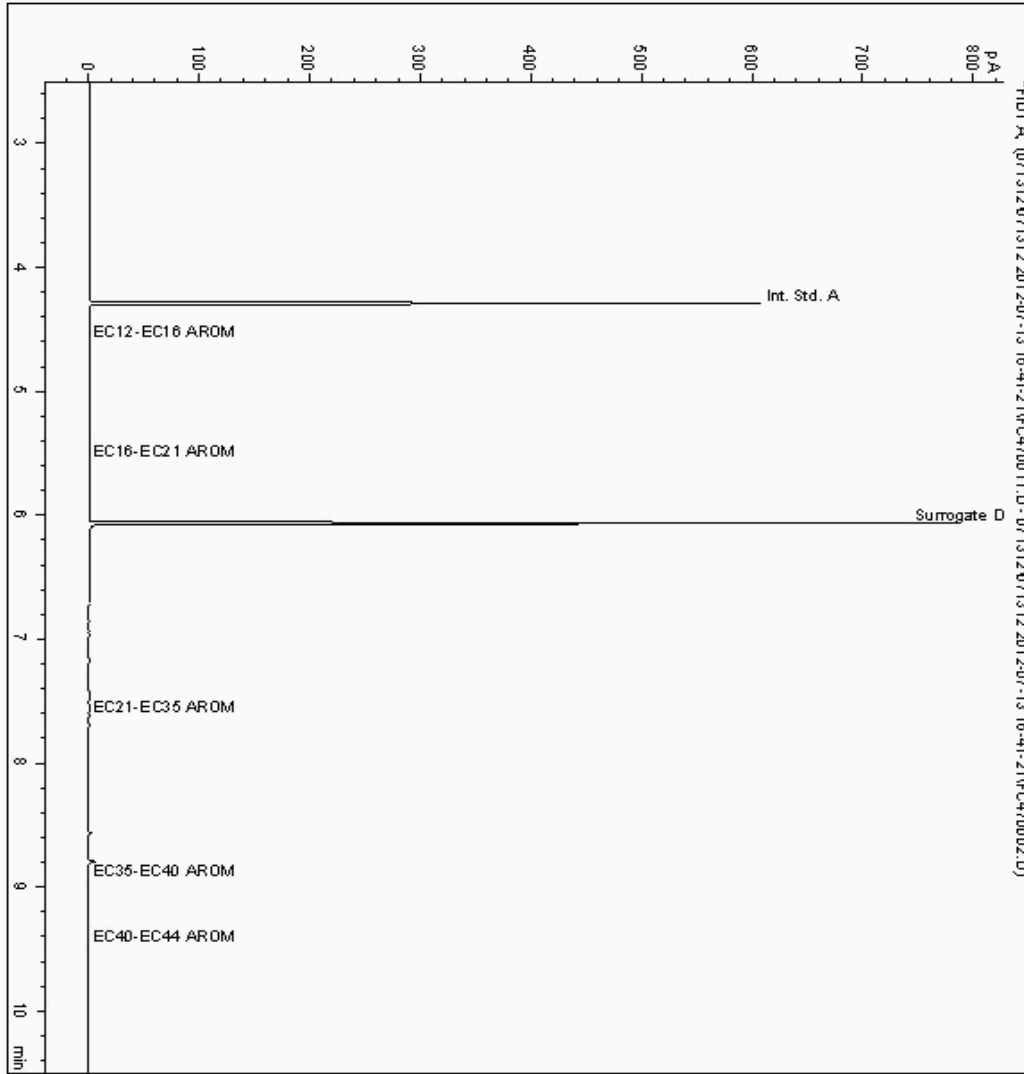
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858399
Sample ID : 534284

Depth :

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

Sample Identity: 5704524-5858399
Date Acquired : 13/07/12 19:48:13
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

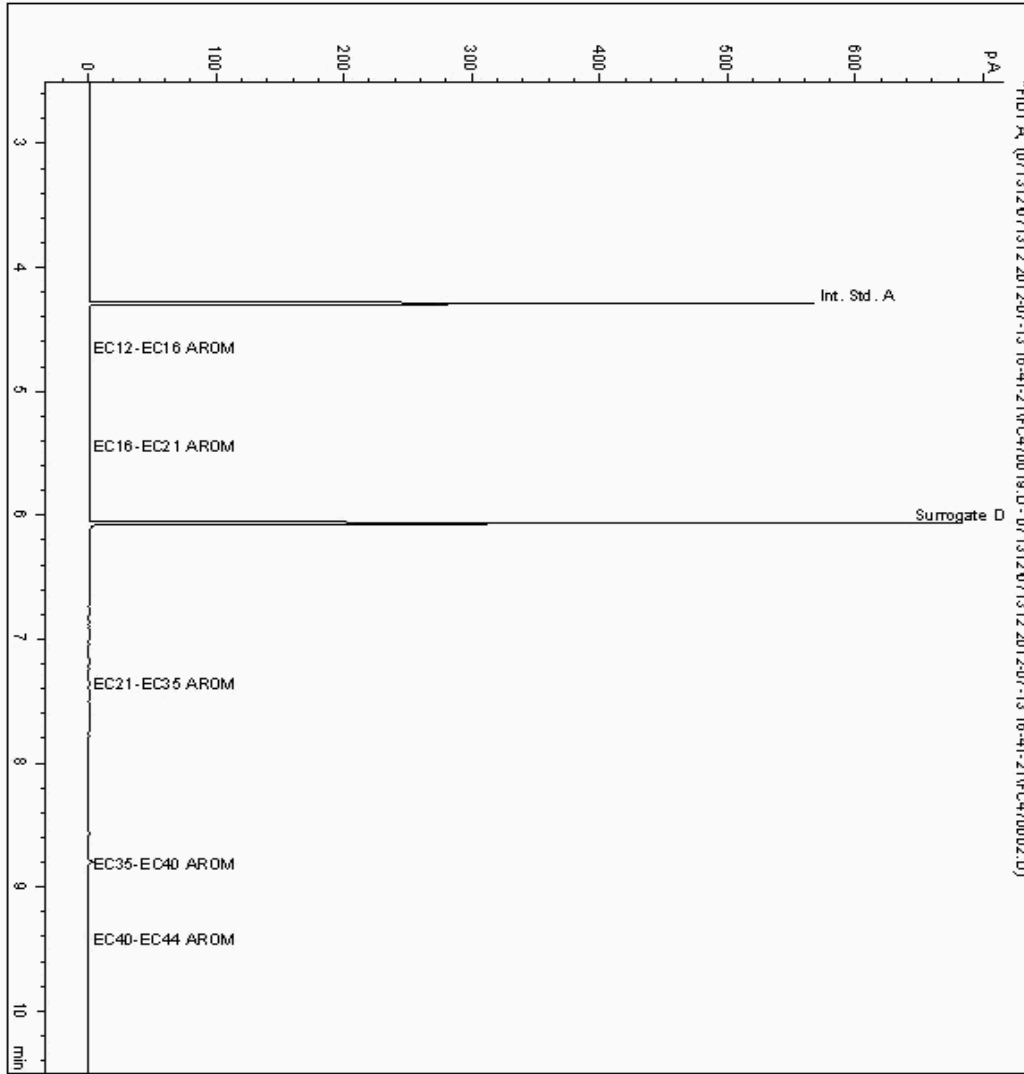
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858453
Sample ID : 798741

Depth :

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

Sample Identity: 5704580-5858453
Date Acquired : 13/07/12 22:20:13
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

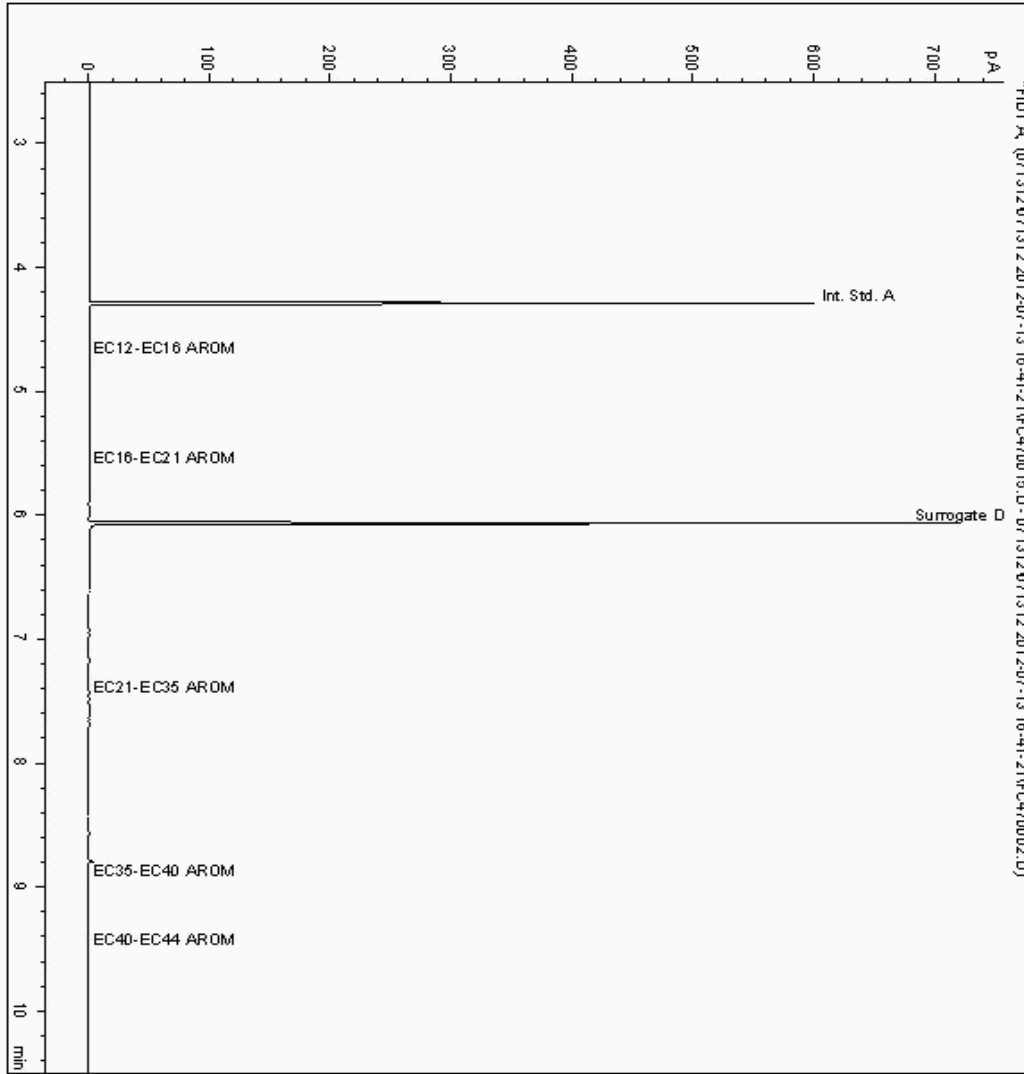
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858564
Sample ID : 770734

Depth :

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

Sample Identity: 5704342-5858564
Date Acquired : 13/07/12 21:04:06
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

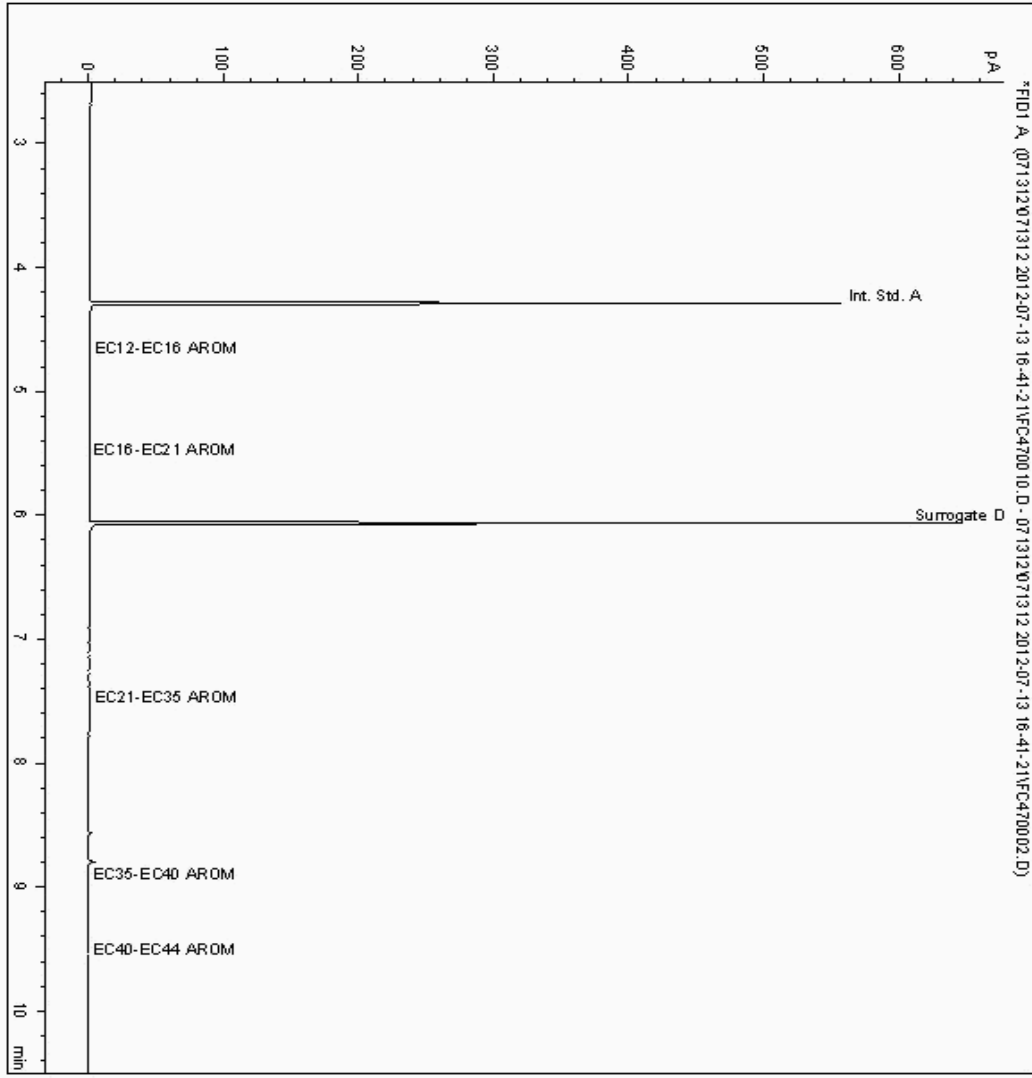
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858588
Sample ID : 266498

Depth :

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

Sample Identity: 5704373-5858588
Date Acquired : 13/07/12 19:29:22
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

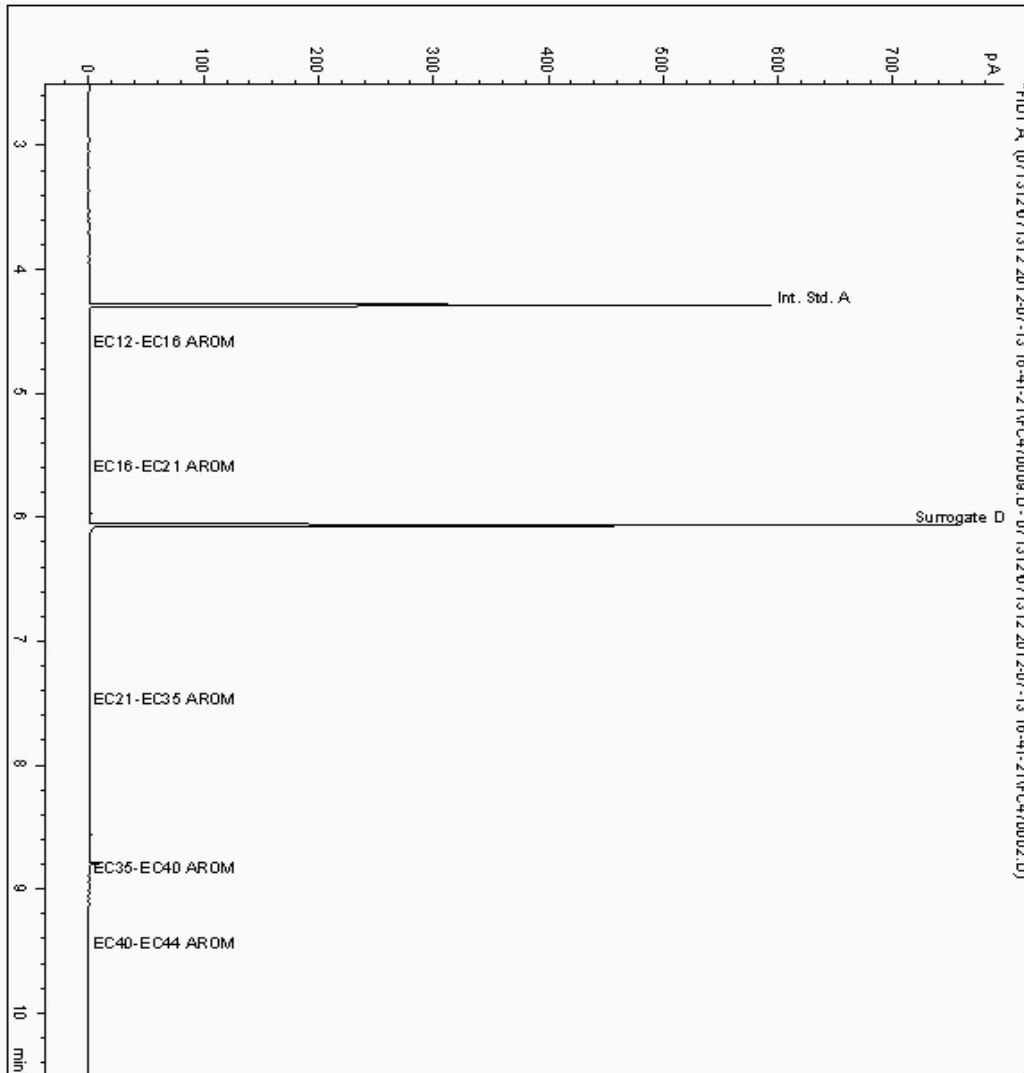
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858598
Sample ID : 987654

Depth :

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

Sample Identity: 5704401-5858598
Date Acquired : 13/07/12 19:10:31
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

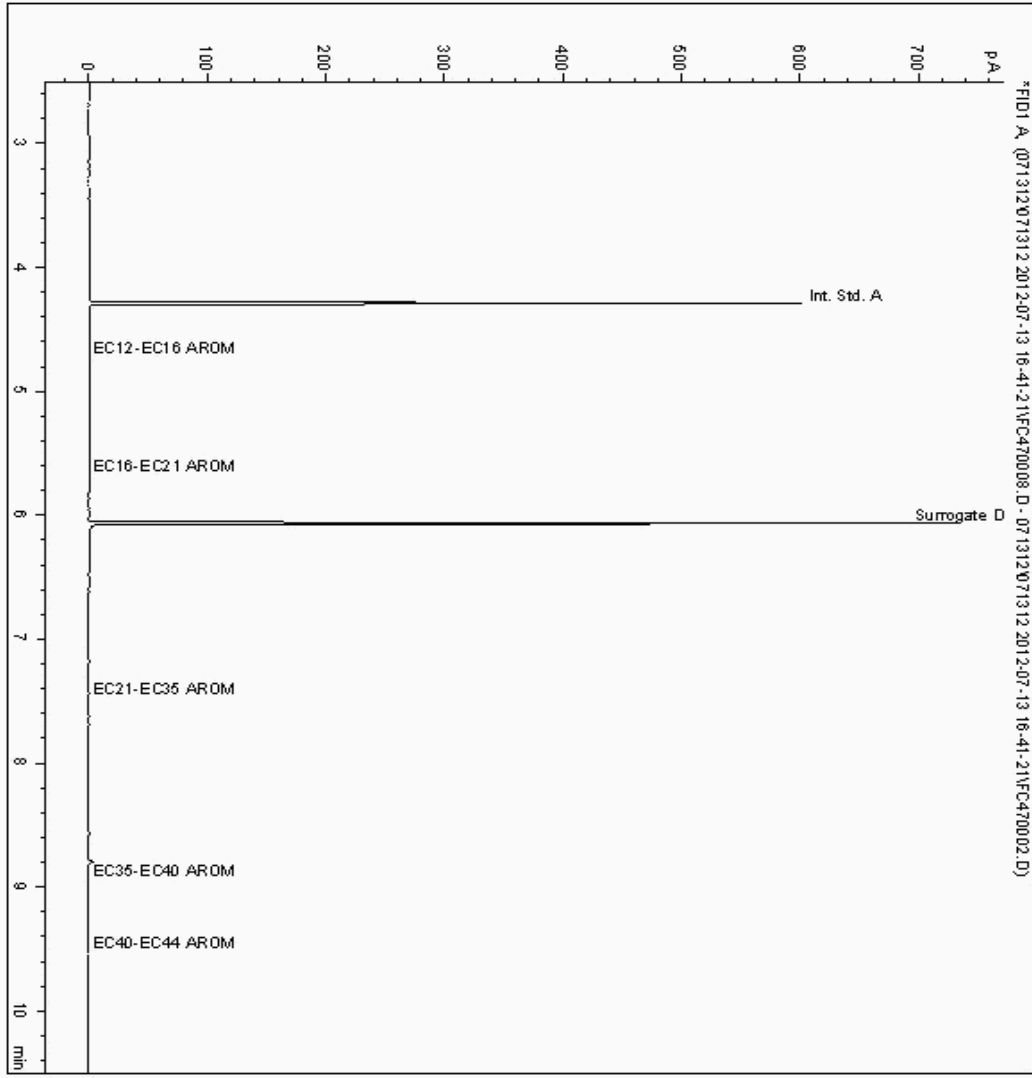
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858639
Sample ID : 966135

Depth :

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

Sample Identity: 5704437-5858639
Date Acquired : 13/07/12 18:51:27
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

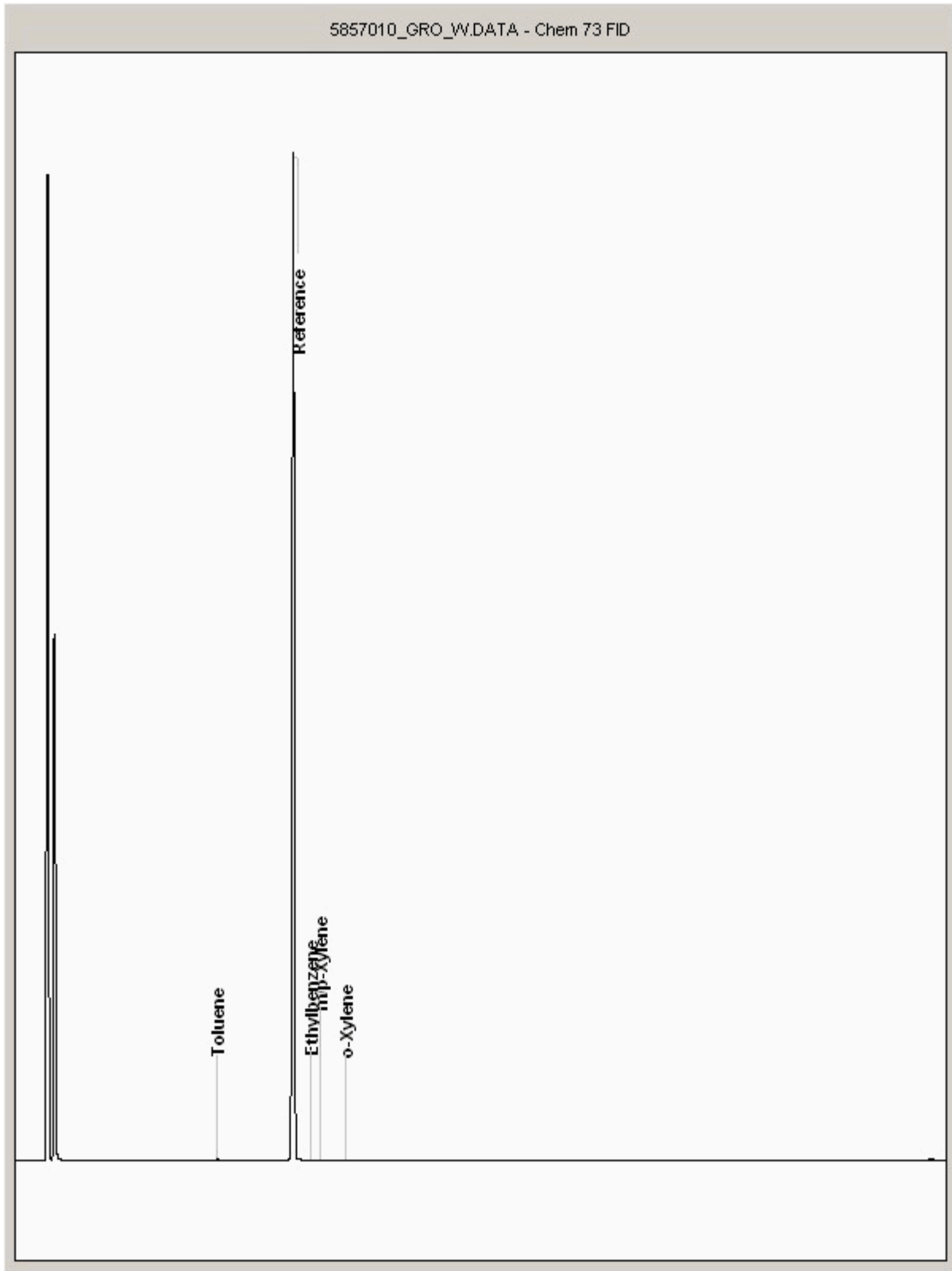
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857010
Sample ID : 770734

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

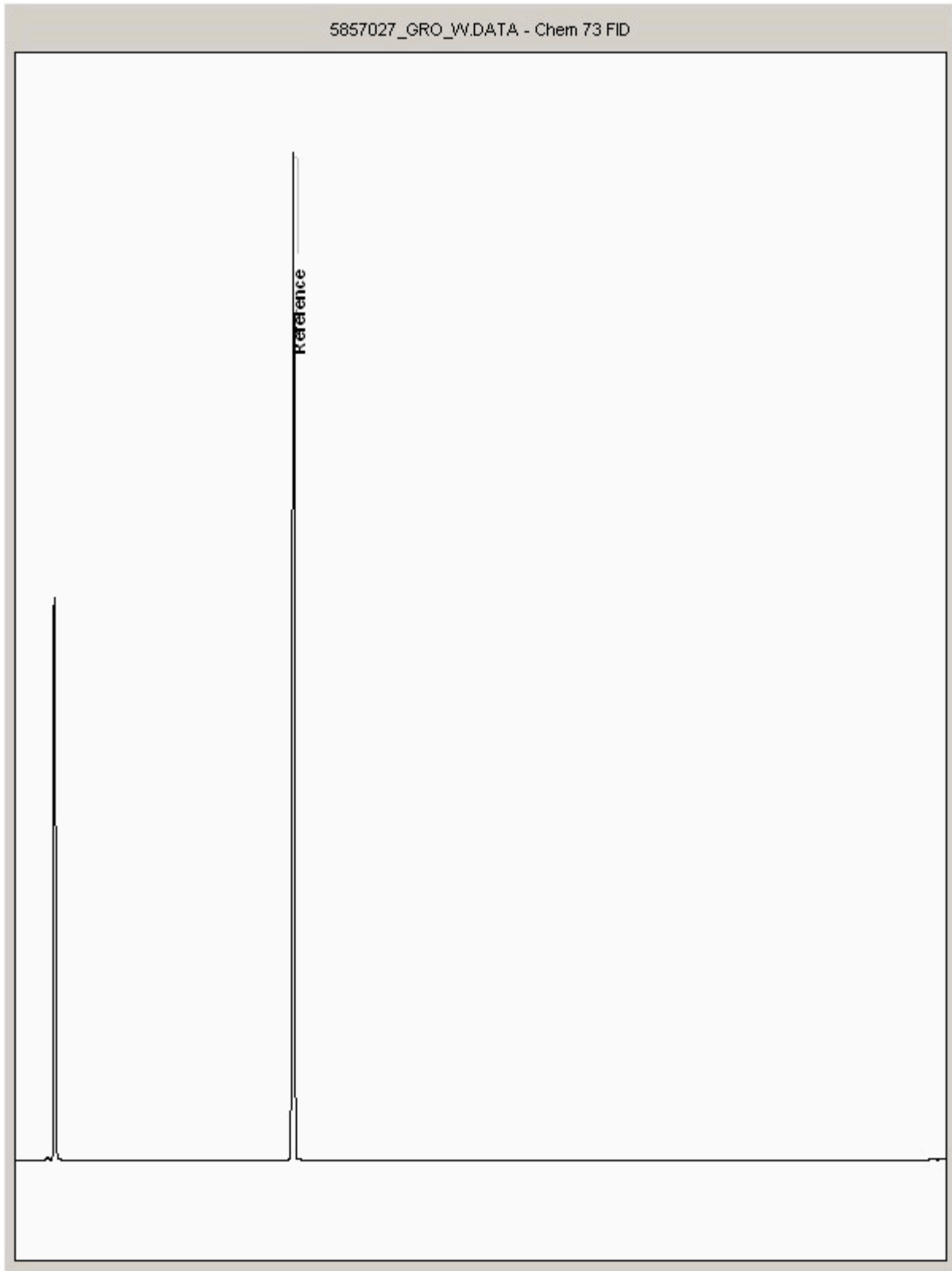
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857027
Sample ID : 266498

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

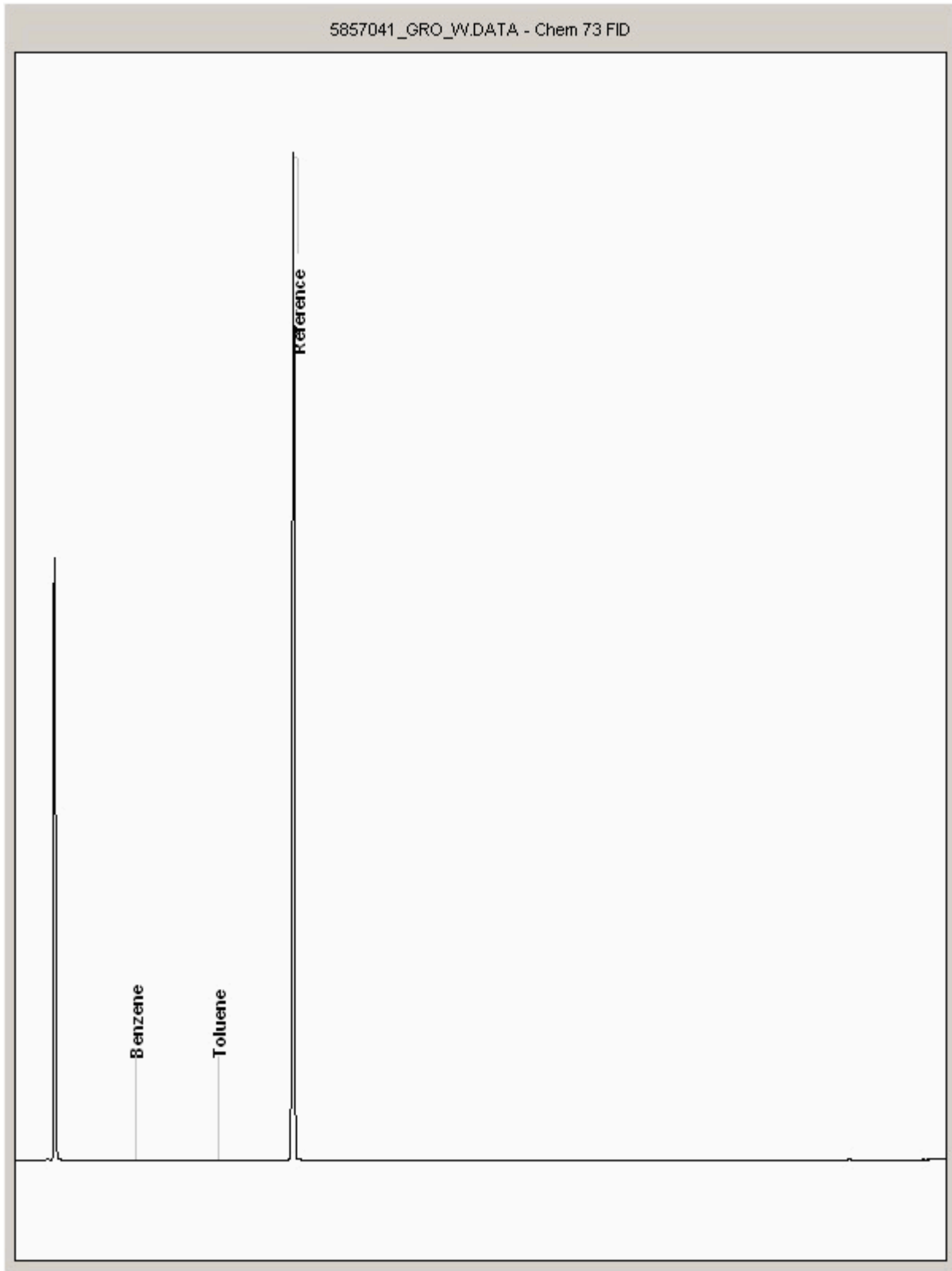
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857041
Sample ID : 987654

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

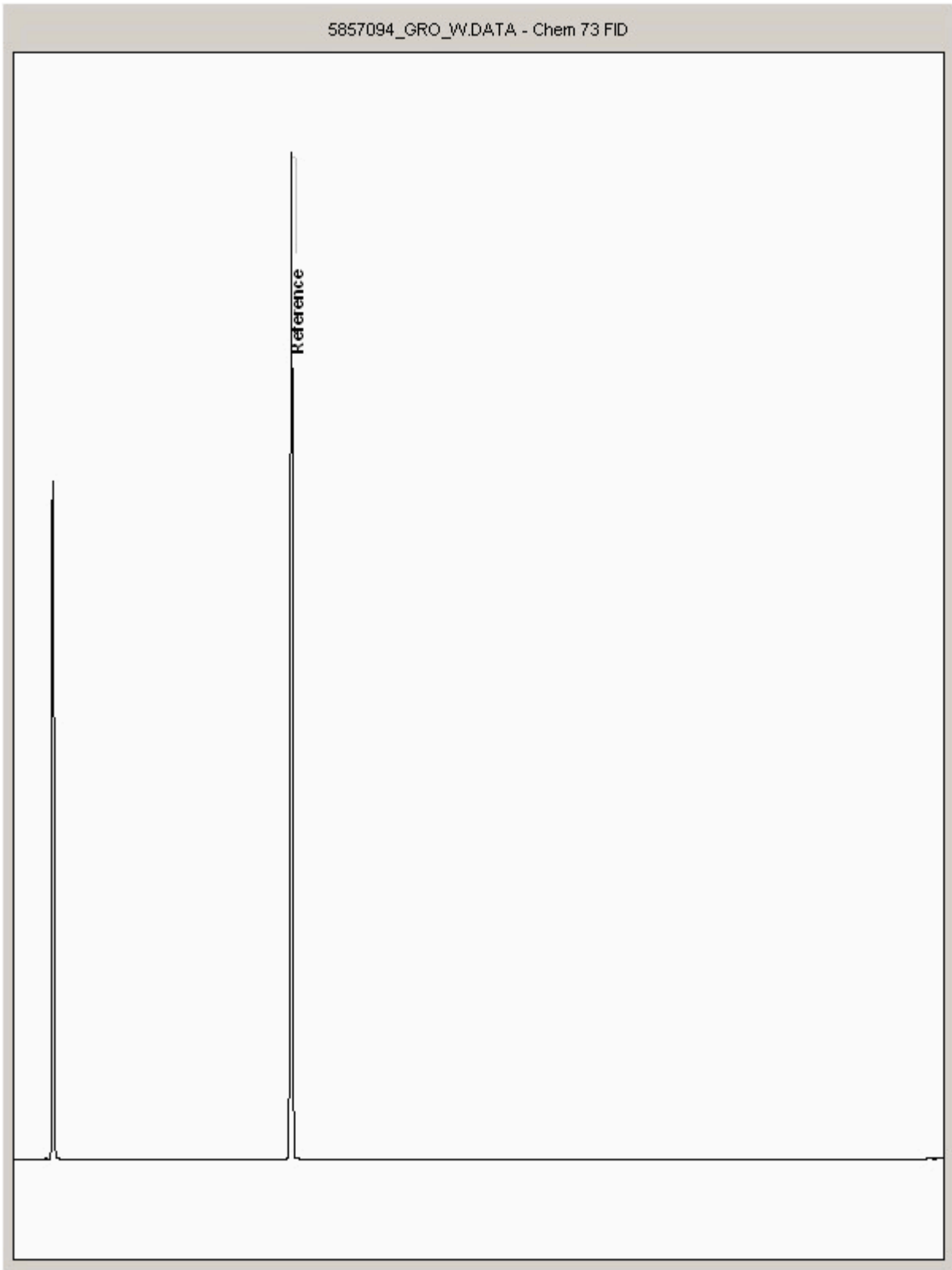
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857094
Sample ID : 966135

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

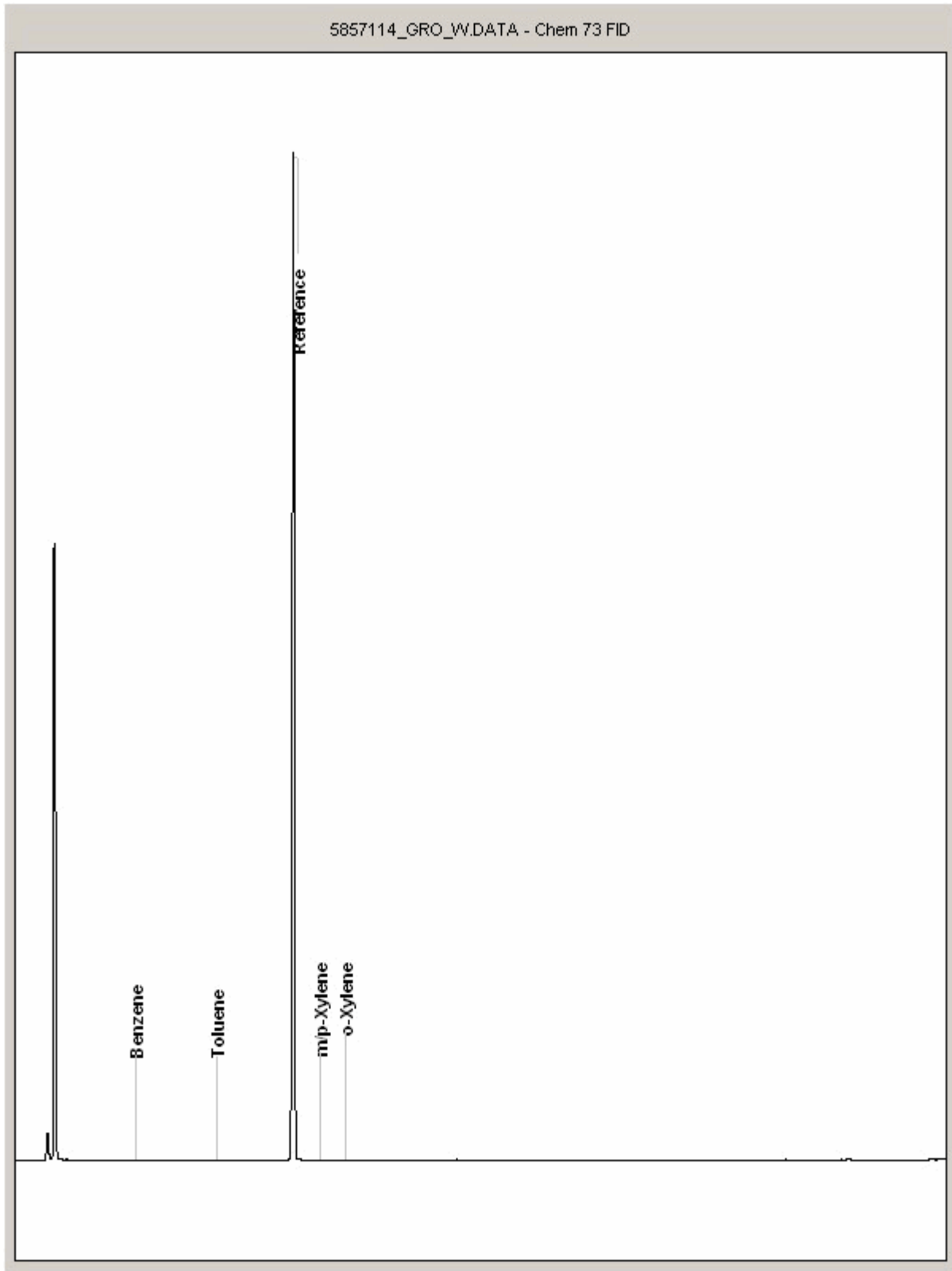
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857114
Sample ID : 261020

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

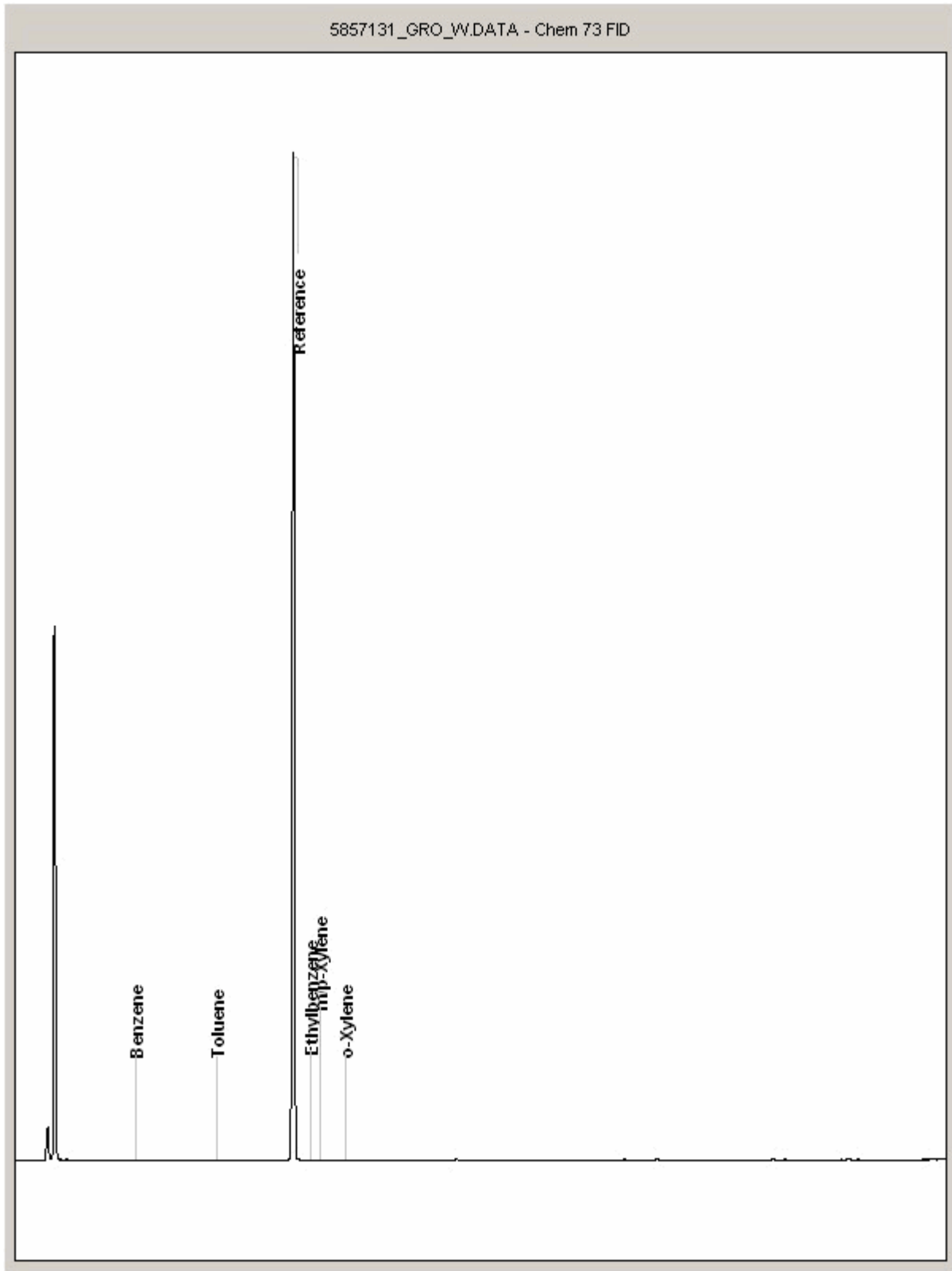
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857131
Sample ID : 832111

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

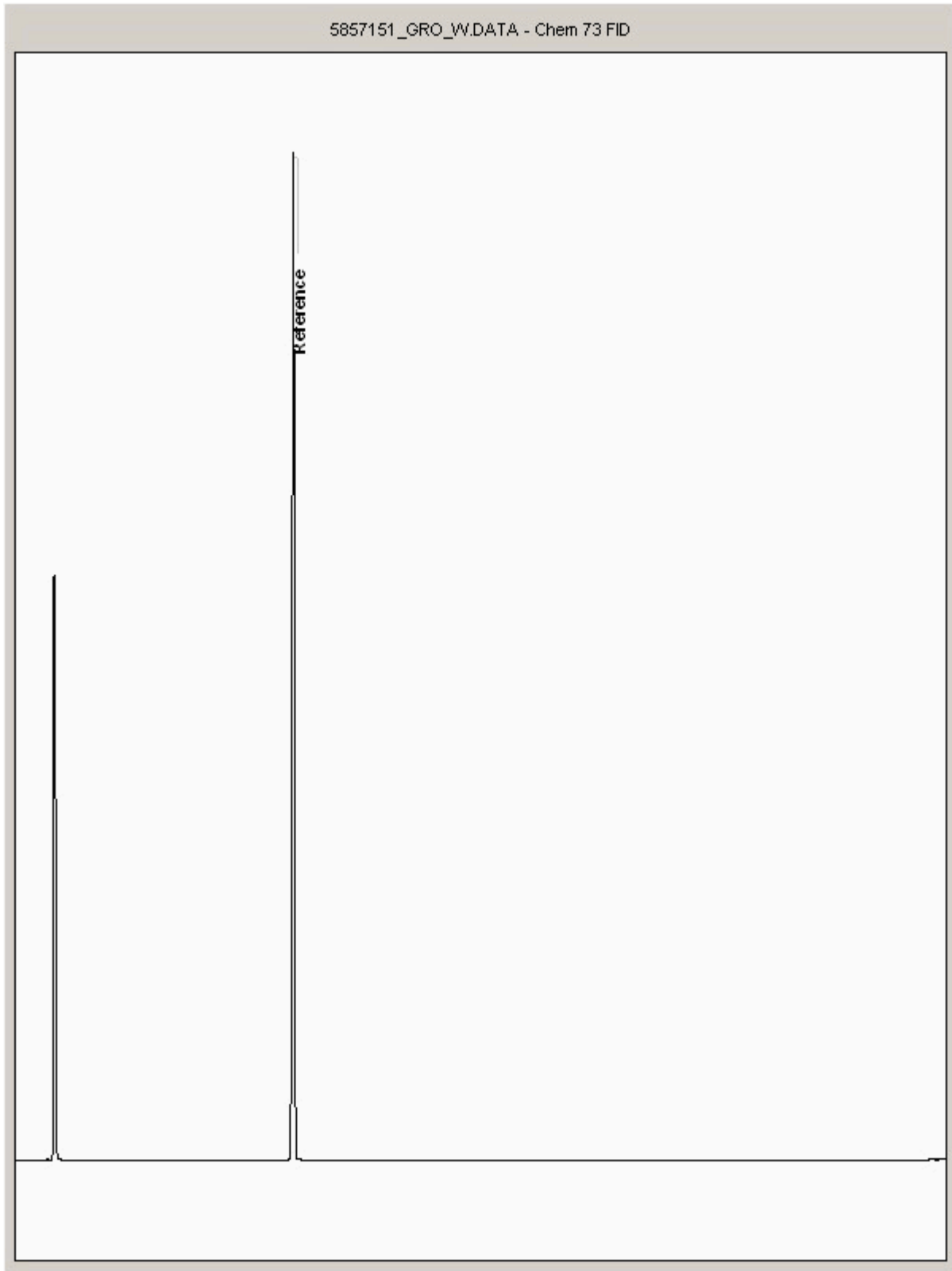
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857151
Sample ID : 534284

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

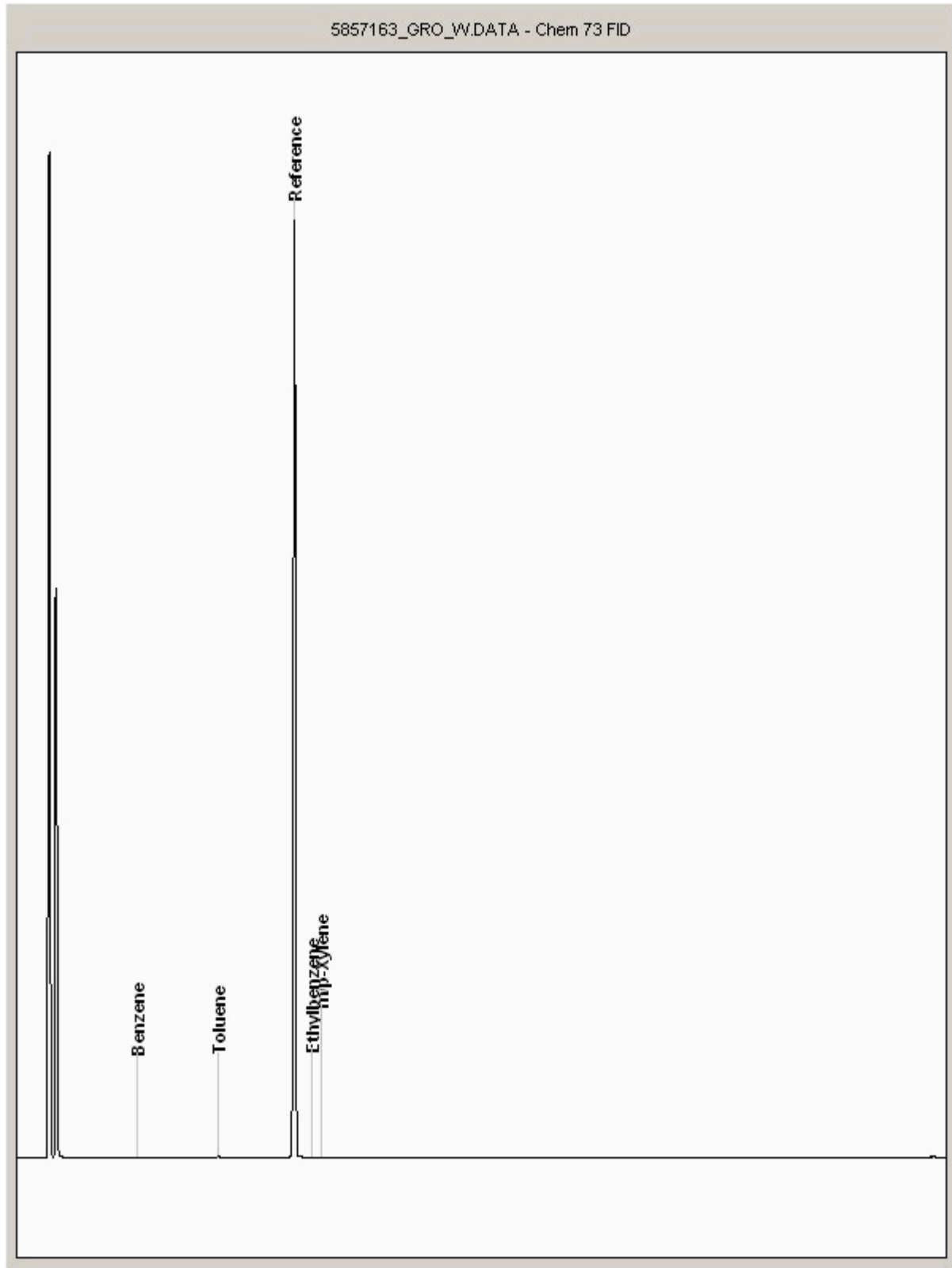
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857163
Sample ID : 963090

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

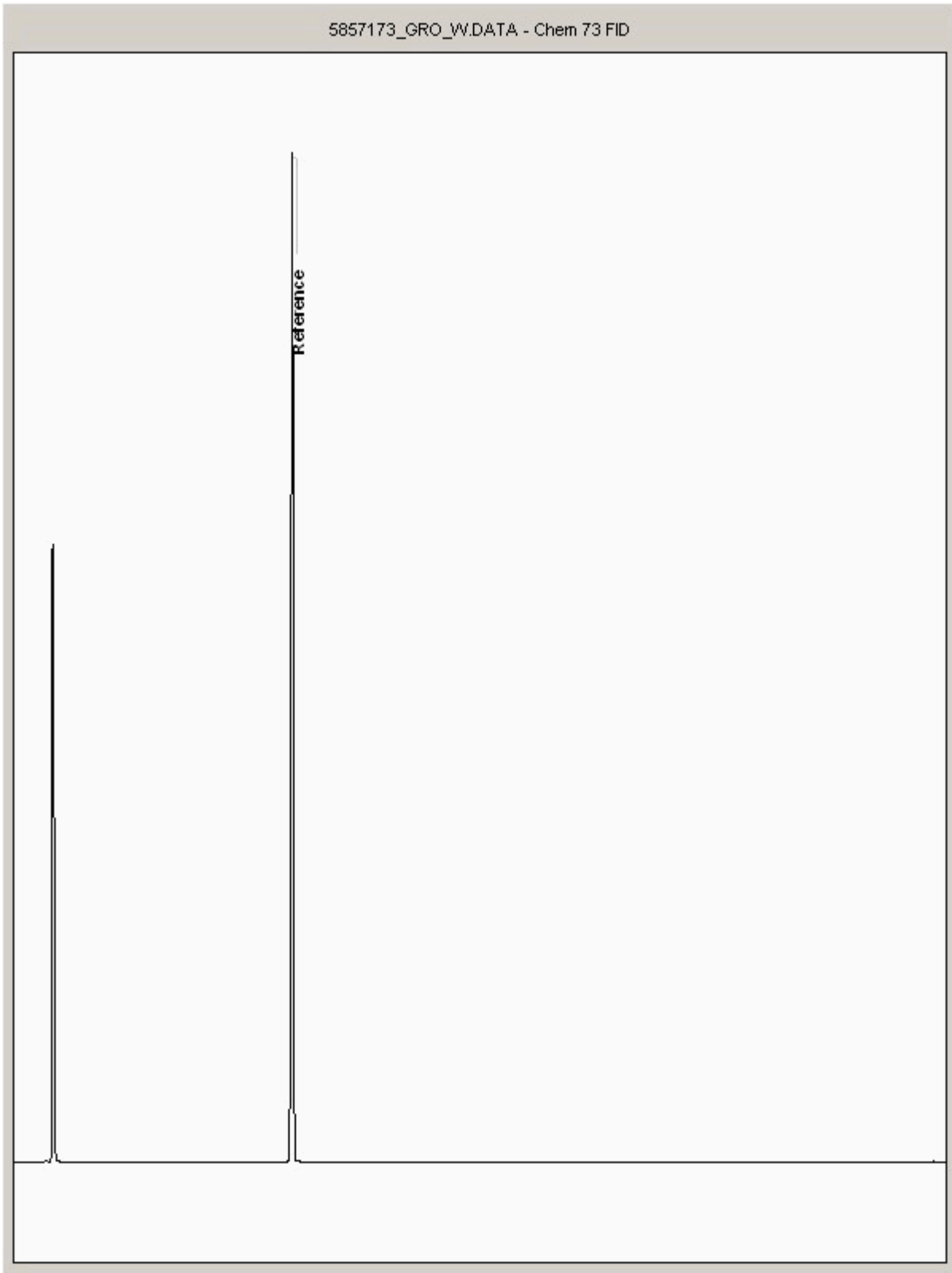
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857173
Sample ID : 798741

Depth :



Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 9 samples described below.

Samples Registered on:	11-Jul-2012
Analysis Started on:	23-Jul-2012
Analysis Completed on:	25-Jul-2012
Results for Batch Number	20041597
Your Purchase Order Number:	150621

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000710
Comments: 5858151 - 798741
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	<1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000711
Comments: 5858342 - 987654
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)
Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	278	mg/l	1	None	NM	1102

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000712
Comments: 5858406 - 534284
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	<1	mg/l	1	None	NM	1102

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000713
Comments: 5858446 - 963090
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	3.16	mg/l	1	None	NM	1102

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000714
Comments: 5858789 - 832111
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	50.3	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000715
Comments: 5859203 - 266498
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	<1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000716
Comments: 5859328 - 770734
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	3.11	mg/l	1	None	NM	1102

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000717
Comments: 5859472 - 966135
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	<1	mg/l	1	None	NM	1102

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000718
Comments: 5859598 - 261020
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	40.9	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041597

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
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 and CEN Leach tests, flash point, 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 2 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.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DOM	SOX THERM	GC-MS
HERBICIDES	D&C	HEXANE/ACETONE	SOX THERM	GC-MS
PESTICIDES	D&C	HEXANE/ACETONE	SOX THERM	GC-MS
EPH (DFO)	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 CWGBY GC	D&C	HEXANE/ACETONE	END OVER END	GC-FID
PCBAROCLOR 1254 / PCB CON	D&C	HEXANE/ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE/ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE/ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE/ACETONE	SHAKER	GC-FID
SEMIVOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC-MS
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
PCB7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC-MS
PCBAROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC-MS
SVCC	DCM	LIQUID/LIQUID SHAKE	GC-MS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GC-MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC-MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC-MS
THP by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by R	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC-FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description 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).

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.



Priority Geotechnical Ltd
Unit 12
Owenacurra Business Park
Midleton
Co Cork
Co Cork

Attention: Colette Kelly

CERTIFICATE OF ANALYSIS

Date: 24 July 2012
Customer: D_PRIORGEOT_CRK
Sample Delivery Group (SDG): 120707-30
Your Reference: P12030
Location: Haulbowline
Report No: 188481

We received 4 samples on Friday July 06, 2012 and 4 of these samples were scheduled for analysis which was completed on Tuesday July 24, 2012. 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: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5849871	405311			05/07/2012
5849868	457113			05/07/2012
5849870	685680			05/07/2012
5849869	984114			05/07/2012

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



SDG: 120707-30
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 188481
 Superseded Report:

LEACH Results Legend	Lab Sample No(s)		5849871	5849868	5849870	5849869
	Customer Sample Reference		405311	457113	685680	984114
	AGS Reference					
	Depth (m)					
	Container		1l green glass bottle	Vial (ALE297)	Vial (ALE297)	Vial (ALE297)
Alkalinity as CaCO3	All	NDPs: 0 Tests: 2	X			X
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 4	X	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 4	X	X	X	X
BOD True Total	All	NDPs: 0 Tests: 4	X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 4	X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 4	X	X	X	X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 4		X	X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 4	X	X	X	X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	X	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	X	X	X	X
Fluoride	All	NDPs: 0 Tests: 2	X			X
Free Sulphur	All	NDPs: 0 Tests: 4	X	X	X	X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 4		X	X	X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 2		X	X	
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 4	X	X	X	X



SDG: 120707-30
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 188481
 Superseded Report:

LEACH Results Legend X Test N No Determination Possible	Lab Sample No(s)	5849871	5849868	5849870	5849869					
	Customer Sample Reference	405311	457113	685680	984114					
	AGS Reference									
	Depth (m)									
	Container	1l green glass bottle	1l green glass bottle	1l green glass bottle	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)					
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 4	X	X	X	X				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 4		X	X	X				X
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 4	X	X	X	X				
pH Value	All	NDPs: 0 Tests: 4	X	X	X	X				
Phenols by ms (w)	All	NDPs: 0 Tests: 4	X	X	X	X				
Saline TON	All	NDPs: 0 Tests: 4	X	X	X	X				
Sulphide	All	NDPs: 0 Tests: 4	X	X	X	X				
TOC (Saline)*	All	NDPs: 0 Tests: 4	X	X	X	X				
TPH CWG (W)	All	NDPs: 0 Tests: 4	X	X	X	X				
VOC MS (W)	All	NDPs: 0 Tests: 4		X	X	X				X



SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Results Legend		Customer Sample R	405311	457113	685680	984114		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D		
S	Deviating sample.		05/07/2012	05/07/2012	05/07/2012	05/07/2012		
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		06/07/2012	06/07/2012	06/07/2012	06/07/2012		
	Trigger breach confirmed		120707-30	120707-30	120707-30	120707-30		
(F)			5849871	5849868	5849870	5849869		
Component	LOD/Units	Method						
TOC (Saline)*	<1 mg/l	SUB	85	1.71	3.81	4.49		
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043	<5			<5		
BOD, unfiltered	<1 mg/l	TM045	<10	<2	<2	<2		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	3.57	0.308	1.84	<0.2		
Sulphide	<0.01 mg/l	TM101	<0.01	<0.01	<0.01	<0.01		
Fluoride	<0.5 mg/l	TM104	<0.5			0.695		
COD, unfiltered	<7 mg/l	TM107	2830	<280	370	426		
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	35.9	40.8	37.1	40.1		
Barium (diss.filt)	<0.03 µg/l	TM152	171	3.12	20.3	3.09		
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.7	<0.7	<0.7		
Cobalt (diss.filt)	<0.06 µg/l	TM152	3.01			<0.6		
Molybdenum (diss.filt)	<0.24 µg/l	TM152	28.1			<2.4		
Phosphorus (diss.filt)	<6.3 µg/l	TM152	18.4			<63		
Thallium (diss.filt)	<0.96 µg/l	TM152	<0.96			<9.6		
Tin (diss.filt)	<0.36 µg/l	TM152	<0.36			<3.6		
Nitrite as NO2	<0.05 mg/l	TM184	0.507	0.081	0.263	0.103		
Sulphate	<2 mg/l	TM184	2080	2280	2100	2310		
Chloride	<2 mg/l	TM184	15900	17200	16200	17200		
PCB congener 28	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015		
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 118	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015		
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105	<0.105		
Phenol	<0.5 µg/l	TM205	<2.8	<2.8	<2.8	<2.8		
2-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
3-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
4-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2-chlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2,4-dimethylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
4-chloro-3-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2,6-dichlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
4-Chlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		



SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Results Legend		Customer Sample R	405311	457113	685680	984114	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference					
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	
S	Deviating sample.		05/07/2012	05/07/2012	05/07/2012	05/07/2012	
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		06/07/2012	06/07/2012	06/07/2012	06/07/2012	
	Trigger breach confirmed		120707-30	120707-30	120707-30	120707-30	
(F)			5849871	5849868	5849870	5849869	
Component	LOD/Units	Method					
2,4-dichlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5	
2-nitrophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5	
2,4,6-trichlorophenol	<0.5 µg/l	TM205	0.73	<0.5	<0.5	<0.5	
2,4,5-trichlorophenol	<0.5 µg/l	TM205	0.54	<0.5	<0.5	<0.5	
4-nitrophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5	
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5	
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205	2.1	<0.5	<0.5	<0.5	
2,4-dinitrophenol	<2.5 µg/l	TM205	<5	<5	<5	<5	
DNOC	<3 µg/l	TM205	<6	<6	<6	<6	
Pentachlorophenol	<2 µg/l	TM205	<2	<2	<2	<2	
Dinoseb	<4 µg/l	TM205	<8	<8	<8	<8	
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	
Calcium (diss.filt)	<0.012 mg/l	TM228	619	333	640	355	
Sodium (diss.filt)	<0.076 mg/l	TM228	10400	12100	11700	15600	
Magnesium (diss.filt)	<0.036 mg/l	TM228	784	1150	852	1330	
Potassium (diss.filt)	<2.335 mg/l	TM228	346	414	388	446	
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03 #	<0.03 #		
pH	<1 pH Units	TM256	7.92	7.85	8.09	7.88	
Arsenic (Saline)	<0.5 µg/l	TM270	1.51 #	2.07 #	1.33 #	2.04 #	
Aluminium (Saline)	<3.7 µg/l	TM270	45.1 #	48.9 #	44.8 #	44.2 #	
Antimony (Saline)	<1 µg/l	TM270	4.12 #	3.24 #	3.2 #	15.2 #	
Boron (Saline)	<201 µg/l	TM270	1470 #	3650 #	1820 #	3860 #	
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15 #	3.63 #	<0.15 #	3.52 #	
Chromium (Saline)	<1.5 µg/l	TM270	3.72 #	5.62 #	3.69 #	5.91 #	
Copper (Saline)	<1 µg/l	TM270	1.62 #	1.39 #	2.25 #	1.4 #	
Iron (Saline)	<4 µg/l	TM270	<4 #	<4 #	<4 #	<4 #	
Lead (Saline)	<0.2 µg/l	TM270	<0.2 #	<0.2 #	<0.2 #	<0.2 #	
Manganese (Saline)	<0.3 µg/l	TM270	1180 #	240 #	1650 #	123 #	
Mercury (Saline)	<0.15 µg/l	TM270	<0.15 #	<0.15 #	<0.15 #	<0.15 #	
Nickel (saline)	<1.1 µg/l	TM270	7.33 #	7.43 #	6.6 #	7.21 #	
Selenium (Saline)	<0.5 µg/l	TM270	3.11 #	2.08 #	1.19 #	2.07 #	
Vanadium (Saline)	<4 µg/l	TM270	14 #	14.9 #	18.5 #	11 #	



CERTIFICATE OF ANALYSIS

Validated

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Table with columns for Results Legend, Customer Sample R, and various chemical components (Zinc, Saline TON as NO3, Sulphur, Free) across multiple sample IDs (405311, 457113, 685680, 984114).



SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

TPH CWG (W)

Table with columns for Results Legend, Customer Sample R, Depth (m), Sample Type, Date Sampled, Date Received, SDG Ref, Lab Sample No.(s), AGS Reference, Component, LOD/Units, Method, and numerical data for various compounds like GRO Surrogate %, Methyl tertiary butyl ether (MTBE), Benzene, etc.



SDG: 120707-30
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 188481
 Superseded Report:

VOC MS (W)

Results Legend		Customer Sample R	405311	457113	685680	984114		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D		
S	Deviating sample.		05/07/2012	05/07/2012	05/07/2012	05/07/2012		
aq	Aqueous / settled sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012		
diss.filt	Dissolved / filtered sample.		120707-30	120707-30	120707-30	120707-30		
tot.unfilt	Total / unfiltered sample.		5849871	5849868	5849870	5849869		
*	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							
Component	LOD/Units		Method					
Dibromofluoromethane**	%	TM208	112	108	115	109		
Toluene-d8**	%	TM208	100	101	100	99.8		
4-Bromofluorobenzene**	%	TM208	95.1	98.1	95.5	96.3		
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1		
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1		
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1		
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1		
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1		
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3		
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1		
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1		
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1		
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
Benzene	<1 µg/l	TM208	<1	<1	<1	<1		
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1		
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
Toluene	<1 µg/l	TM208	<1	<1	<1	<1		
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1		



CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

VOC MS (W)

Table with columns: Results Legend, Customer Sample R, 405311, 457113, 685680, 984114. Rows include components like 1,2-Dibromoethane, Chlorobenzene, etc., with LOD/Units and Method columns.



CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM270	Thermo Electron Application Note AN_E0640: X Series ICP-MS: Using automated collision cell ICP-MS with rapid in-sample switching to achieve ultimate performance in environmental analysis.	Dissolved Metals in Saline Matrices by CCT ICP-MS		
TM281		The Determination of Total Oxidized Nitrogen in Saline Matrices using the Kone Spectrophotometric Analysers		
TM294		Determination of Free Sulphur in liquids by HPLC		

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



SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Test Completion Dates

Lab Sample No(s) Customer Sample Ref.	5849871	5849868	5849870	5849869
	405311	457113	685680	984114
AGS Ref.				
Depth				
Type	SALINE_D	SALINE_D	SALINE_D	SALINE_D
Alkalinity as CaCO3	13-Jul-2012			13-Jul-2012
Ammoniacal Nitrogen	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012
Anions by Kone (w)	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012
BOD True Total	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
COD Unfiltered	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Conductivity (at 20 deg.C)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Cyanide Comp/Free/Total/Thiocyanate	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Dissolved Metals by ICP-MS	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
EPH CWG (Aliphatic) Aqueous GC (W)	16-Jul-2012	13-Jul-2012	16-Jul-2012	16-Jul-2012
EPH CWG (Aromatic) Aqueous GC (W)	16-Jul-2012	13-Jul-2012	16-Jul-2012	16-Jul-2012
Fluoride	11-Jul-2012			11-Jul-2012
Free Sulphur	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
GRO by GC-FID (W)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Hexavalent Chromium (w)		11-Jul-2012	11-Jul-2012	
Metals analysis (Saline Sample)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Metals by iCap-OES Dissolved (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Nitrite by Kone (w)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
PCB Congeners - Aqueous (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
pH Value	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Phenols by ms (w)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
Saline TON	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012
Sulphide	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012
TOC (Saline)*	24-Jul-2012	24-Jul-2012	24-Jul-2012	24-Jul-2012
TPH CWG (W)	16-Jul-2012	13-Jul-2012	16-Jul-2012	16-Jul-2012
VOC MS (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012



CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

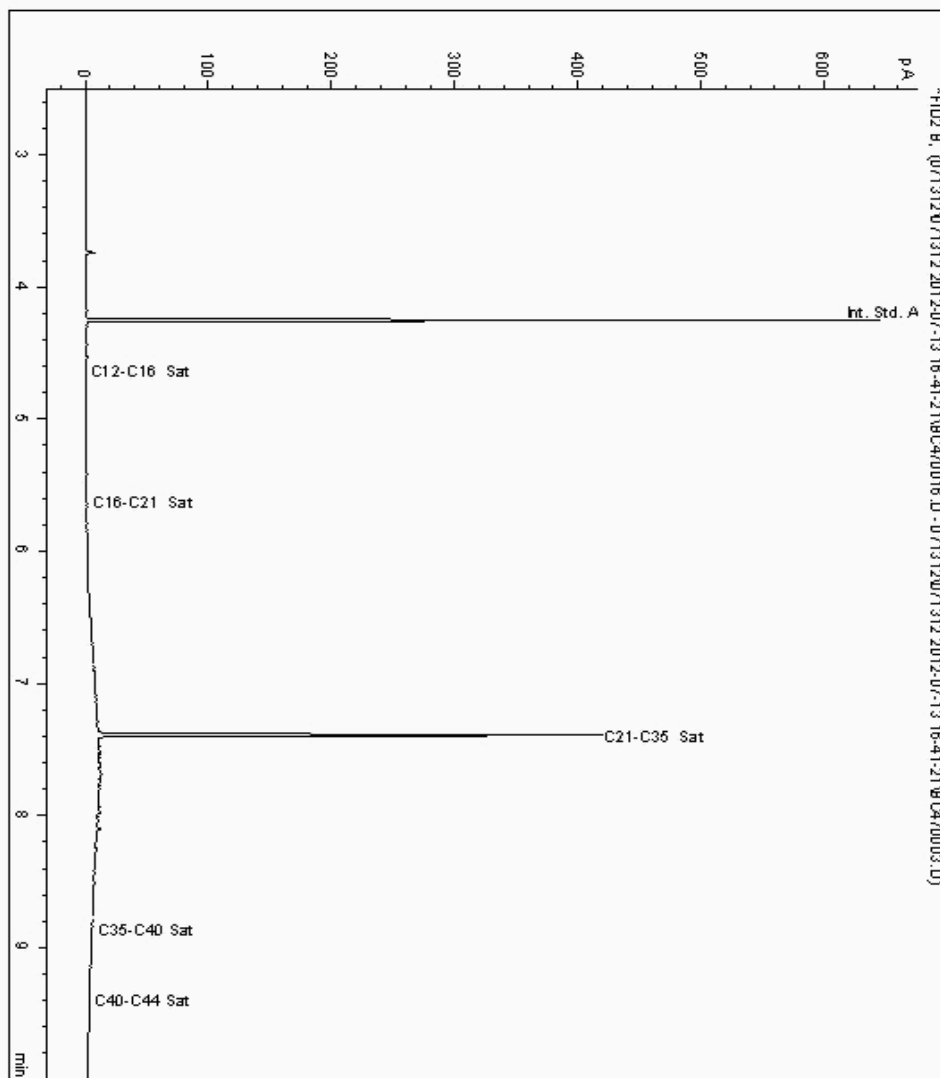
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858107
Sample ID : 405311

Depth :

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

Sample Identity: 5706619-5858107
Date Acquired : 13/07/12 21:23:10
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

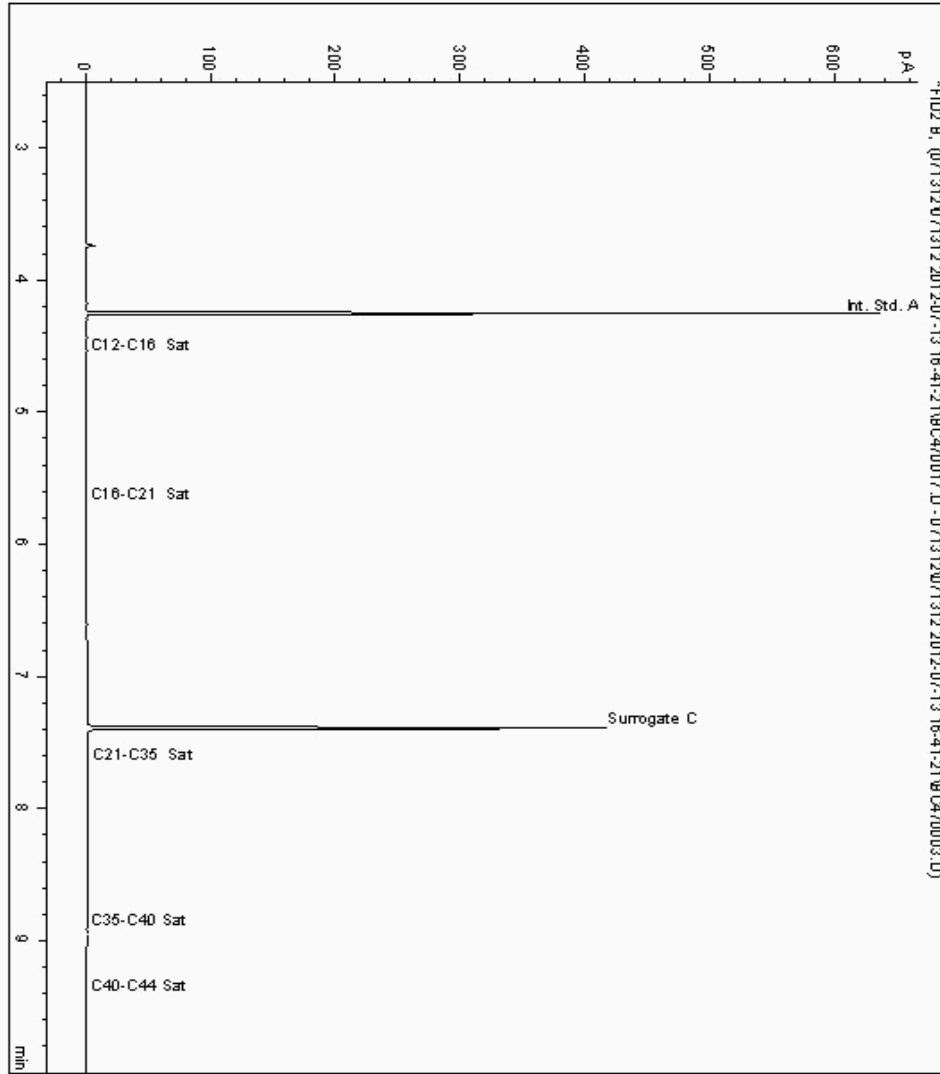
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858122
Sample ID : 685680

Depth :

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

Sample Identity: 5706579-5858122
Date Acquired : 13/07/12 21:42:08
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

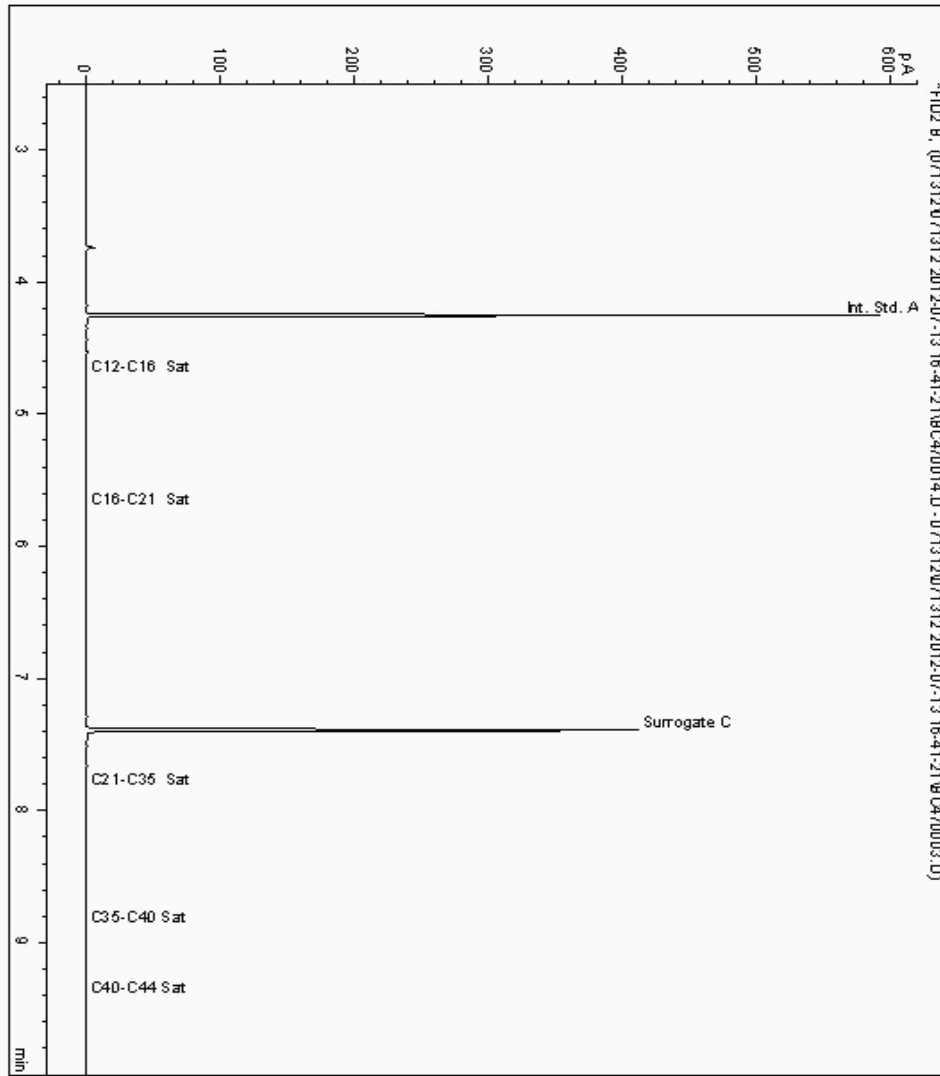
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858135
Sample ID : 984114

Depth :

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

Sample Identity: 5706549-5858135
Date Acquired : 13/07/12 20:45:09
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

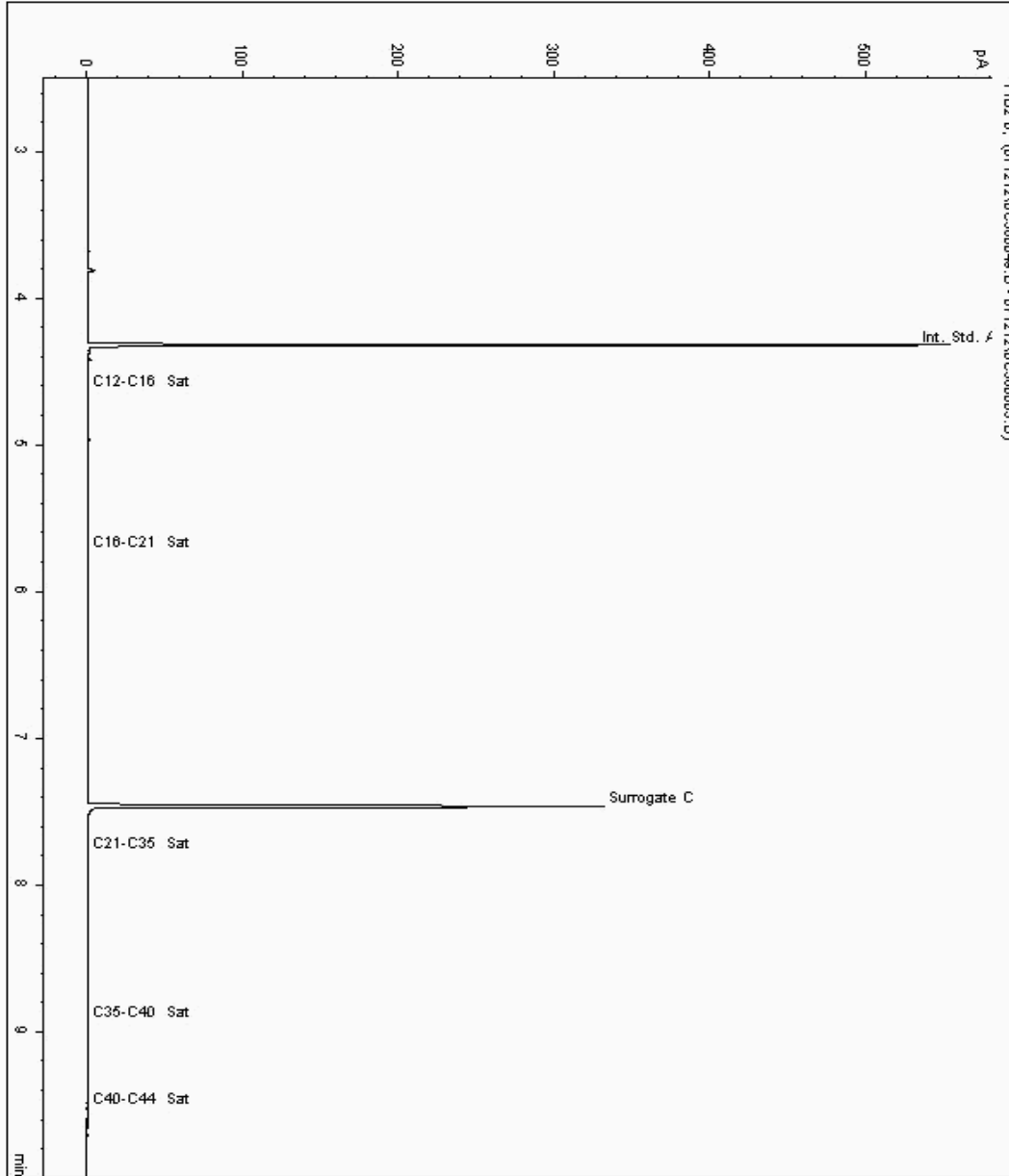
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858162
Sample ID : 457113

Depth :

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

Sample Identity: 5706520-5858162
Date Acquired : 13/07/12 07:00:08 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

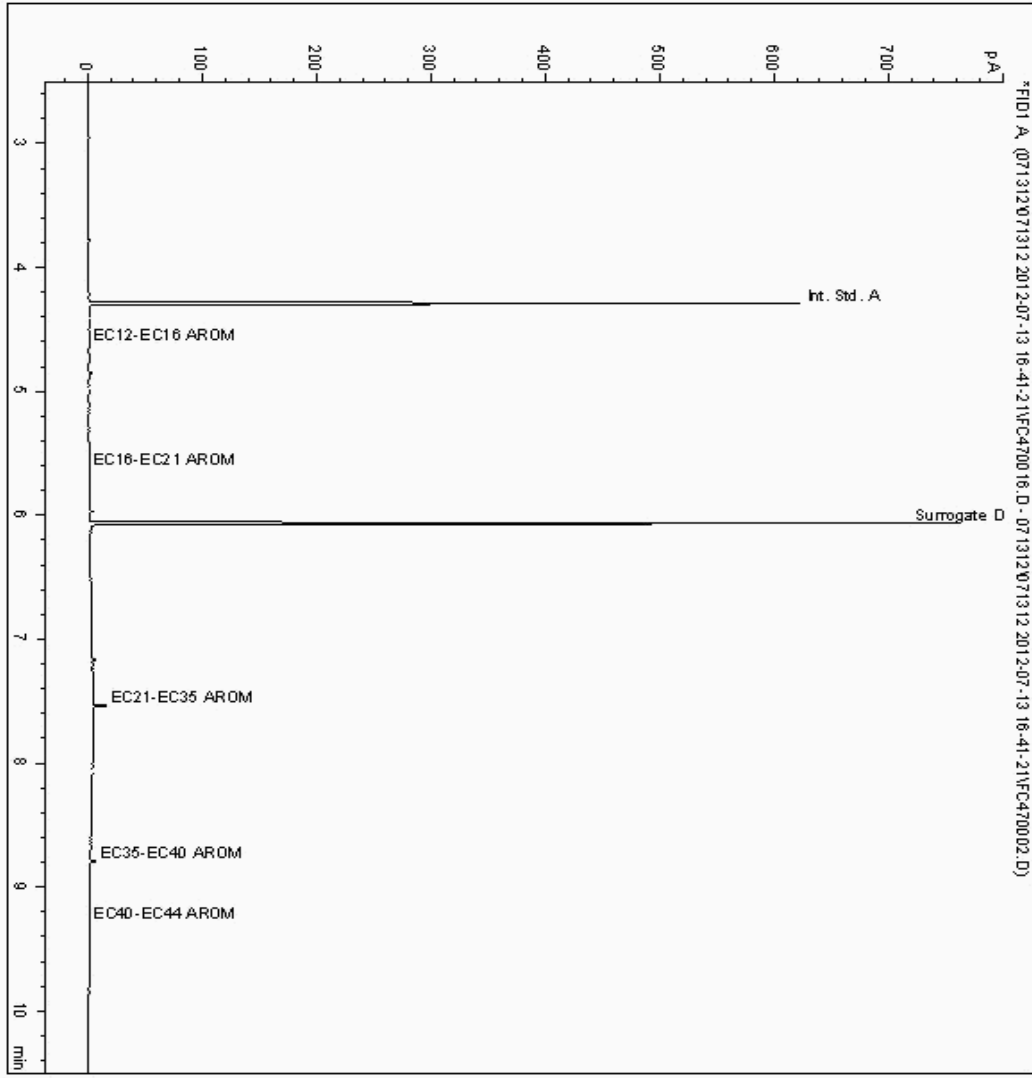
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858107
Sample ID : 405311

Depth :

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

Sample Identity: 5706620-5858107
Date Acquired : 13/07/12 21:23:10
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

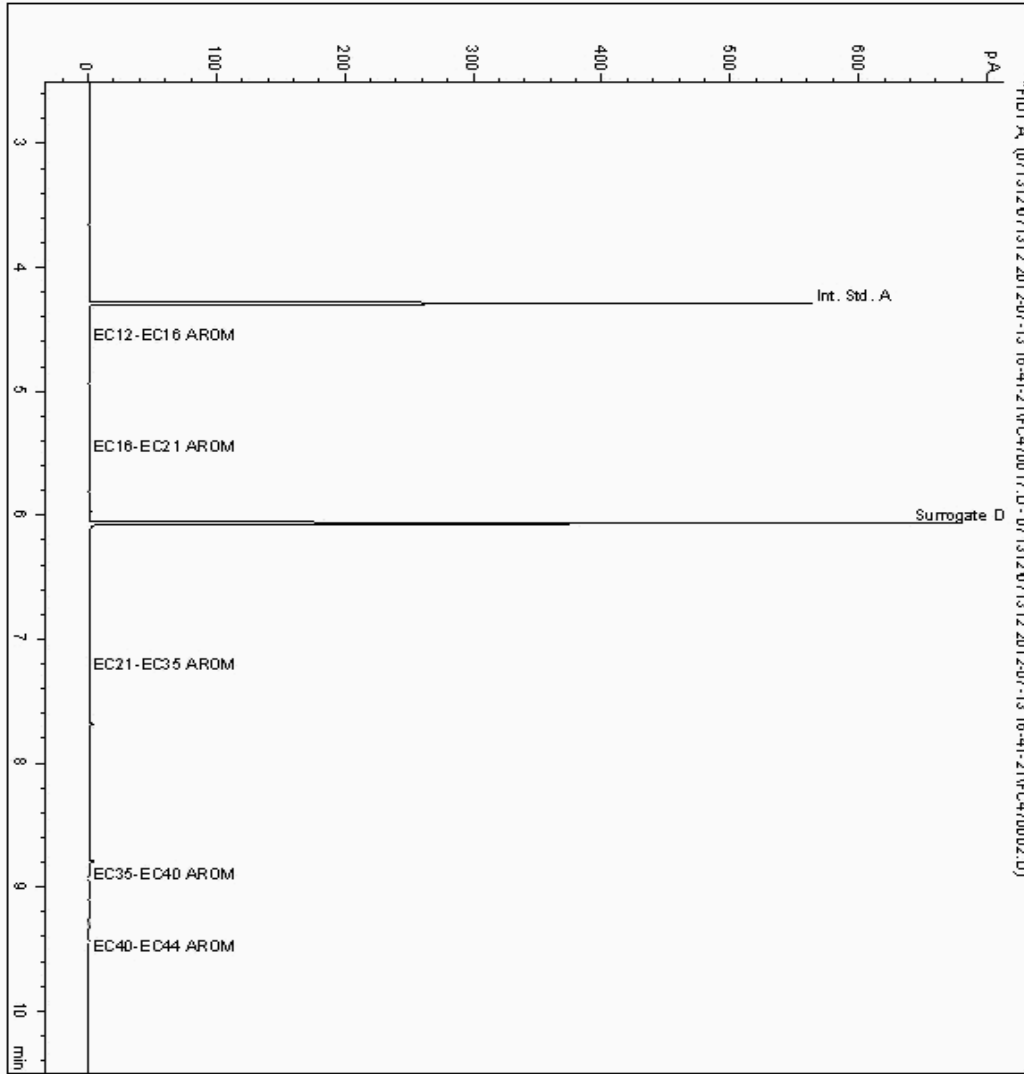
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858122
Sample ID : 685680

Depth :

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

Sample Identity: 5706580-5858122
Date Acquired : 13/07/12 21:42:08
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

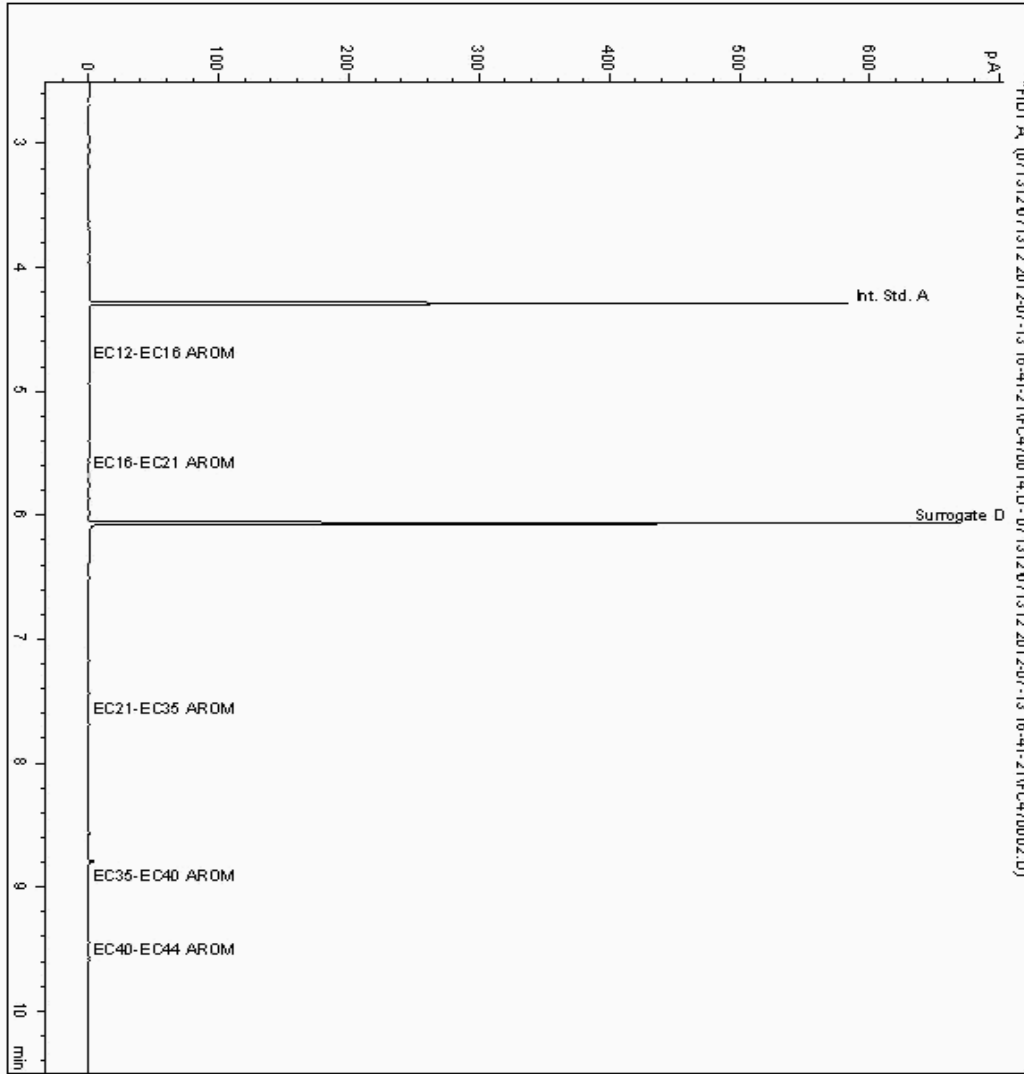
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858135
Sample ID : 984114

Depth :

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

Sample Identity: 5706550-5858135
Date Acquired : 13/07/12 20:45:09
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

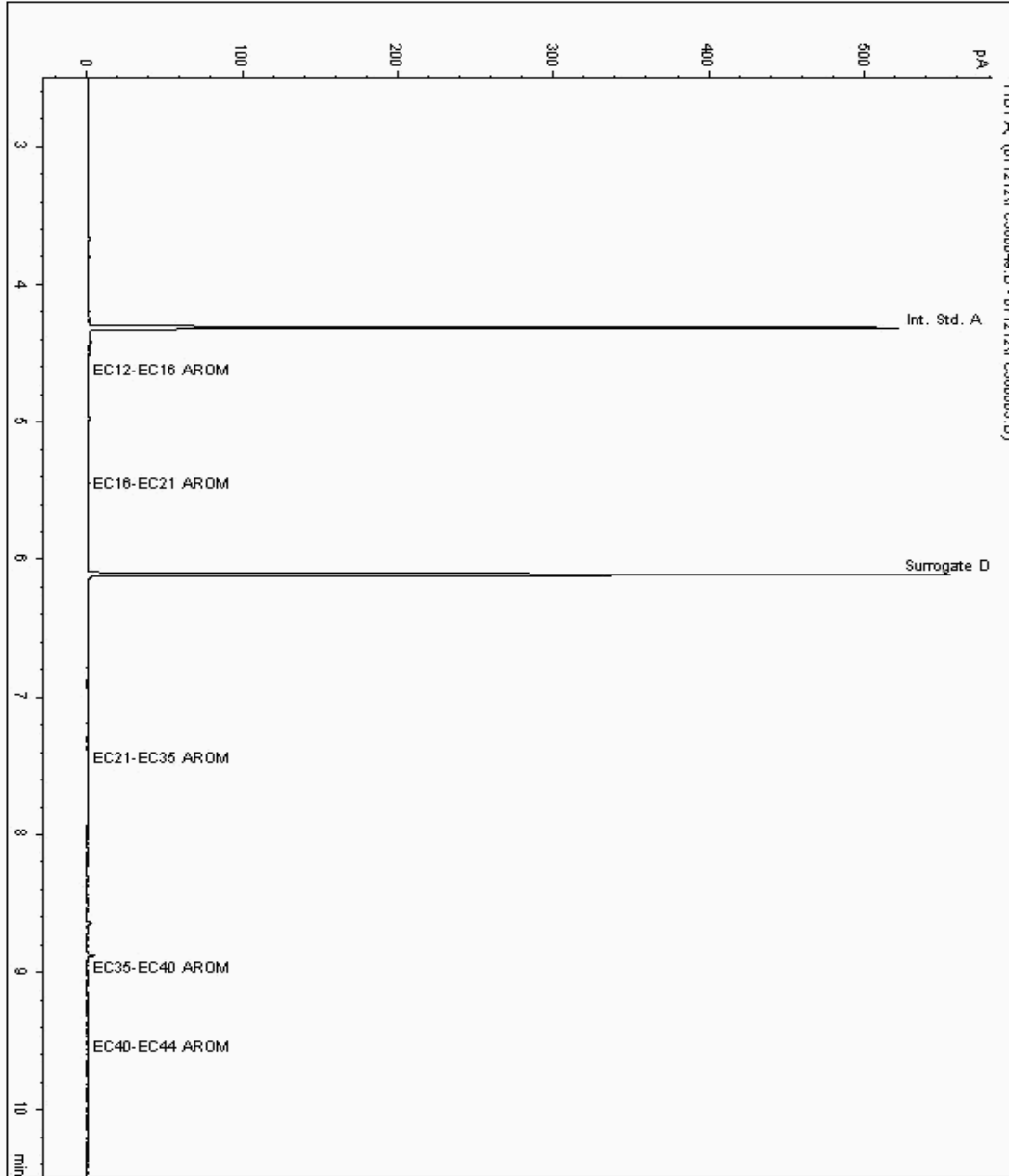
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858162
Sample ID : 457113

Depth :

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

Sample Identity: 5706521-5858162
Date Acquired : 13/07/12 07:00:08 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

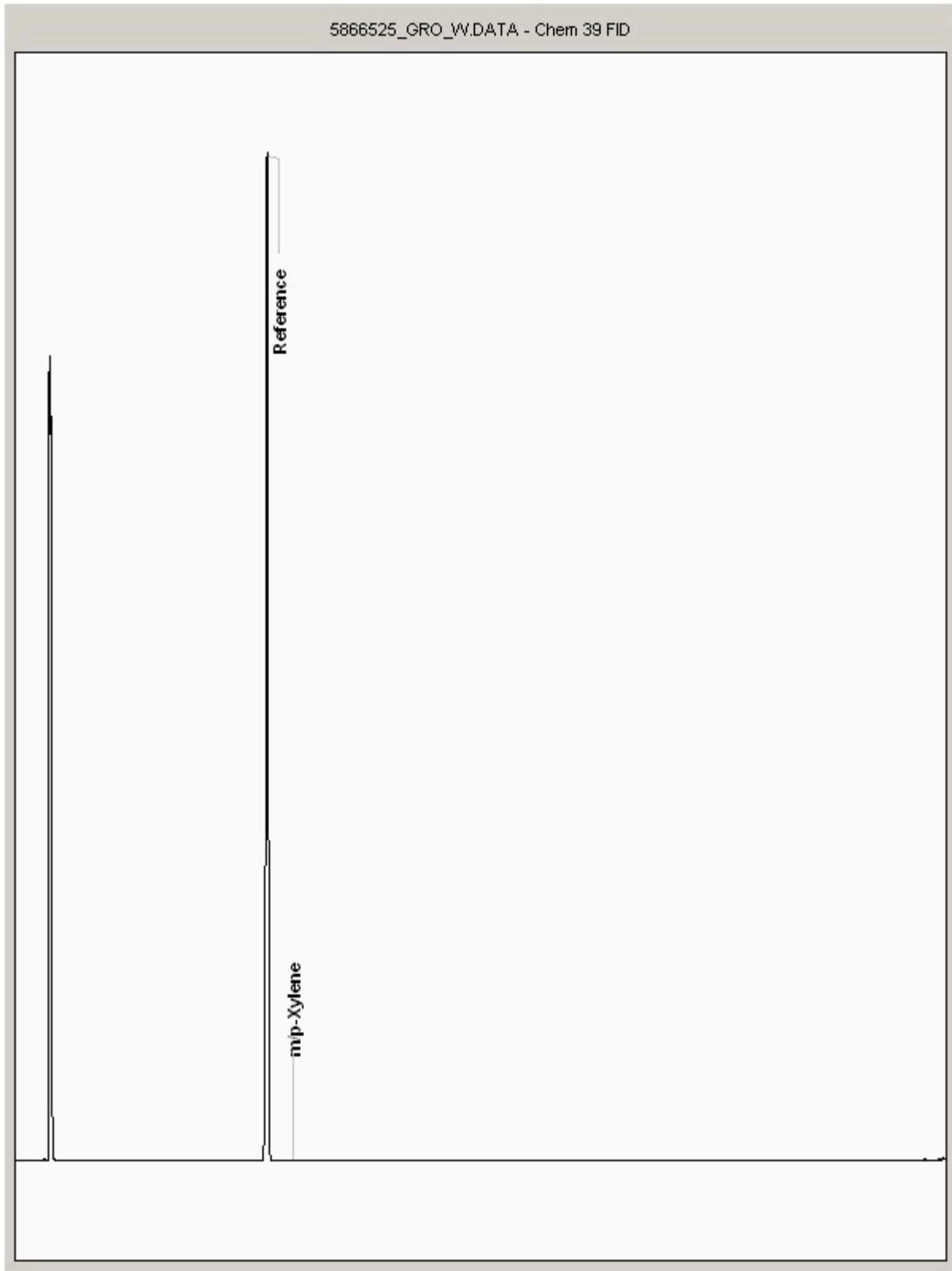
Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5866525
Sample ID : 457113

Depth :





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

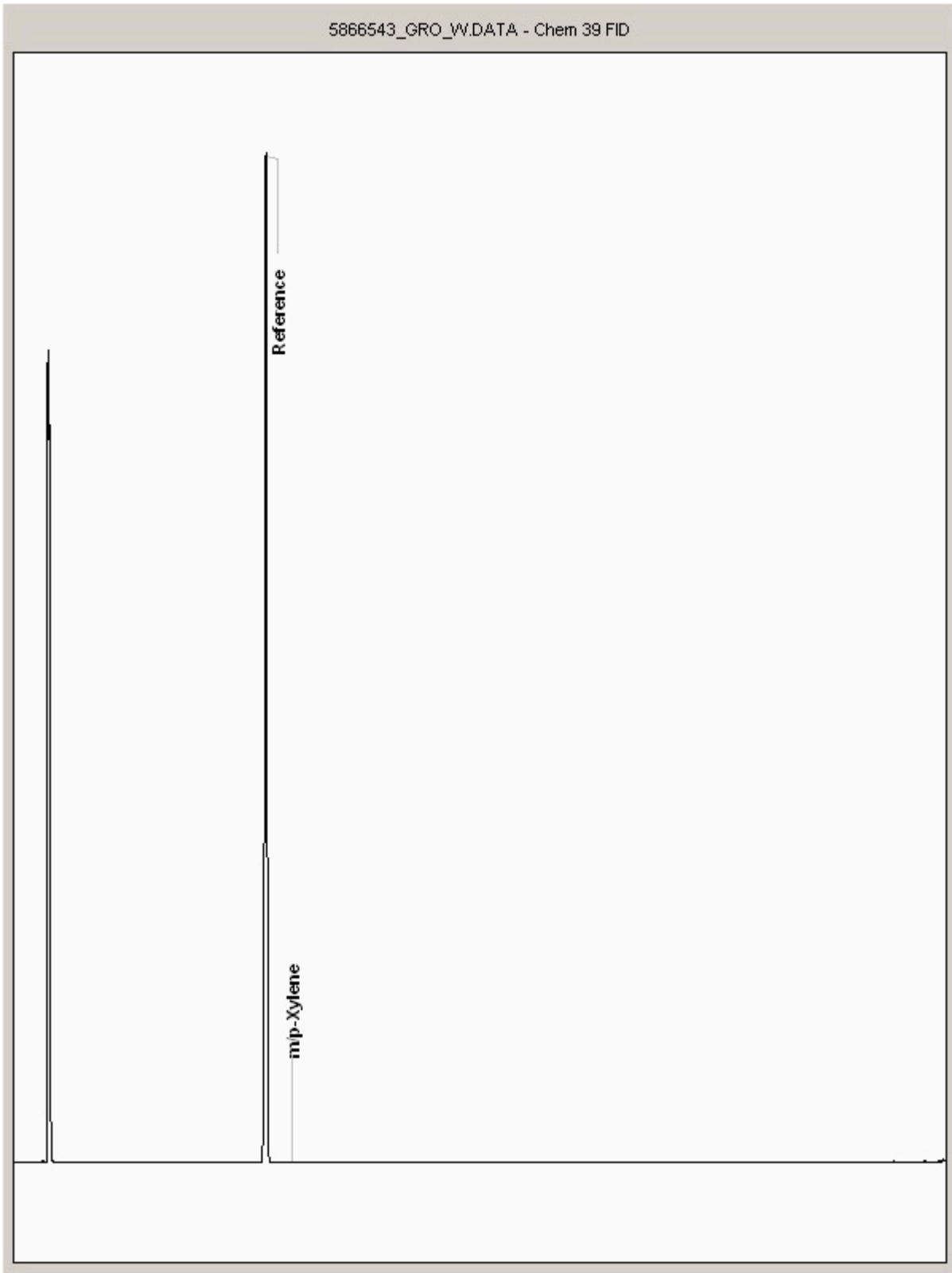
Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5866543
Sample ID : 984114

Depth :





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

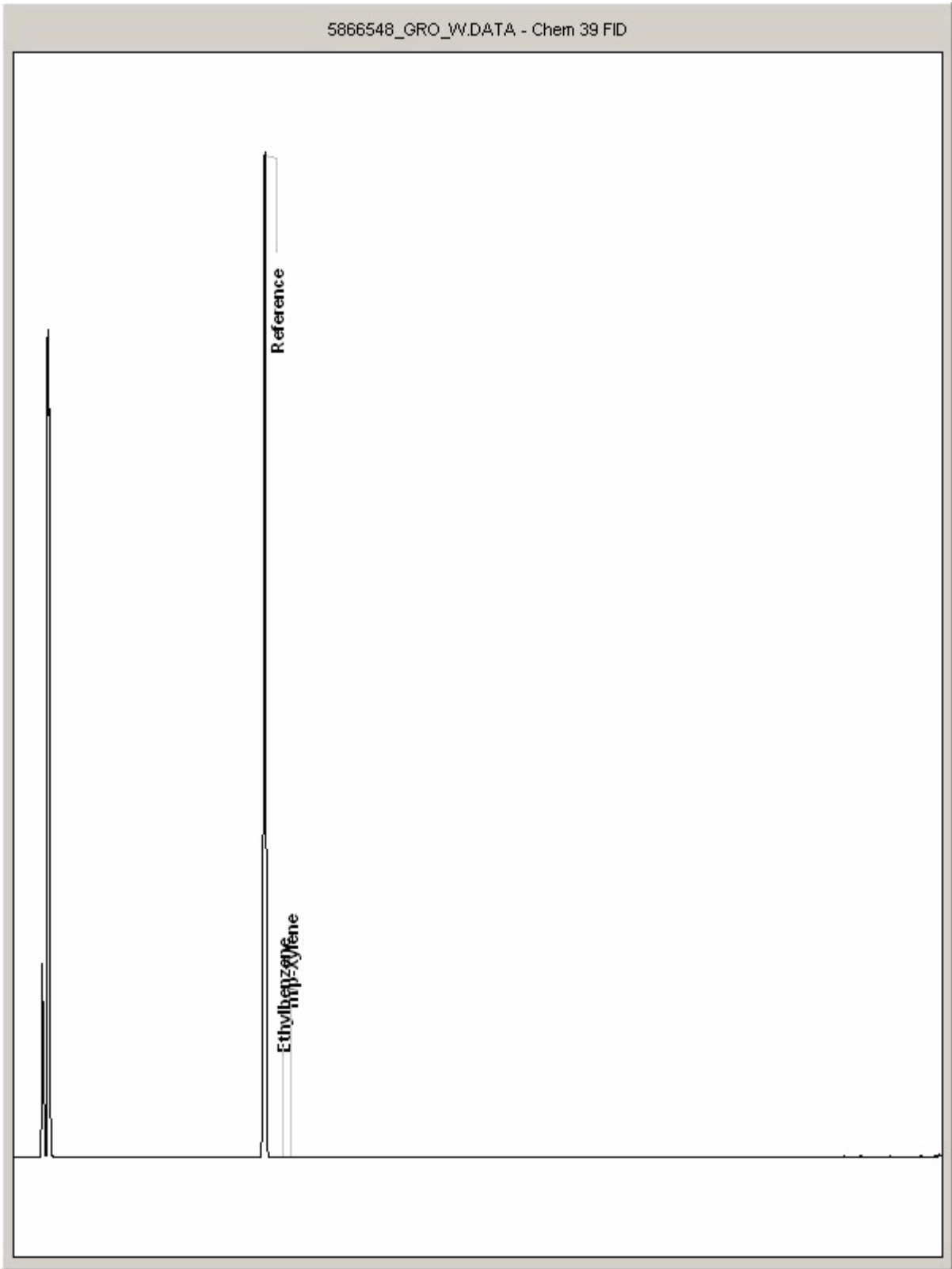
Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5866548
Sample ID : 685680

Depth :





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

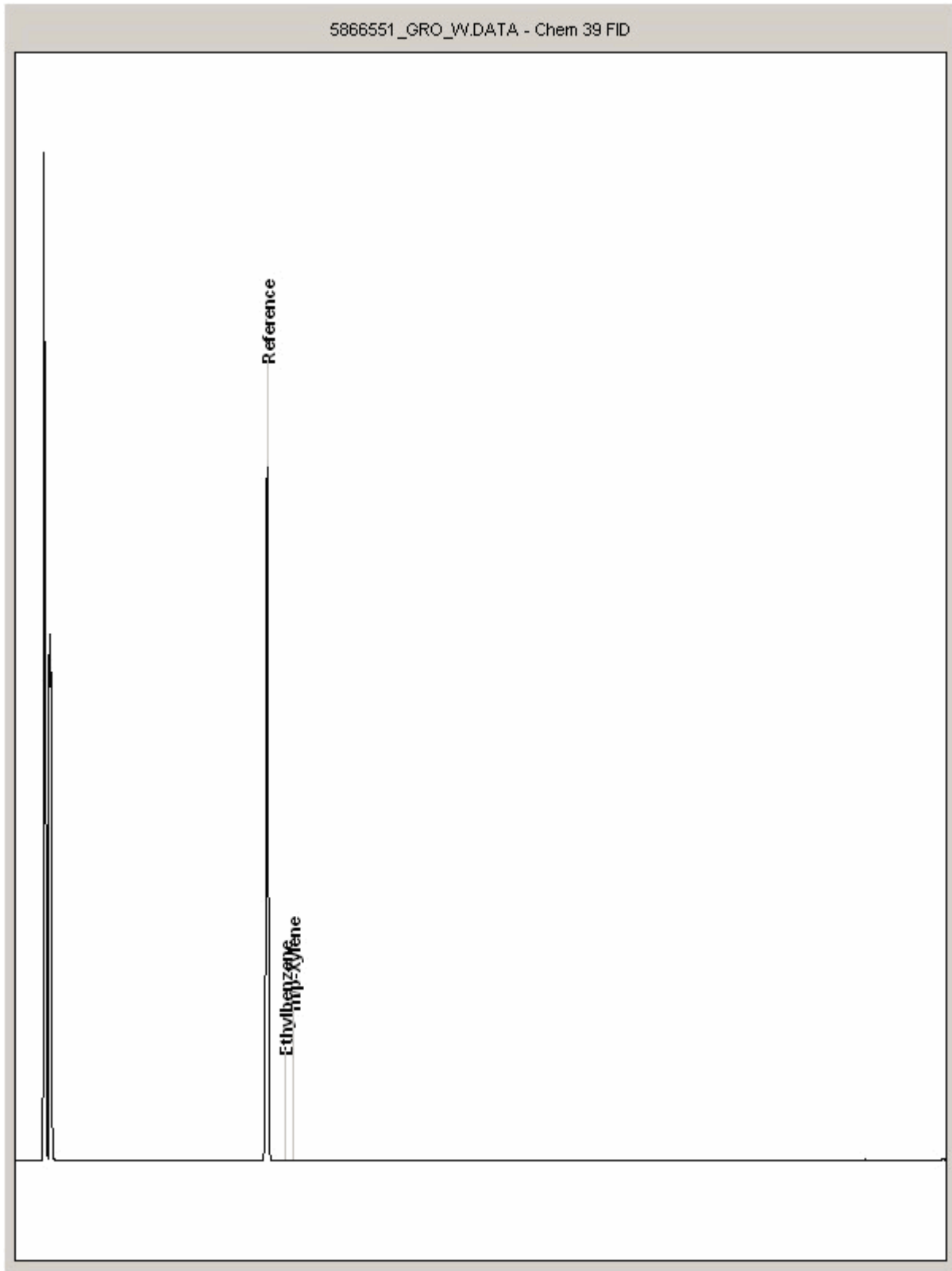
Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5866551
Sample ID : 405311

Depth :



Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 4 samples described below.

Samples Registered on:	11-Jul-2012
Analysis Started on:	23-Jul-2012
Analysis Completed on:	24-Jul-2012
Results for Batch Number	20041596
Your Purchase Order Number:	150621

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Final Report

Report ID - 20041596 - 1

Batch description: 120707 - 30 - TOC Saline Analysis

Reported on:
24-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000706
Comments: 5857542 - 457113
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 5-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	1.71	mg/l	1	None	NM	1102

Final Report

Report ID - 20041596 - 1

Batch description: 120707 - 30 - TOC Saline Analysis

Reported on:
24-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000707
Comments: 5857709 - 984114
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 5-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	4.49	mg/l	1	None	NM	1102

Final Report

Report ID - 20041596 - 1

Batch description: 120707 - 30 - TOC Saline Analysis

Reported on:
24-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000708
Comments: 5857780 - 685680
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 5-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	3.81	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000709
Comments: 5857876 - 405311
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 5-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	85.0	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041596

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
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 and CEN Leach tests, flash point, 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 2 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.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DOM	SOX THERM	GCMS
HERBICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
PESTICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
EPH (DRO)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (MIN OIL)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (CLEANED UP)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH CWGBY GC	D&C	HEXANE ACETONE	END OVER END	GC FD
PCBAROCLOR 1254/PCBCON	D&C	HEXANE ACETONE	END OVER END	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE ACETONE	MICRO WAVE TM218.	GCMS
>C6C40	WET	HEXANE ACETONE	SHAKER	GC FD
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE ACETONE	SHAKER	GC FD
SEMIVOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GCMS

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
PCB7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCBAROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVCC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL BY R	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FD

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description 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 Anorthophyllite	-
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.



Priority Geotechnical Ltd
Unit 12
Owenacurra Business Park
Midleton
Co Cork
Co Cork

Attention: Colette Kelly

CERTIFICATE OF ANALYSIS

Date: 31 July 2012
Customer: D_PRIORGEOT_CRK
Sample Delivery Group (SDG): 120705-45
Your Reference: P12030
Location: Haulbowline
Report No: 189312

This report has been revised and directly supersedes 188477 in its entirety.

We received 9 samples on Wednesday July 04, 2012 and 9 of these samples were scheduled for analysis which was completed on Tuesday July 31, 2012. 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: 120705-45	Location: Haulbowline	Order Number:
Job: D_PRIORGEOT_CRK-44	Customer: Priority Geotechnical Ltd	Report Number: 189312
Client Reference: P12030	Attention: Colette Kelly	Superseded Report: 188477

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5836447	158877			03/07/2012
5836446	198416			03/07/2012
5836440	254414			03/07/2012
5836442	325675			03/07/2012
5836443	435284			03/07/2012
5836451	438131			03/07/2012
5836445	923033			03/07/2012
5836444	987451			03/07/2012
5836449	989321			03/07/2012

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



SDG: 120705-45
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 189312
 Superseded Report: 188477

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	
		5836447	158877			1l green glass bottle
		5836446	198416			1l green glass bottle
		5836440	254414			1l green glass bottle
		5836442	325675			1l green glass bottle
	5836443	435284			1l green glass bottle	
	5836445	923033			1l green glass bottle	
	5836444	987451			1l green glass bottle	
	5836449	989321			1l green glass bottle	
Alkalinity as CaCO3	All	NDPs: 0 Tests: 3			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Anions by Kone (w)	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
BOD True Total	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
COD Unfiltered	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Fluoride	All	NDPs: 0 Tests: 3			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Free Sulphur	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
GRO by GC-FID (W)	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 8			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	
Low Level Cyanide (W)	All	NDPs: 0 Tests: 9			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)	



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	
		5836447	158877			1l green glass bottle
		5836446	198416			1l green glass bottle
		5836440	254414			1l green glass bottle
		5836442	325675			1l green glass bottle
	5836443	435284			1l green glass bottle	
	5836445	923033			1l green glass bottle	
	5836444	987451			1l green glass bottle	
	5836449	989321			1l green glass bottle	
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 9				
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 9				
Nitrite by Kone (w)	All	NDPs: 0 Tests: 9				
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 9				
pH Value	All	NDPs: 0 Tests: 9				
Phenols by ms (w)	All	NDPs: 3 Tests: 4				
Saline TON	All	NDPs: 0 Tests: 9				
Sulphide	All	NDPs: 0 Tests: 9				
TOC (Saline)*	All	NDPs: 0 Tests: 9				
TPH CWG (W)	All	NDPs: 0 Tests: 9				
VOC MS (W)	All	NDPs: 0 Tests: 5				



SDG: 120705-45
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 189312
 Superseded Report: 188477

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	5836451								
	Customer Sample Reference	438131								
	AGS Reference									
	Depth (m)									
	Container	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1(l)plastic (ALE221) 1l green glass bottle								
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
Anions by Kone (w)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
BOD True Total	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
COD Unfiltered	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9						<input checked="" type="checkbox"/>		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
Free Sulphur	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
GRO by GC-FID (W)	All	NDPs: 0 Tests: 9							<input checked="" type="checkbox"/>	
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 8	<input checked="" type="checkbox"/>							
Low Level Cyanide (W)	All	NDPs: 0 Tests: 9						<input checked="" type="checkbox"/>		
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>							



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	5836451				
	Customer Sample Reference	438131				
	AGS Reference					
	Depth (m)					
	Container	1l green glass bottle	H2SO4 (ALE244)	NaOH (ALE297)		
Nitrite by Kone (w)	All	NDPs: 0 Tests: 9				<input checked="" type="checkbox"/>
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>			
pH Value	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>		
Phenols by ms (w)	All	NDPs: 3 Tests: 4	<input checked="" type="checkbox"/>			
Saline TON	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>		
Sulphide	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>		
TOC (Saline)*	All	NDPs: 0 Tests: 9		<input checked="" type="checkbox"/>		
TPH CWG (W)	All	NDPs: 0 Tests: 9	<input checked="" type="checkbox"/>			
VOC MS (W)	All	NDPs: 0 Tests: 5				<input checked="" type="checkbox"/>



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Results Legend		Customer Sample R	158877	198416	254414	325675	435284	438131
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.		03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012
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		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
	Trigger breach confirmed		120705-45	120705-45	120705-45	120705-45	120705-45	120705-45
(F)			5836447	5836446	5836440	5836442	5836443	5836451
Component	LOD/Units	Method						
TOC (Saline)*	<1 mg/l	SUB	7.6	17.1	2.22	19	14	2.63
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043	<5	<5				
BOD, unfiltered	<1 mg/l	TM045	3.47	<3	<5	<3	<3	<3
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	20.6	28.4	<0.2	9.64	37	<0.2
Sulphide	<0.01 mg/l	TM101	<0.01	0.073	<0.01	0.506	<0.01	<0.01
Fluoride	<0.5 mg/l	TM104	<0.5	<0.5				
COD, unfiltered	<7 mg/l	TM107	350	272	174	524	214	183
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	38.4	38.2	37.6	40.7	39.4	37.9
Barium (diss.filt)	<0.03 µg/l	TM152	207	126	72.3	194	116	61.9
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Cobalt (diss.filt)	<0.06 µg/l	TM152	2.81	2.71				
Molybdenum (diss.filt)	<0.24 µg/l	TM152	11.3	15.4				
Phosphorus (diss.filt)	<6.3 µg/l	TM152	<6.3	199				
Thallium (diss.filt)	<0.96 µg/l	TM152	<0.96	<0.96				
Tin (diss.filt)	<0.36 µg/l	TM152	<0.36	<0.36				
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	0.083	<0.05	<0.05	0.076	<0.05
Sulphate	<2 mg/l	TM184	1610	1670	2040	1950	1440	1990
Chloride	<2 mg/l	TM184	17000	17500	16000	17200	18200	16600
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	0.02	<0.015	<0.015	<0.015
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	0.02	<0.015	<0.015	<0.015
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	0.02	<0.015	<0.015	<0.015
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105	<0.105	<0.105	<0.105
Phenol	<0.5 µg/l	TM205	<1.3	<1.3	<1.3			<1.3
2-methylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
3-methylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
4-methylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
2-chlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
2,4-dimethylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
4-chloro-3-methylphenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
2,6-dichlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5
4-Chlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Results Legend		Customer Sample R	158877	198416	254414	325675	435284	438131	
#	ISO17025 accredited.								
M	mCERTS accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D	
S	Deviating sample.		03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	
aq	Aqueous / settled sample.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	
diss.filt	Dissolved / filtered sample.		120705-45	120705-45	120705-45	120705-45	120705-45	120705-45	
tot.unfilt	Total / unfiltered sample.		5836447	5836446	5836440	5836442	5836443	5836451	
tot.unfilt	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								
Component	LOD/Units		Method						
2,4-dichlorophenol	<0.5 µg/l		TM205	<0.75	<0.75	<0.5			<0.5
2-nitrophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5	
2,4,6-trichlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5	
2,4,5-trichlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5	
4-nitrophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5	
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.5	
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.75	<0.75	<0.5			<0.6	
2,4-dinitrophenol	<2.5 µg/l	TM205	<2.5	<2.5	<2.5			<2.5	
DNOC	<3 µg/l	TM205	<4.5	<4.5	<3			<3	
Pentachlorophenol	<2 µg/l	TM205	<3	<3	<2			<2	
Dinoseb	<4 µg/l	TM205	<6	<6	<4			<4	
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	
Thiocyanate	<0.05 mg/l	TM227	0.322	<0.05	<0.05	<0.05	<0.05	<0.05	
Calcium (diss.filt)	<0.012 mg/l	TM228	457	601	452	552	451	474	
Sodium (diss.filt)	<0.076 mg/l	TM228	9310	11900	47.3	12300	9770	9730	
Magnesium (diss.filt)	<0.036 mg/l	TM228	795	1020	1020	941	856	979	
Potassium (diss.filt)	<2.335 mg/l	TM228	341	360	343	355	357	346	
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03	<0.03	<0.03	<0.03	<0.03	
pH	<1 pH Units	TM256	7.87	7.66	9.56	7.57	7.72	9.52	
Arsenic (Saline)	<0.5 µg/l	TM270	5.48	32.2	1.89	2.7	33.3	1.76	
Aluminium (Saline)	<3.7 µg/l	TM270	44.3	45.8	52.7	94.5	48.4	41.9	
Antimony (Saline)	<1 µg/l	TM270	<1	<1	<1	<1	<1	<1	
Boron (Saline)	<201 µg/l	TM270	2600	3020	2900	2060	3160	3270	
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Chromium (Saline)	<1.5 µg/l	TM270	5.36	6.02	17.5	6.09	6.28	8.95	
Copper (Saline)	<1 µg/l	TM270	<1	2.17	3.48	<1	4.58	1.42	
Iron (Saline)	<4 µg/l	TM270	<4	<4	<4	<4	<4	<4	
Lead (Saline)	<0.2 µg/l	TM270	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	
Manganese (Saline)	<0.3 µg/l	TM270	3260	1290	<0.3	2800	1240	<0.3	
Mercury (Saline)	<0.15 µg/l	TM270	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	
Nickel (saline)	<1.1 µg/l	TM270	9.37	11.8	5.84	13.5	14.2	6.2	
Selenium (Saline)	<0.5 µg/l	TM270	<0.5	1.24	0.848	1.13	1.19	1.29	
Vanadium (Saline)	<4 µg/l	TM270	35.5	29.3	30.4	35.5	31.1	28.5	
Zinc (Saline)	<2.1 µg/l	TM270	<2.1	<2.1	<2.1	17.5	7.51	<2.1	



CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Table with columns for Results Legend, Customer Sample R, and various sample IDs (158877, 198416, 254414, 325675, 435284, 438131). Rows include Component, LOD/Units, Method, and specific test results for Cyanide, Saline TON as NO3, Saline Nitrate as NO3, and Sulphur, Free.



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Results Legend		Customer Sample R	923033	987451	989321		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference					
M	mCERTS accredited.		Saline D	Saline D	Saline D		
S	Deviating sample.		03/07/2012	03/07/2012	03/07/2012		
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		04/07/2012	04/07/2012	04/07/2012		
	Trigger breach confirmed		120705-45	120705-45	120705-45		
(F)			5836445	5836444	5836449		
Component	LOD/Units	Method					
TOC (Saline)*	<1 mg/l	SUB	105	15.1	79.6		
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043		<5			
BOD, unfiltered	<1 mg/l	TM045	<3	<3	9.5		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	16.1	53.1	43.6	#	#
Sulphide	<0.01 mg/l	TM101	<0.01	<0.01	0.748		
Fluoride	<0.5 mg/l	TM104		<0.5			
COD, unfiltered	<7 mg/l	TM107	290	1230	1600		
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	39.2	39.7	38.5	#	#
Barium (diss.filt)	<0.03 µg/l	TM152	175	280	228		
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.07	<0.07		
Cobalt (diss.filt)	<0.06 µg/l	TM152		4.85			
Molybdenum (diss.filt)	<0.24 µg/l	TM152		2.61			
Phosphorus (diss.filt)	<6.3 µg/l	TM152		148			
Thallium (diss.filt)	<0.96 µg/l	TM152		<9.6			
Tin (diss.filt)	<0.36 µg/l	TM152		<3.6			
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	<0.05	<0.05		
Sulphate	<2 mg/l	TM184	1920	664	1170		
Chloride	<2 mg/l	TM184	17600	18000	17700		
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105		
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05		
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05		
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05		
Calcium (diss.filt)	<0.012 mg/l	TM228	0.13	219	321		
Sodium (diss.filt)	<0.076 mg/l	TM228	0.247	9550	9880		
Magnesium (diss.filt)	<0.036 mg/l	TM228	<0.036	933	1020		
Potassium (diss.filt)	<2.335 mg/l	TM228	<2.34	330	308		
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03	<0.03	<0.03	#	#
pH	<1 pH Units	TM256	7.66	7.72	7.65		



CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Table with columns for Component, LOD/Units, Method, and three sample columns (923033, 987451, 989321). Includes a Results Legend section and various chemical analysis rows like Arsenic, Aluminium, etc.



SDG: 120705-45
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 189312
 Superseded Report: 188477

TPH CWG (W)

Results Legend		Customer Sample R	158877	198416	254414	325675	435284	438131
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
M	mCERTS accredited.		03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012
S	Deviating sample.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
aq	Aqueous / settled sample.		120705-45	120705-45	120705-45	120705-45	120705-45	120705-45
diss.filt	Dissolved / filtered sample.		5836447	5836446	5836440	5836442	5836443	5836451
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							
Component	LOD/Units		Method					
GRO Surrogate % recovery**	%	TM245	92	88	88	93	91	92
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50	<50	<50	<50
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Benzene	<7 µg/l	TM245	<7	<7	<7	<7	<7	<7
Toluene	<4 µg/l	TM245	<4	<4	<4	<4	<4	<4
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5	<5	<5
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8	<8	<8
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3	<3	<3
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10	<10	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	<10	<10	<10	<10	<10



CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

TPH CWG (W)

Table with 7 columns: Component, LOD/Units, Method, and three data columns for samples 923033, 987451, and 989321. Includes a Results Legend and various chemical components like GRO Surrogate %, Methyl tertiary butyl ether (MTBE), Benzene, etc.



SDG: 120705-45
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 189312
 Superseded Report: 188477

VOC MS (W)

Results Legend		Customer Sample R	254414	325675	438131	923033	989321	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.		03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
tot.unfilt	Total / unfiltered sample.		120705-45	120705-45	120705-45	120705-45	120705-45	120705-45
*	Subcontracted test.		5836440	5836442	5836451	5836445	5836449	
**	% 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							
Component	LOD/Units		Method					
Dibromofluoromethane**	%	TM208	105	107	104	105	105	
Toluene-d8**	%	TM208	99.5	101	99	98.6	101	
4-Bromofluorobenzene**	%	TM208	99.9	101	98.8	91.9	97.9	
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	1.5	<1	
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloroform	<1 µg/l	TM208	<1	<1	1.19	<1	<1	
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Benzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	

SDG: 120705-45
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 189312
 Superseded Report: 188477

VOC MS (W)

Results Legend			Customer Sample R		254414	325675	438131	923033	989321	
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference							
M	mCERTS accredited.			Saline D	Saline D	Saline D	Saline D	Saline D	Saline D	
S	Deviating sample.			03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	03/07/2012	
aq	Aqueous / settled sample.			04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	
diss.fit	Dissolved / filtered sample.			120705-45	120705-45	120705-45	120705-45	120705-45	120705-45	
tot.unfit	Total / unfiltered sample.			5836440	5836442	5836451	5836445	5836445	5836449	
**	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									
Component	LOD/Units	Method								
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	<1		



SDG: 120705-45 **Location:** Haulbowline **Order Number:**
Job: D_PRIORGEOT_CRK-44 **Customer:** Priority Geotechnical Ltd **Report Number:** 189312
Client Reference: P12030 **Attention:** Colette Kelly **Superseded Report:** 188477

Notification of NDPs (No determination possible)

Date Received : 05/07/2012 10:48:53

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
5836442	325675		Phenols by ms (w)	Sample unsuitable for extraction
5836445	923033		Phenols by ms (w)	Sample unsuitable for extraction
5836449	989321		Phenols by ms (w)	Sample unsuitable for extraction



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM178	Modified: US EPA Method 8100	Determination of Polynuclear Aromatic Hydrocarbons (PAH) by GC-MS in Waters		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM270	Thermo Electron Application Note AN_E0640: X Series ICP-MS: Using automated collision cell ICP-MS with rapid in-sample switching to achieve ultimate performance in environmental analysis.	Dissolved Metals in Saline Matrices by CCT ICP-MS		
TM279		Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser		
TM281		The Determination of Total Oxidized Nitrogen in Saline Matrices using the Kone Spectrophotometric Analysers		
TM294		Determination of Free Sulphur in liquids by HPLC		

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



SDG: 120705-45
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Superseded Report: 188477

Test Completion Dates

Lab Sample No(s) Customer Sample Ref.	5836447	5836446	5836440	5836442	5836443	5836451	5836445	5836444	5836449
	158877	198416	254414	325675	435284	438131	923033	987451	989321
AGS Ref.									
Depth									
Type	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D
Alkalinity as CaCO3	09-Jul-2012	06-Jul-2012						06-Jul-2012	
Ammoniacal Nitrogen	12-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	10-Jul-2012	12-Jul-2012	11-Jul-2012	11-Jul-2012	10-Jul-2012
Anions by Kone (w)	09-Jul-2012	11-Jul-2012	06-Jul-2012	06-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
BOD True Total	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
COD Unfiltered	08-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
Conductivity (at 20 deg.C)	09-Jul-2012	05-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
Cyanide Comp/Free/Total/Thiocyanate	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	06-Jul-2012
Dissolved Metals by ICP-MS	11-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
EPH CWG (Aliphatic) Aqueous GC (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
EPH CWG (Aromatic) Aqueous GC (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Fluoride	09-Jul-2012	06-Jul-2012						09-Jul-2012	
Free Sulphur	10-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012	10-Jul-2012
GRO by GC-FID (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
Hexavalent Chromium (w)		11-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	11-Jul-2012
Low Level Cyanide (W)	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012	10-Jul-2012	09-Jul-2012	09-Jul-2012	09-Jul-2012
Metals analysis (Saline Sample)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Metals by iCap-OES Dissolved (W)	11-Jul-2012	11-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	11-Jul-2012	12-Jul-2012	12-Jul-2012	11-Jul-2012
Nitrite by Kone (w)	07-Jul-2012	07-Jul-2012	07-Jul-2012	07-Jul-2012	07-Jul-2012	10-Jul-2012	07-Jul-2012	07-Jul-2012	06-Jul-2012
PCB Congeners - Aqueous (W)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
pH Value	09-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012
Phenols by ms (w)	31-Jul-2012	31-Jul-2012	31-Jul-2012				31-Jul-2012		
Saline TON	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Sulphide	11-Jul-2012	06-Jul-2012	06-Jul-2012	06-Jul-2012	11-Jul-2012	06-Jul-2012	11-Jul-2012	11-Jul-2012	06-Jul-2012
TOC (Saline)*	24-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012	17-Jul-2012
TPH CWG (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
VOC MS (W)			09-Jul-2012	09-Jul-2012		09-Jul-2012	09-Jul-2012		09-Jul-2012



CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

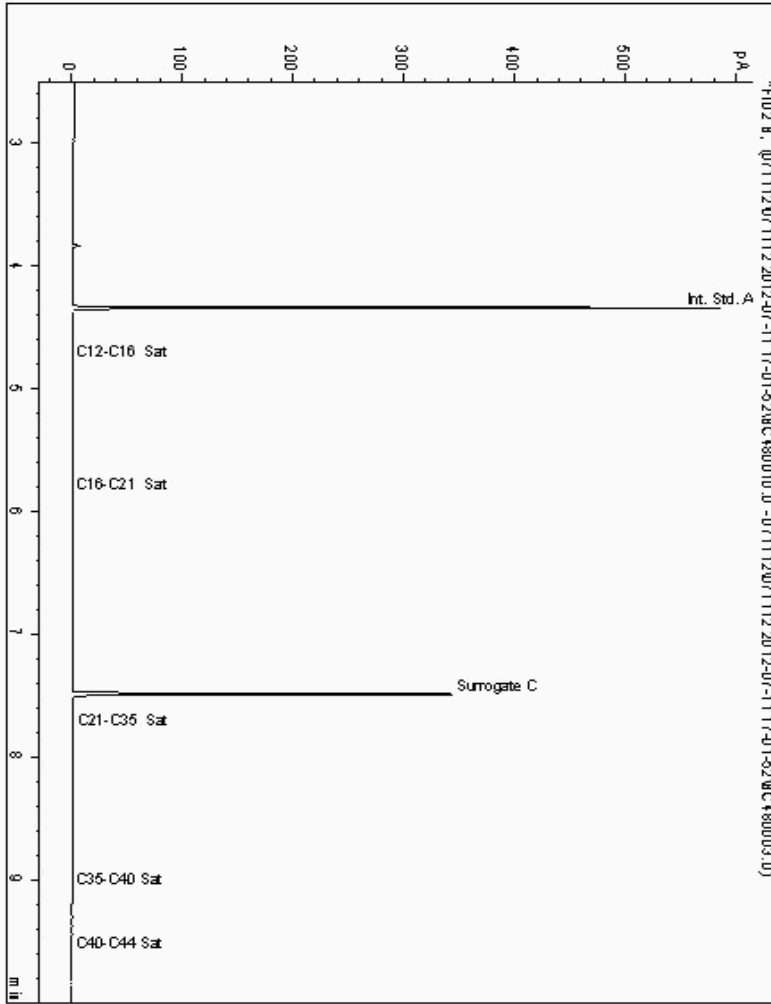
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841225
Sample ID : 923033

Depth :

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

Sample Identity: 5688177-5841225
Date Acquired : 11/07/12 19:49:20
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
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Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

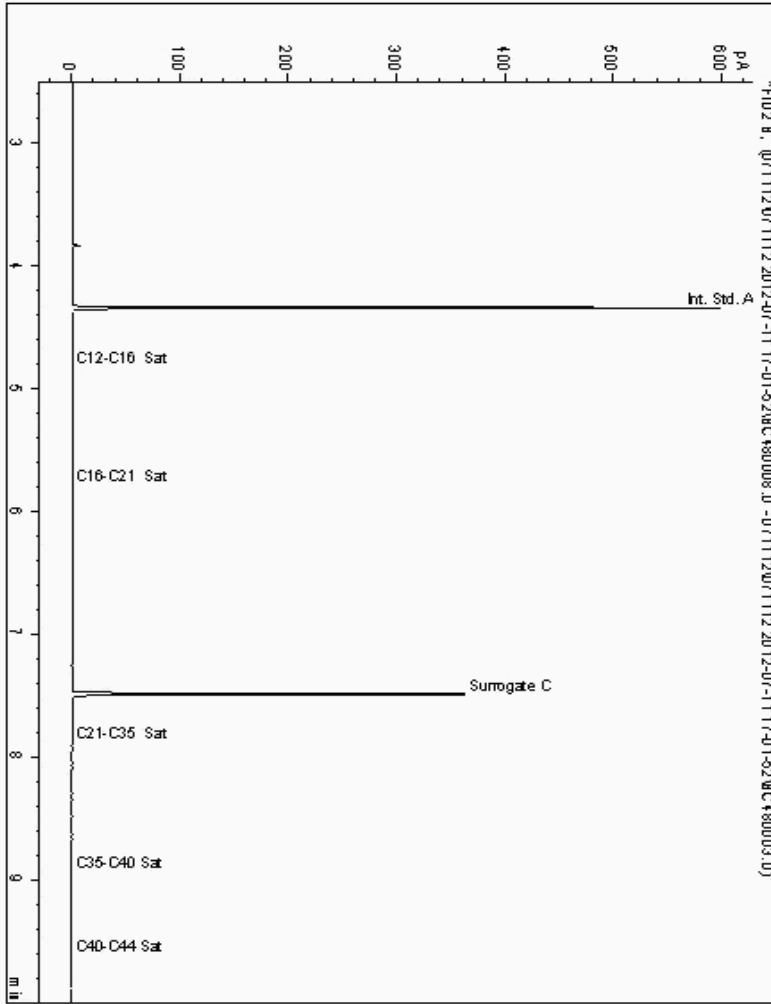
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841274
Sample ID : 435284

Depth :

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

Sample Identity: 5688119-5841274
Date Acquired : 11/07/12 19:11:34
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

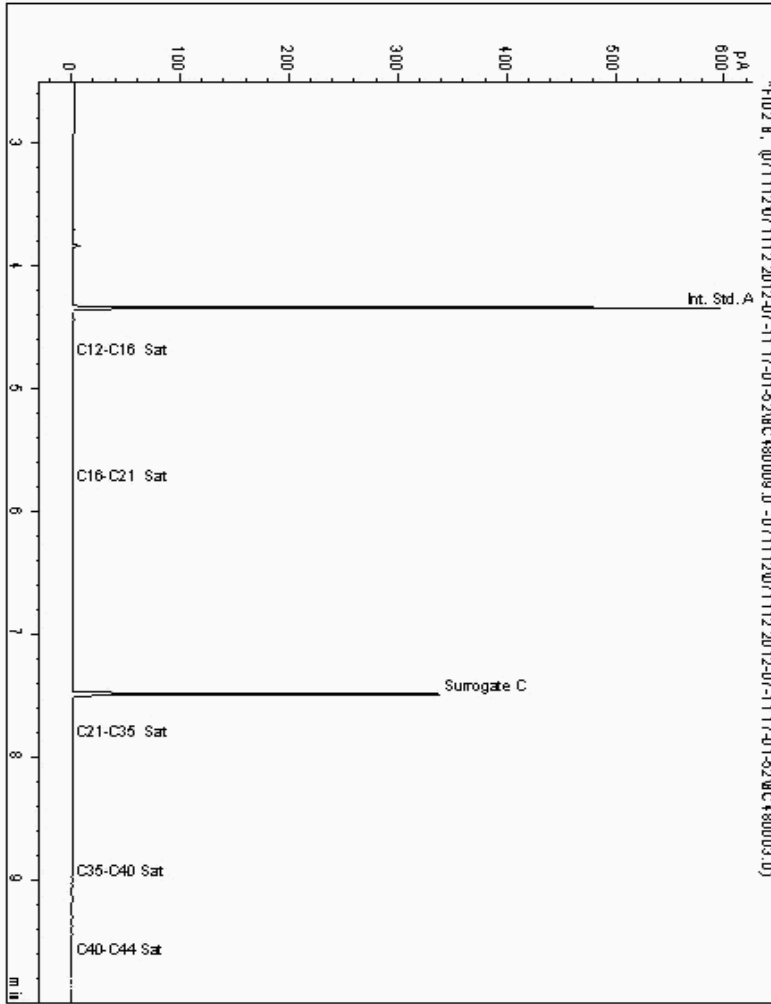
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841323
Sample ID : 254414

Depth :

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

Sample Identity: 5688066-5841323
Date Acquired : 11/07/12 19:30:36
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

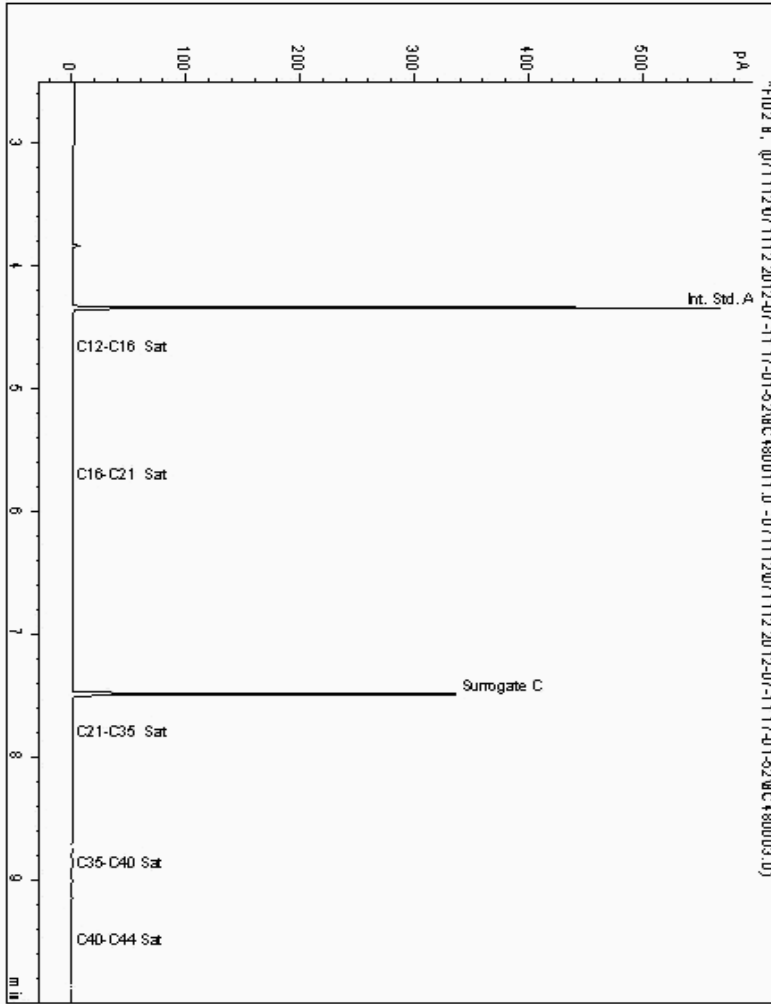
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841352
Sample ID : 325675

Depth :

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

Sample Identity: 5688093-5841352
Date Acquired : 11/07/12 20:08:12
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

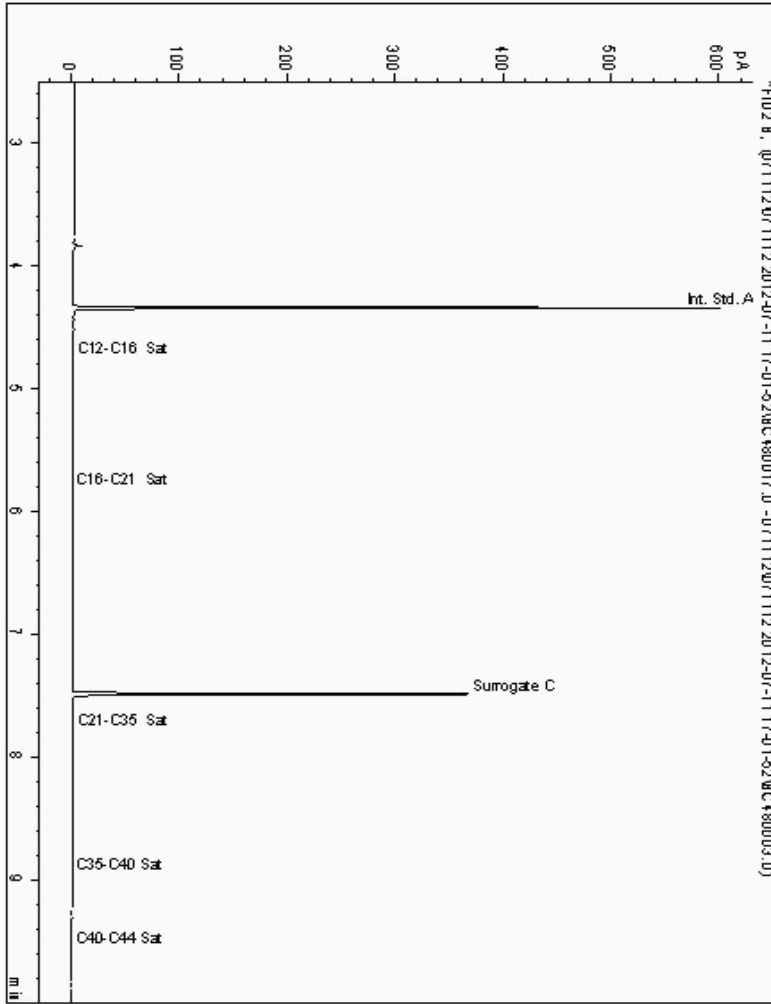
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5841384
Sample ID : 987451

Depth :

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

Sample Identity: 5688145-5841384
Date Acquired : 11/07/12 22:02:10
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

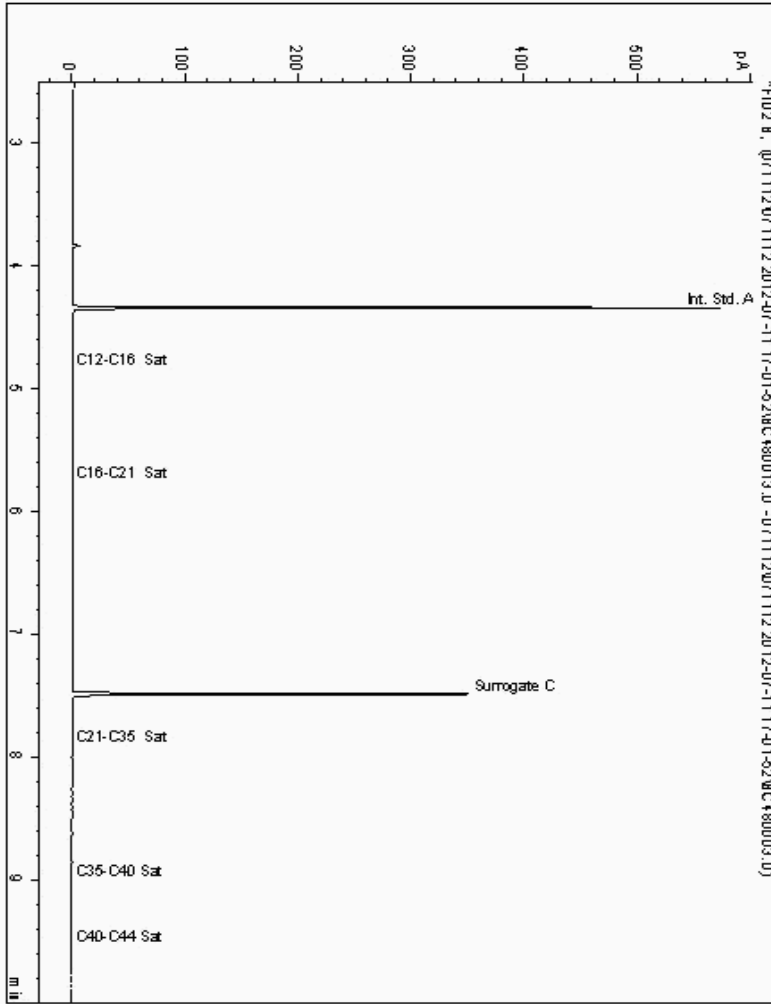
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5843255
Sample ID : 989321

Depth :

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

Sample Identity: 5688256-5843255
Date Acquired : 11/07/12 20:46:18
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

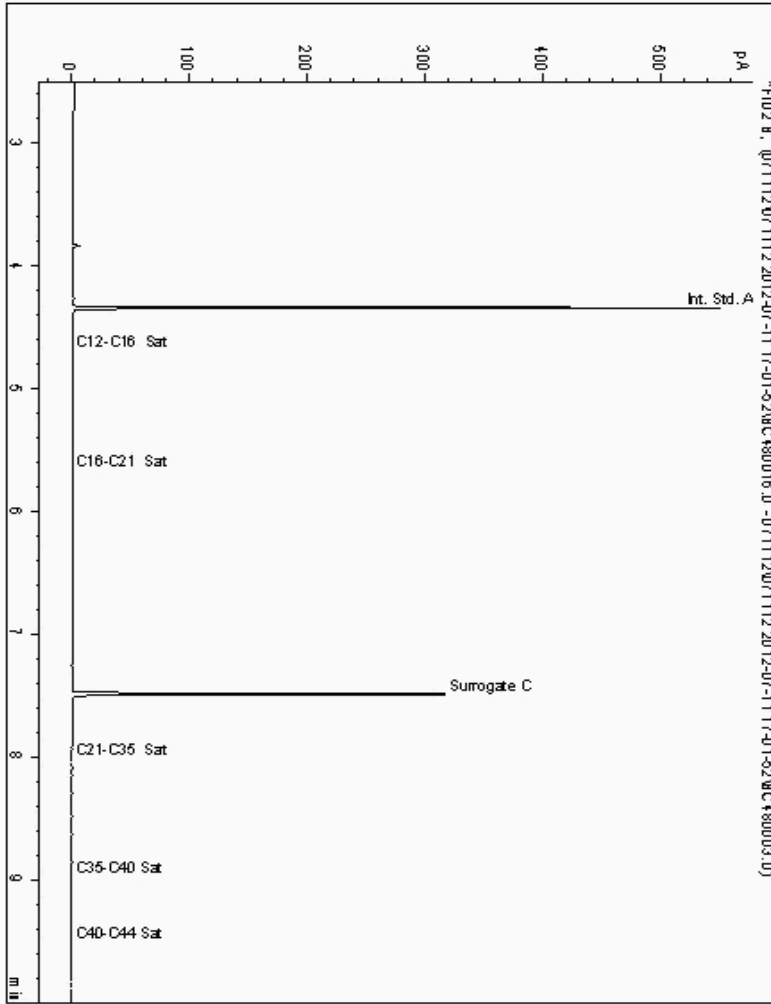
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5843314
Sample ID : 158877

Depth :

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

Sample Identity: 5689937-5843314
Date Acquired : 11/07/12 21:43:07
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

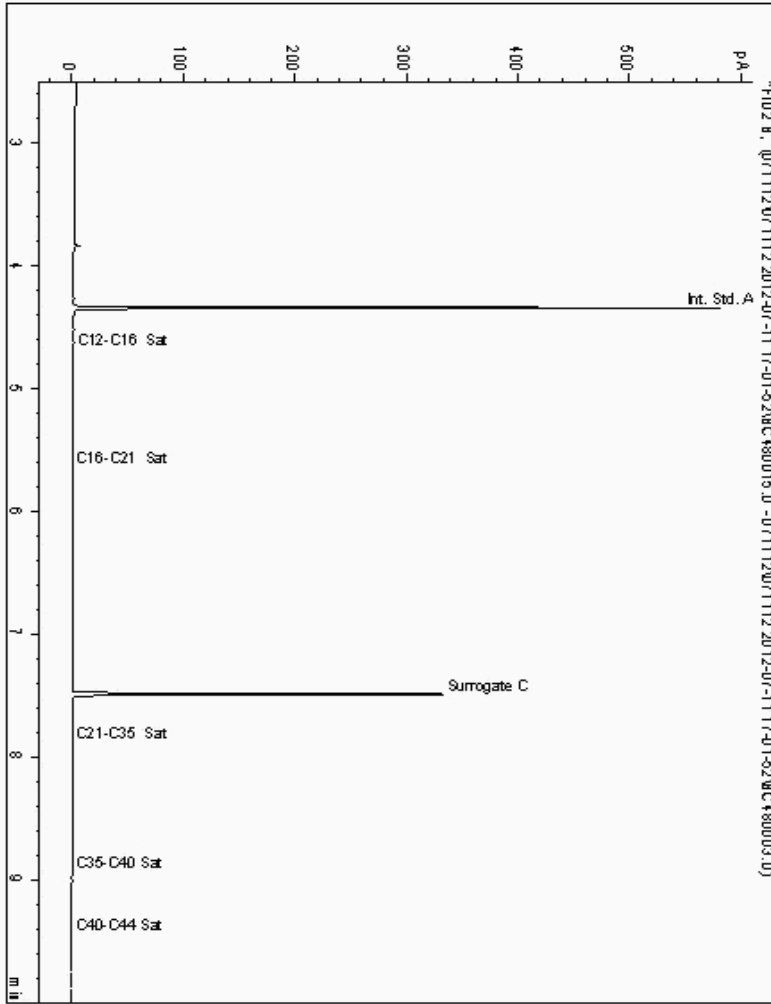
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5843344
Sample ID : 438131

Depth :

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

Sample Identity: 5688301-5843344
Date Acquired : 11/07/12 21:24:07
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

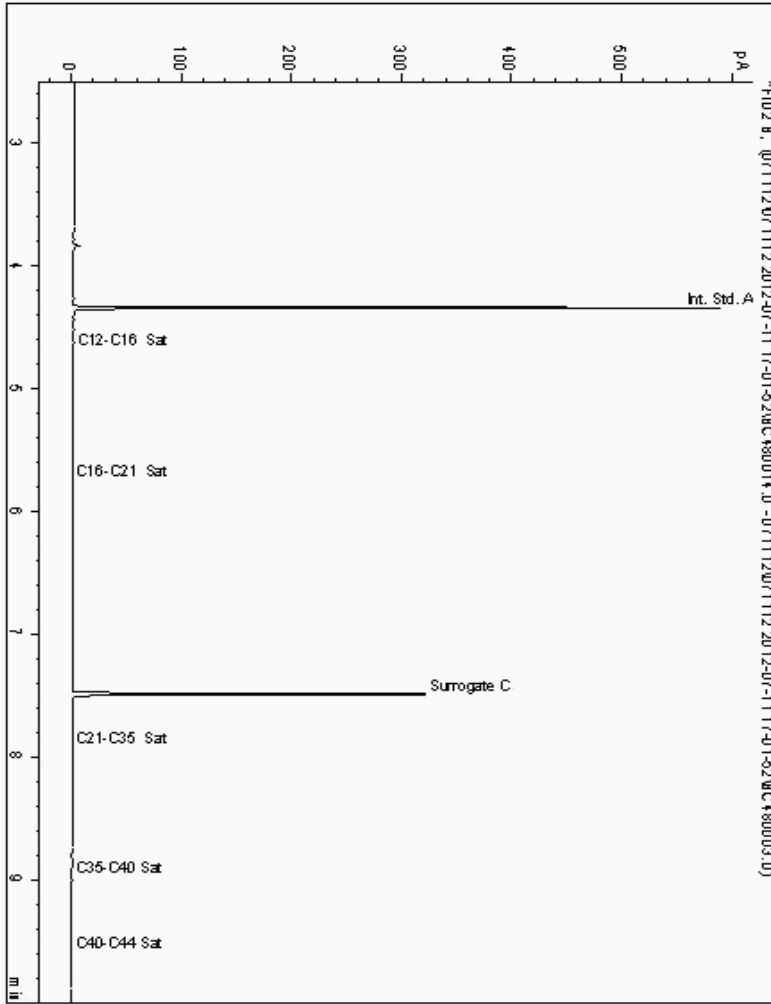
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5843403
Sample ID : 198416

Depth :

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

Sample Identity: 5688203-5843403
Date Acquired : 11/07/12 21:05:09
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

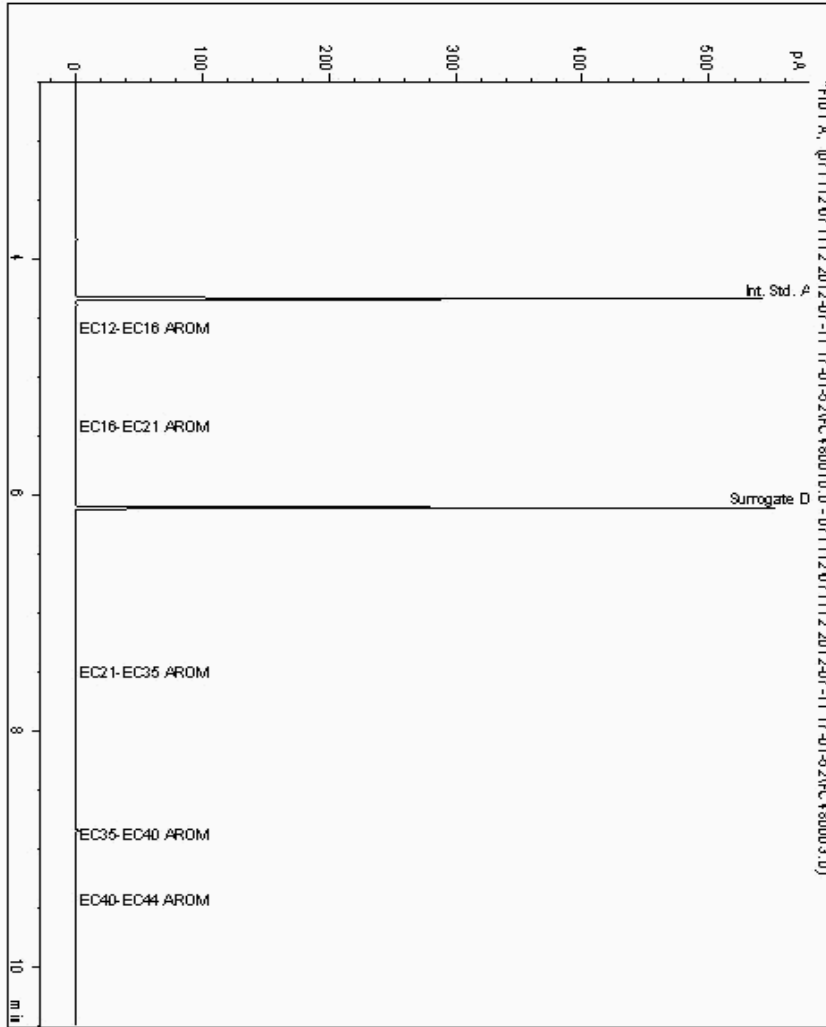
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841225
Sample ID : 923033

Depth :

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

Sample Identity: 5688178-5841225
Date Acquired : 11/07/12 19:49:21
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

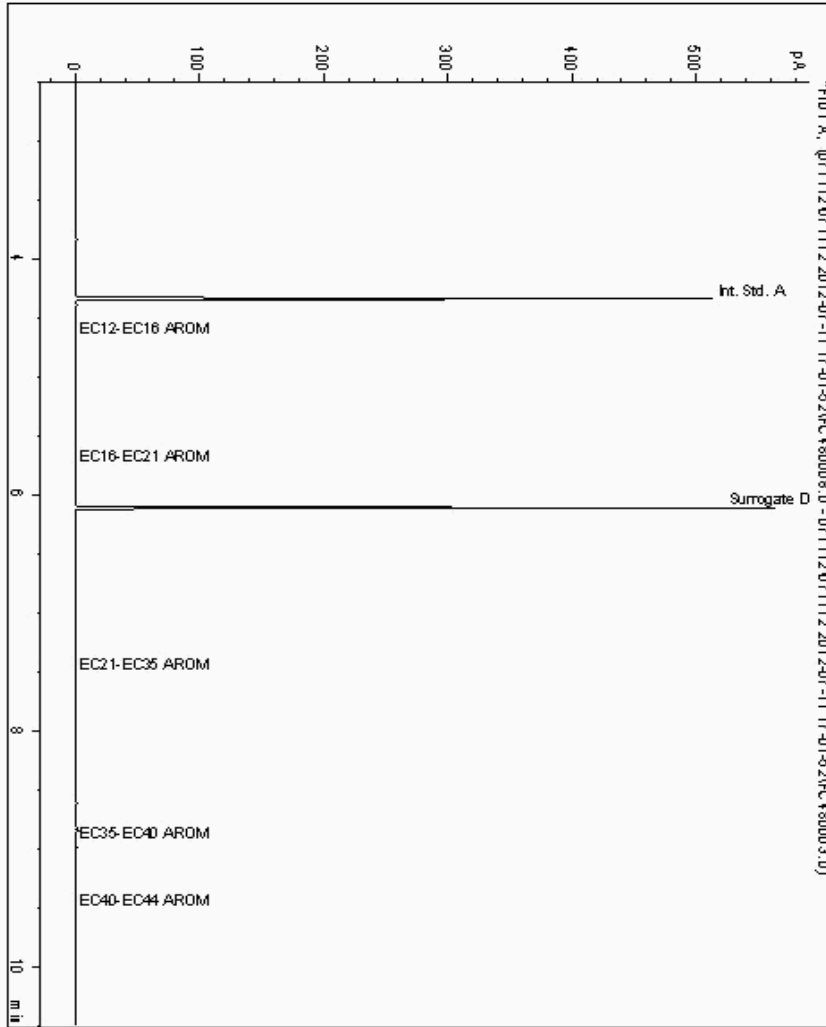
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841274
Sample ID : 435284

Depth :

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

Sample Identity: 5688120-5841274
Date Acquired : 11/07/12 19:11:35
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

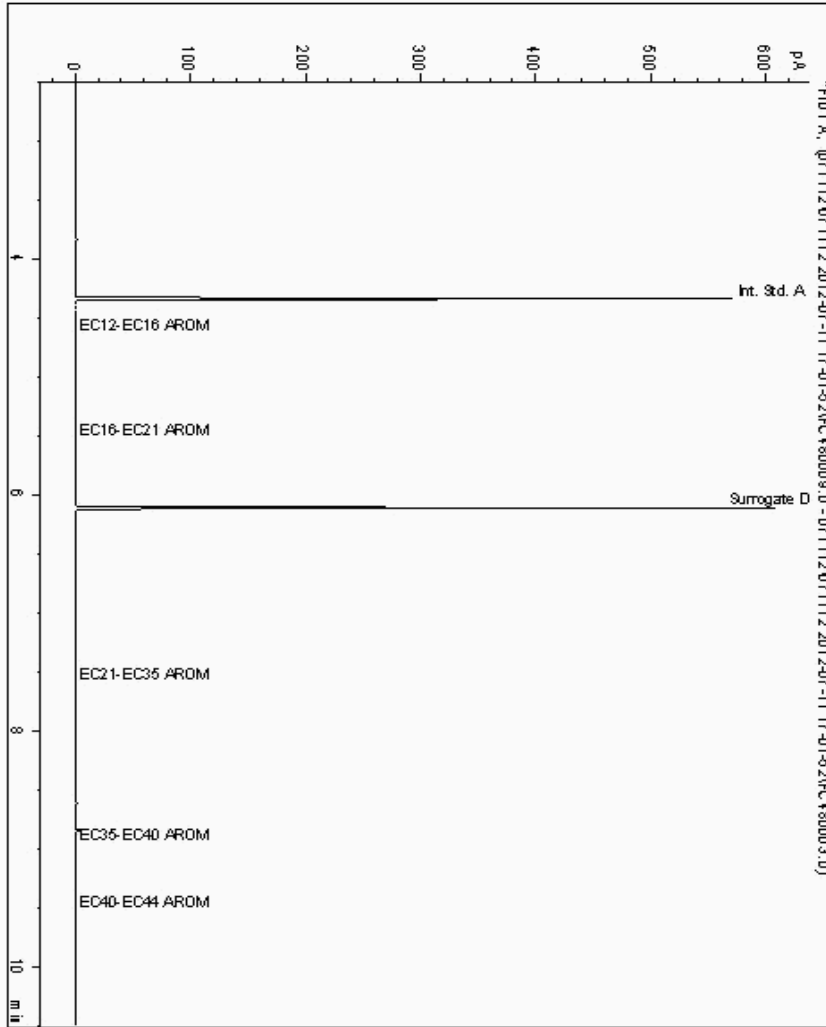
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841323
Sample ID : 254414

Depth :

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

Sample Identity: 5688067-5841323
Date Acquired : 11/07/12 19:30:35
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

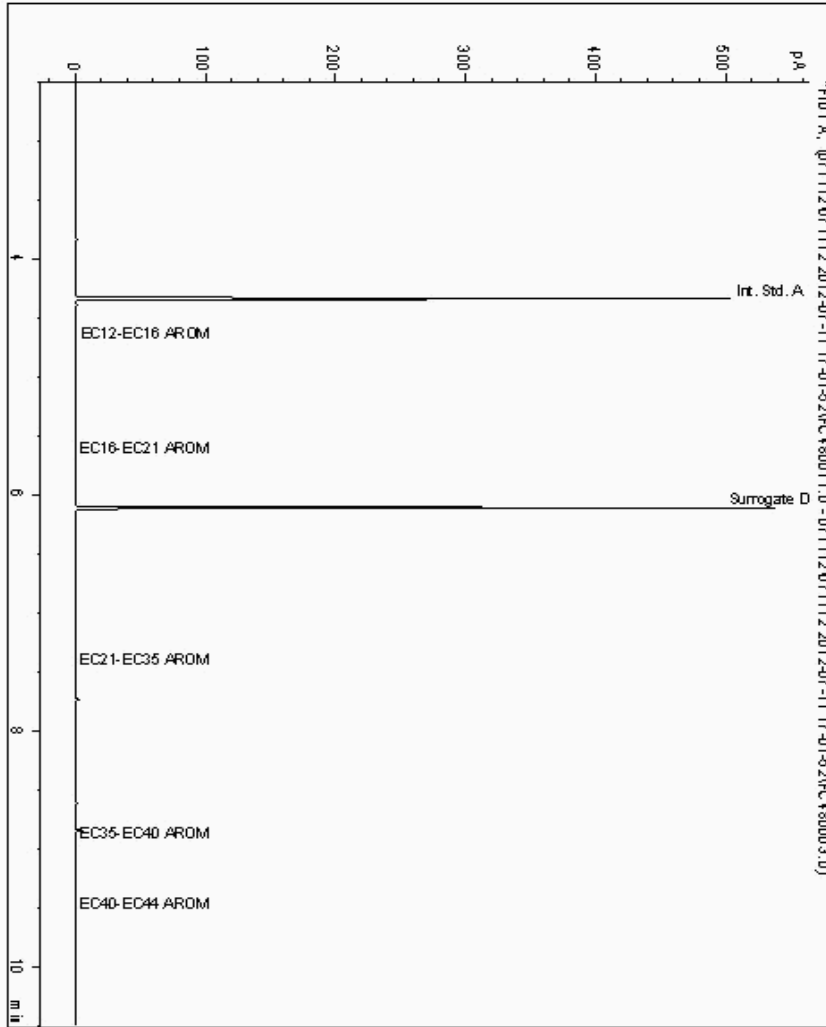
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841352
Sample ID : 325675

Depth :

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

Sample Identity: 5688094-5841352
Date Acquired : 11/07/12 20:08:12
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

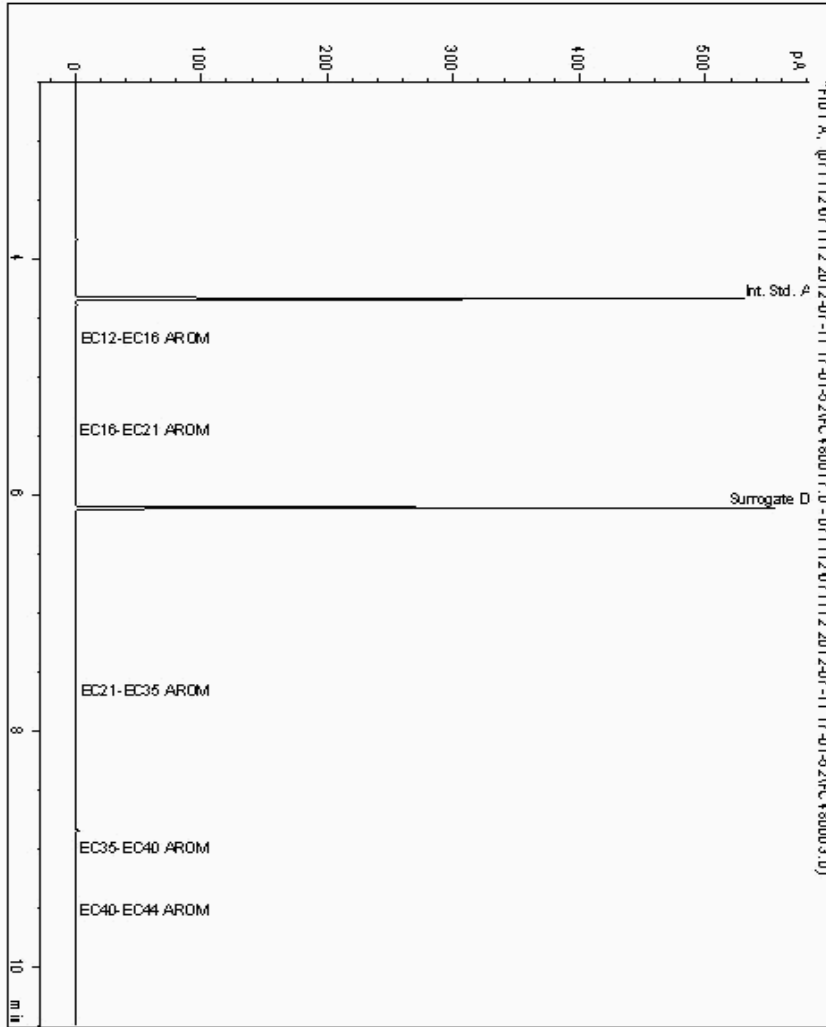
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5841384
Sample ID : 987451

Depth :

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

Sample Identity: 5688146-5841384
Date Acquired : 11/07/12 22:02:10
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

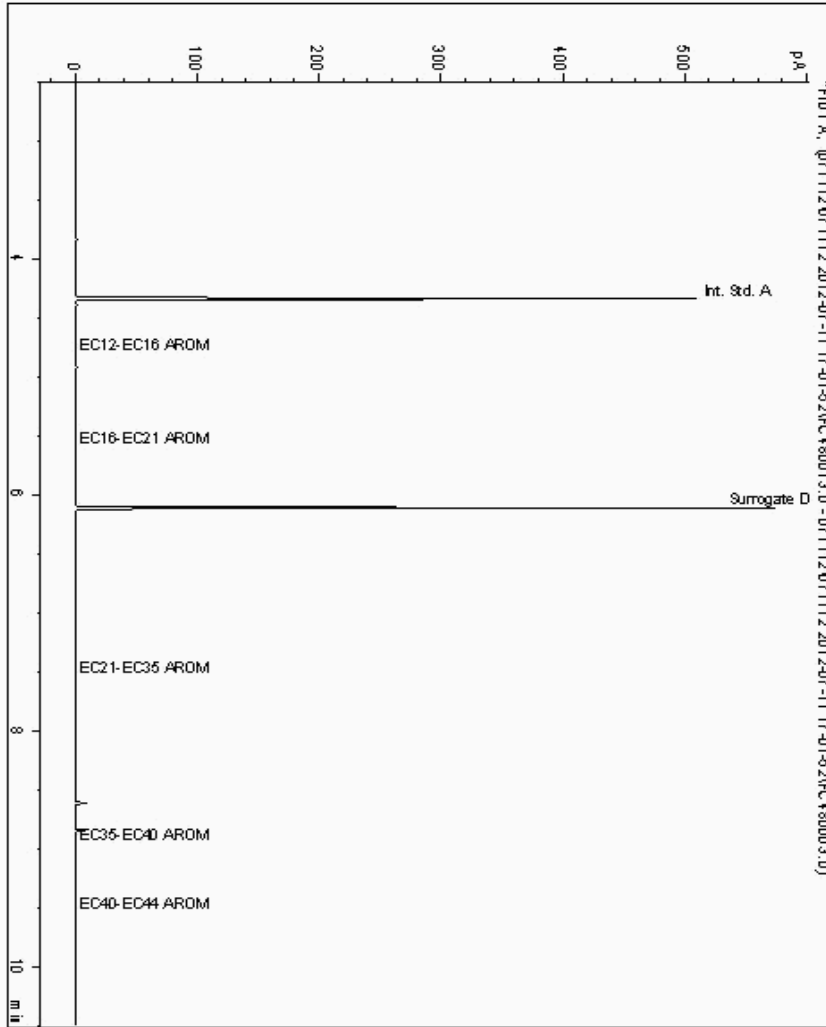
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5843255
Sample ID : 989321

Depth :

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

Sample Identity: 5688257-5843255
Date Acquired : 11/07/12 20:46:19
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

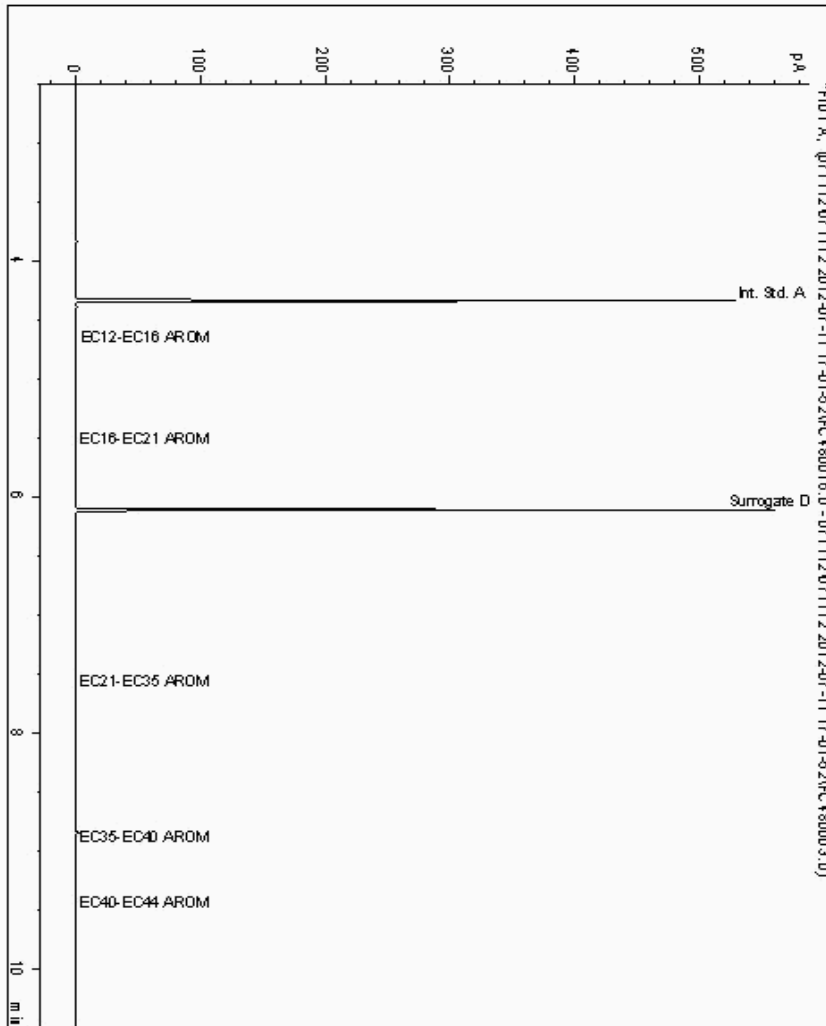
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5843314
Sample ID : 158877

Depth :

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

Sample Identity: 5689938-5843314
Date Acquired : 11/07/12 21:43:06
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

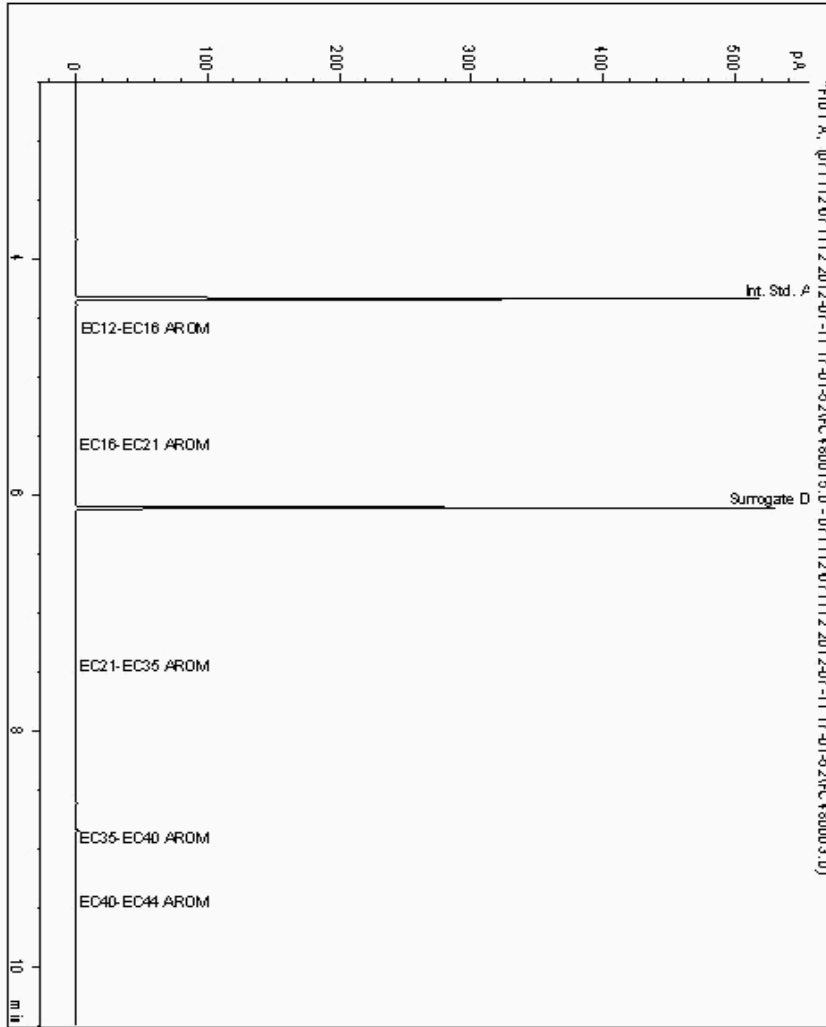
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5843344
Sample ID : 438131

Depth :

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

Sample Identity: 5688302-5843344
Date Acquired : 11/07/12 21:24:07
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
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Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

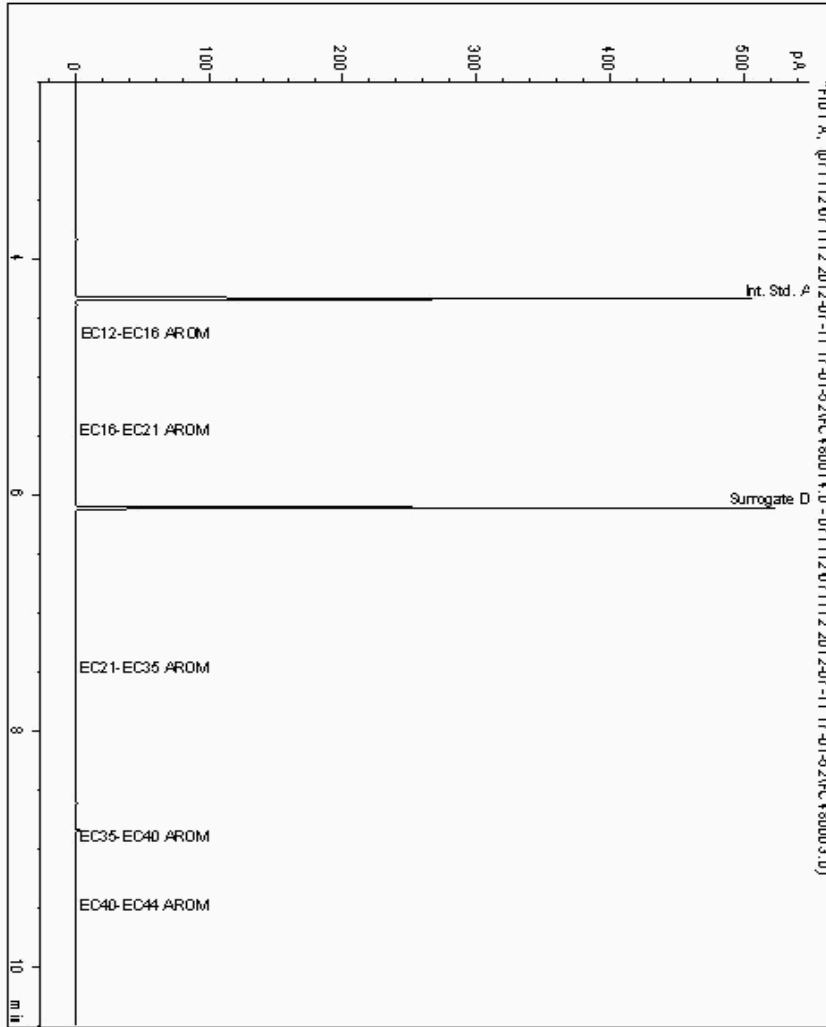
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5843403
Sample ID : 198416

Depth :

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

Sample Identity: 5688204-5843403
Date Acquired : 11/07/12 21:05:10
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

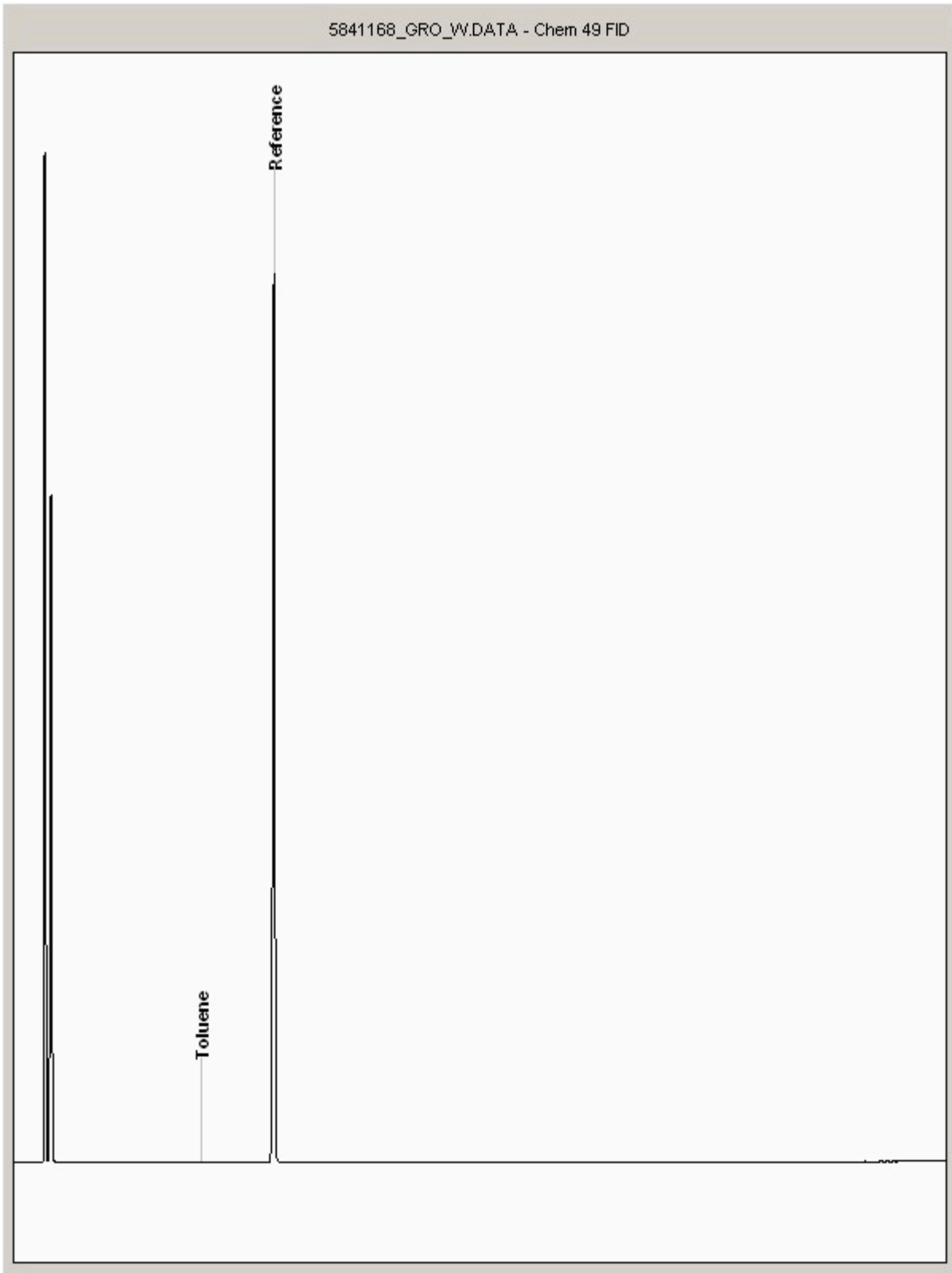
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841168
Sample ID : 198416

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

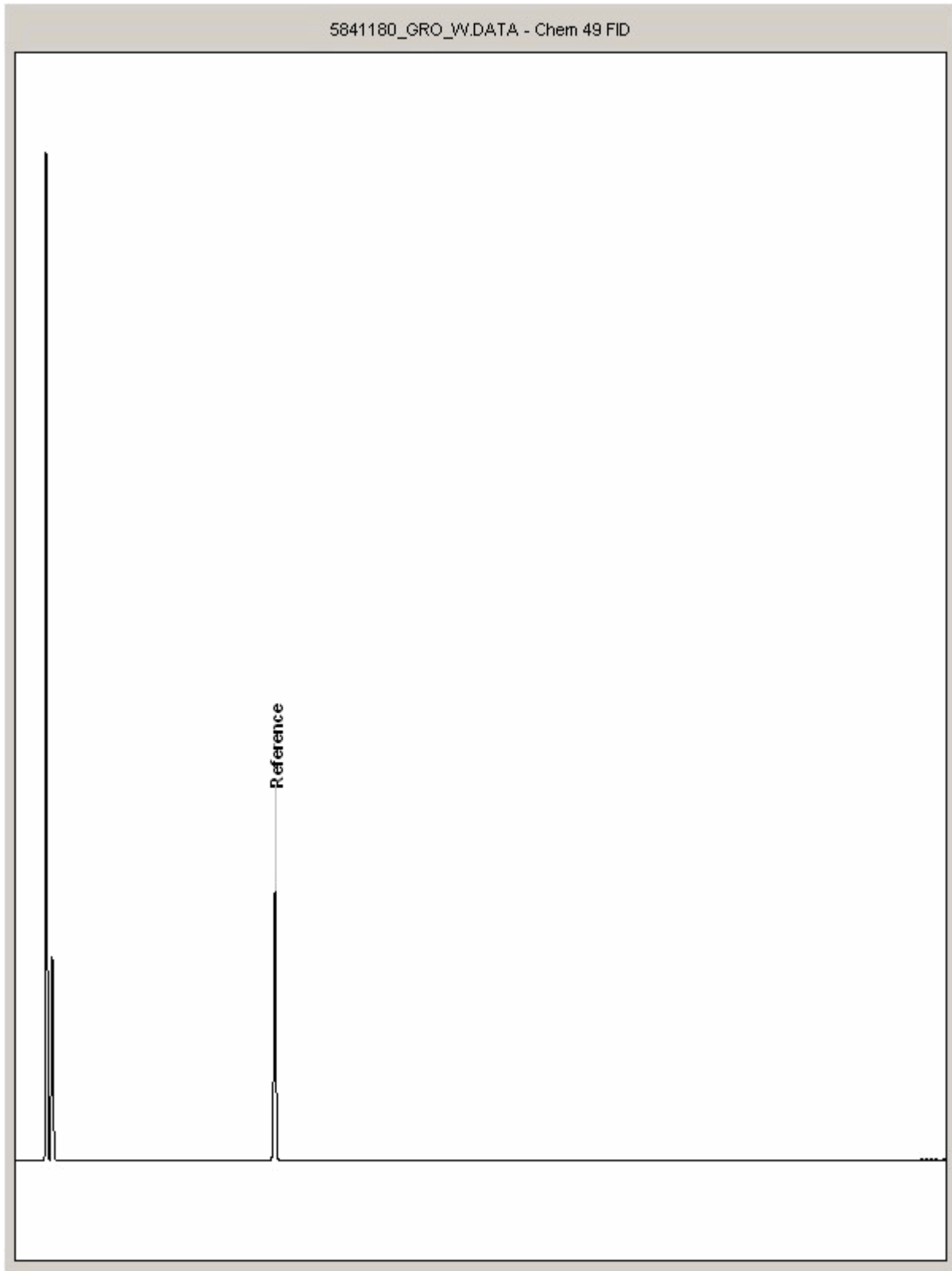
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841180
Sample ID : 158877

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

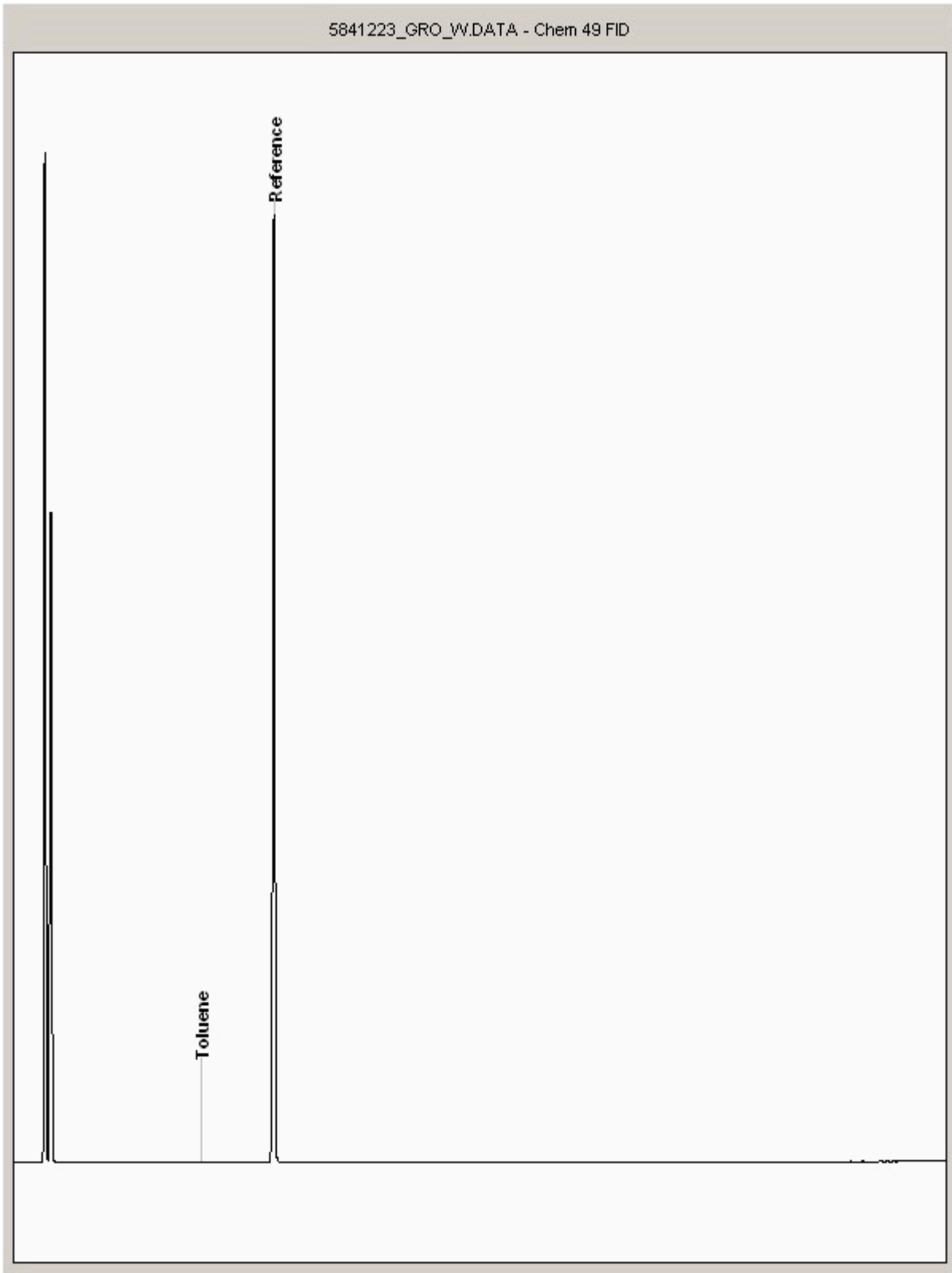
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841223
Sample ID : 435284

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

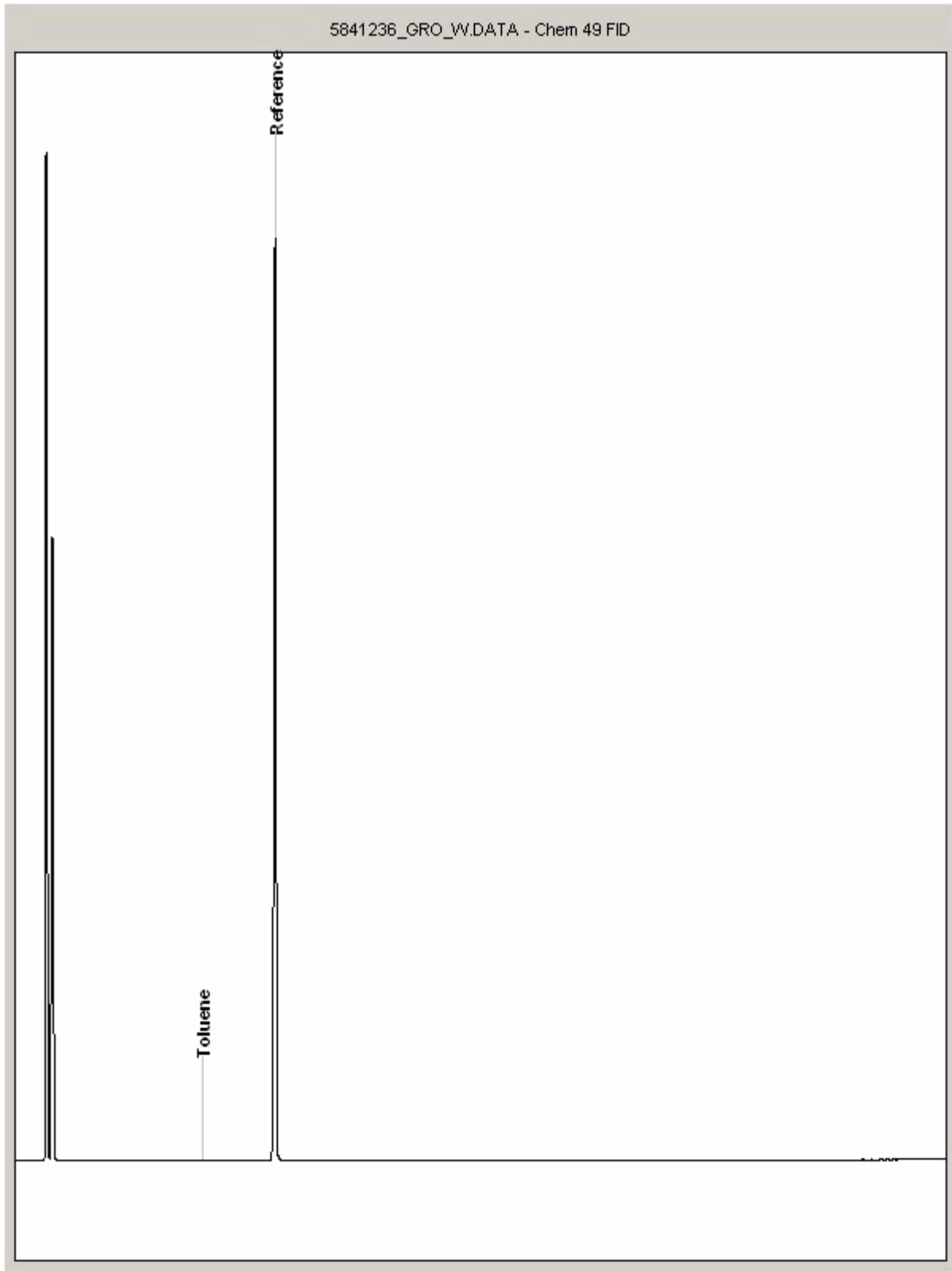
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841236
Sample ID : 987451

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

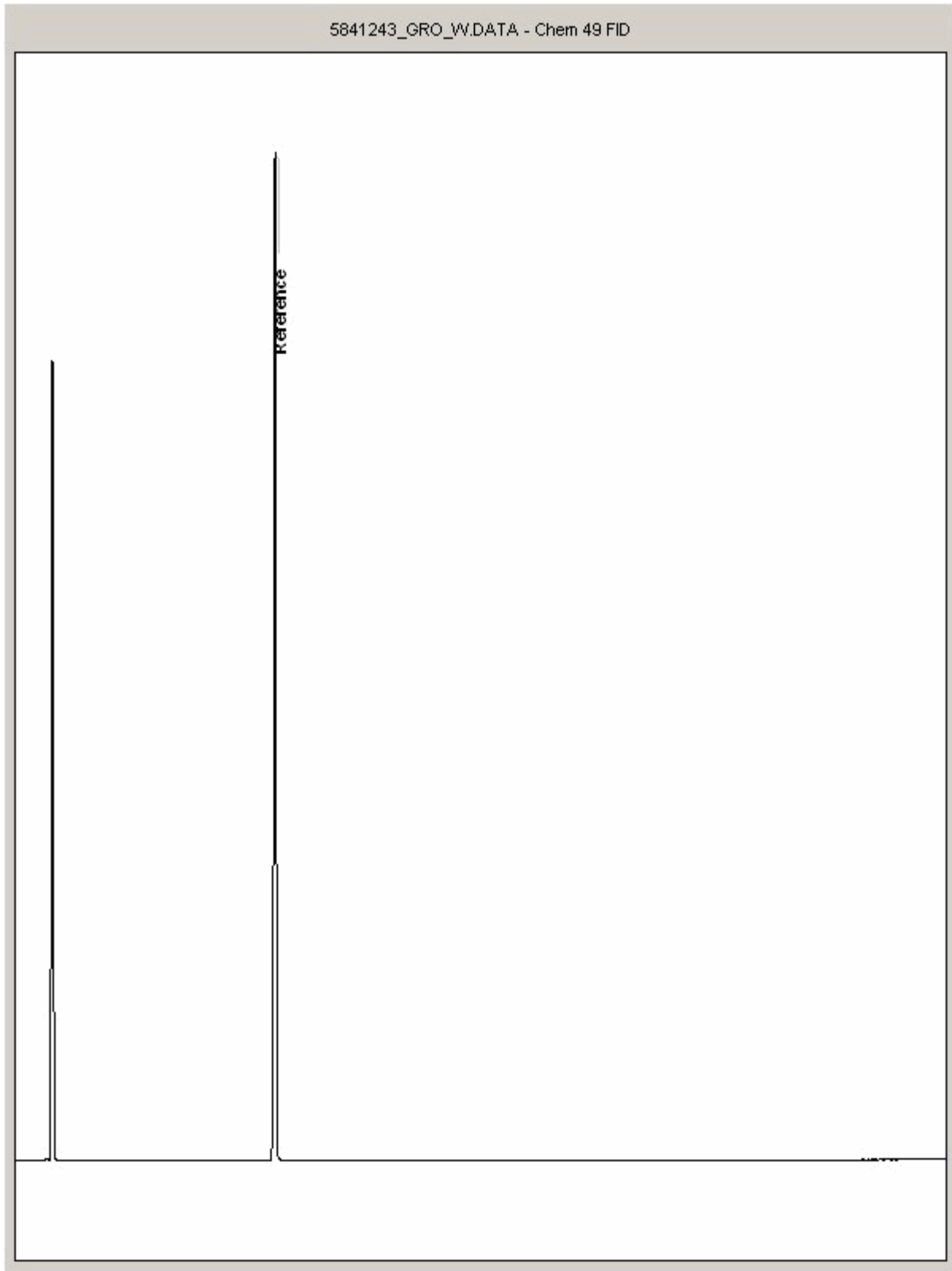
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841243
Sample ID : 438131

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

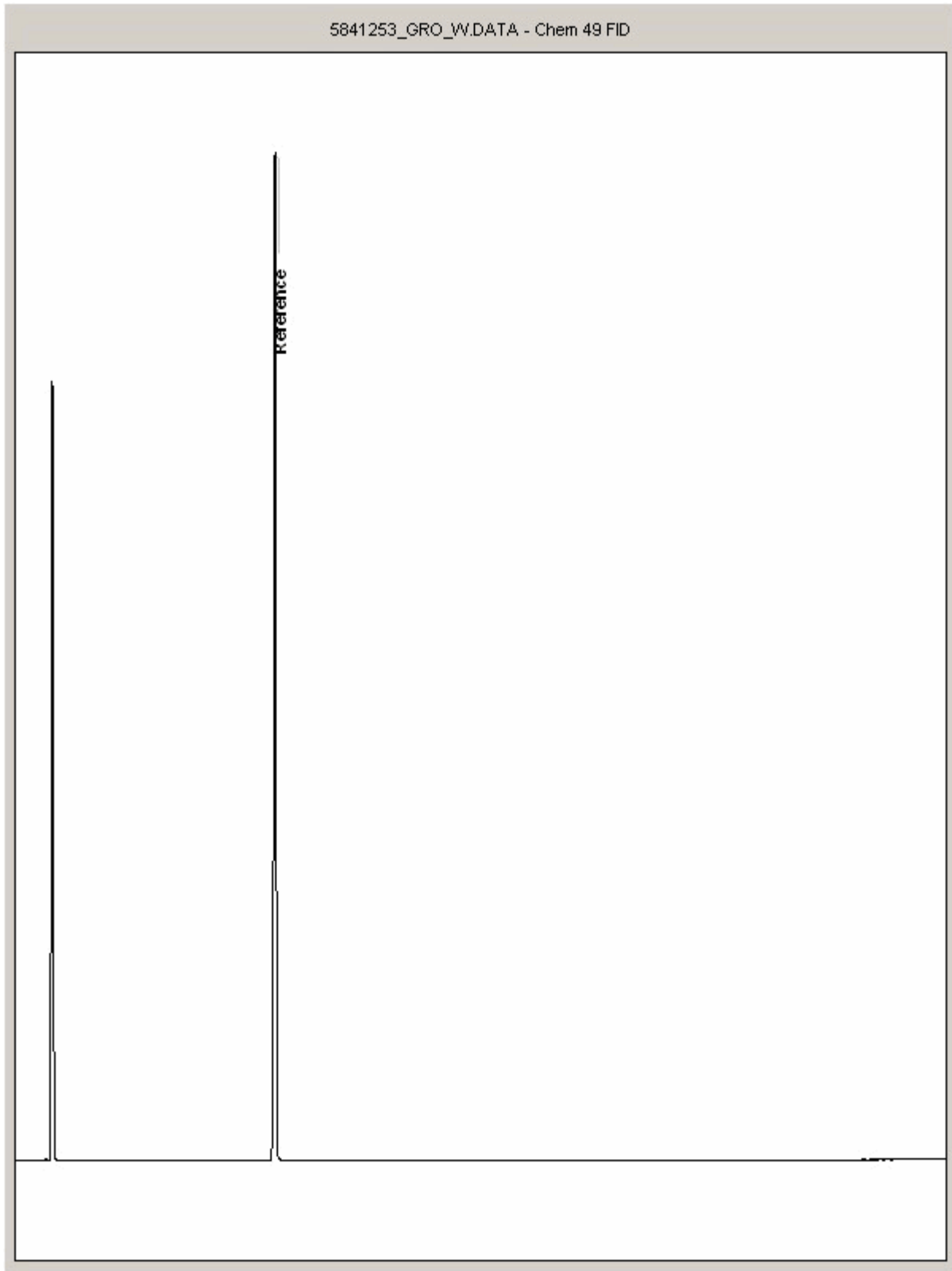
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841253
Sample ID : 254414

Depth :





SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

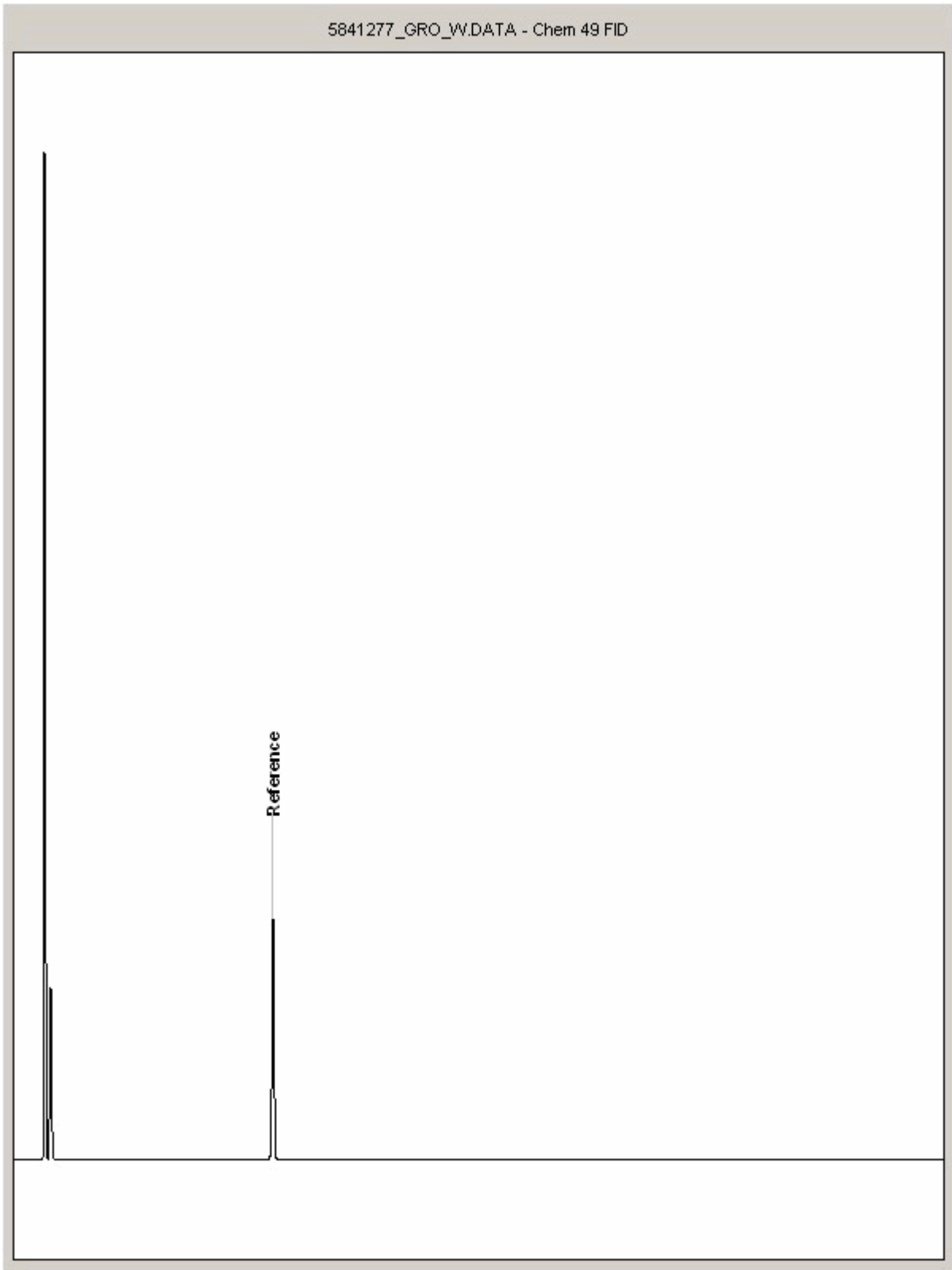
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841277
Sample ID : 989321

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

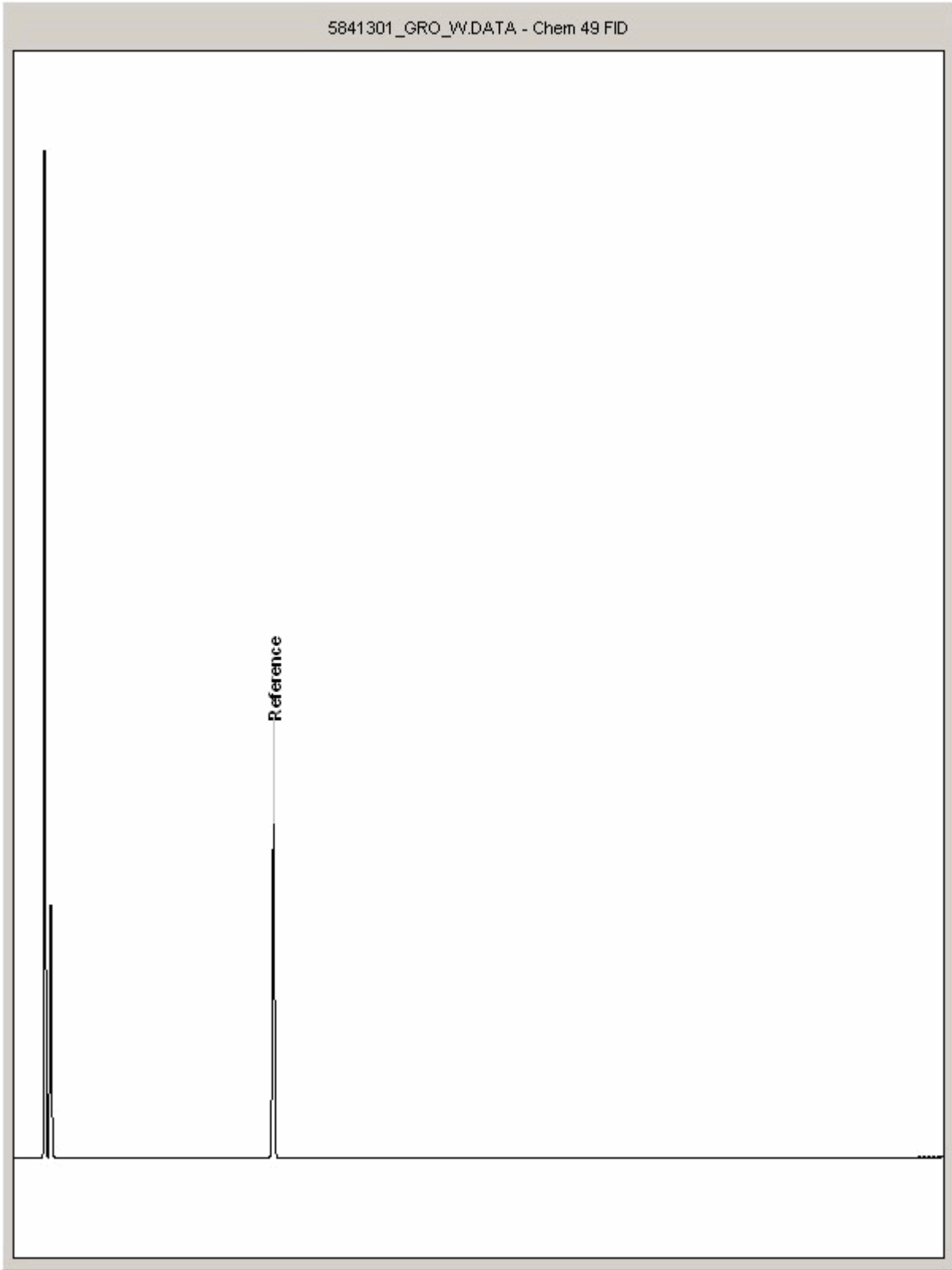
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841301
Sample ID : 923033

Depth :



SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

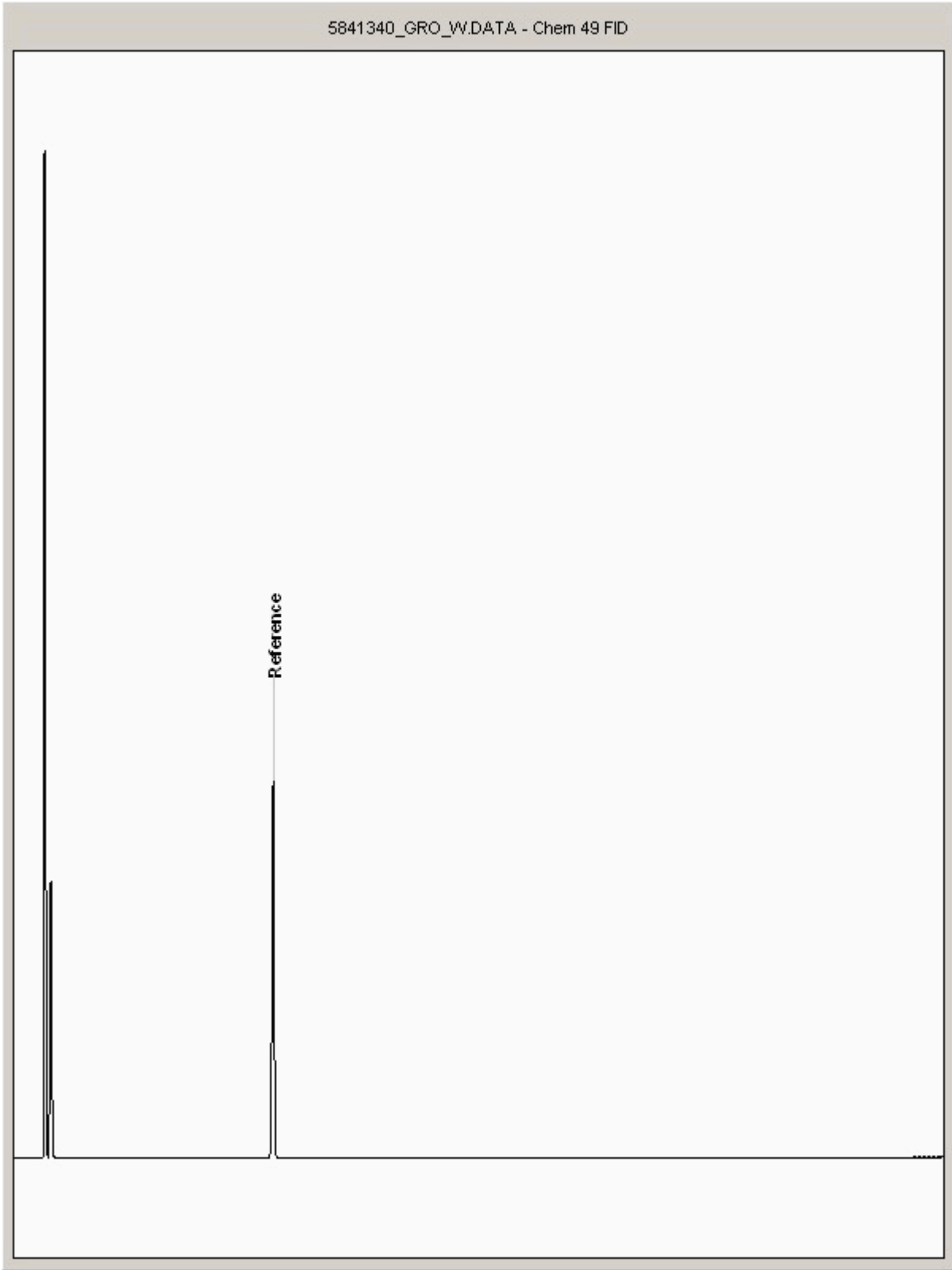
Order Number:
Report Number: 189312
Superseded Report: 188477

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5841340
Sample ID : 325675

Depth :



Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 8 samples described below.

Samples Registered on:	06-Jul-2012
Analysis Started on:	14-Jul-2012
Analysis Completed on:	17-Jul-2012
Results for Batch Number	20041435
Your Purchase Order Number:	150380

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Final Report

Report ID - 20041435 - 1

Batch description: Saline TOC Analysis

Reported on:
17-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001996149
Comments: 5839829 - 198416
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	17.1	mg/l	1	None	NM	1102

Final Report

Report ID - 20041435 - 1

Batch description: Saline TOC Analysis

Reported on:
17-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001996150
Comments: 5839897 - 438131
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	2.63	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996151
Comments: 5839898 - 325675
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	19.0	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996152
Comments: 5839907 - 254414
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	2.22	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996153
Comments: 5839937 - 435284
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	14.0	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996154
Comments: 5839945 - 989321
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	79.6	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996155
Comments: 5839955 - 987451
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)
Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	15.1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 001996156
Comments: 5839957 - 923033
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)
Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	105	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041435

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 1 samples described below.

Samples Registered on:	10-Jul-2012
Analysis Started on:	23-Jul-2012
Analysis Completed on:	24-Jul-2012
Results for Batch Number	20041525
Your Purchase Order Number:	150537

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Final Report

Report ID - 20041525 - 1

Batch description: 120705 - 45 TOC Saline

Reported on:
24-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 001998480
Comments: 5843065 - 158877
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 3-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	7.60	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041525

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

SDG: 120705-45
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 189312
Superseded Report: 188477

Appendix

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, 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 2 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.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DOM	SOX THERM	GCMS
HERBICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
PESTICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
EPH (DRO)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (MIN OIL)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (CLEANED UP)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH CWGBY GC	D&C	HEXANE ACETONE	END OVER END	GC FD
PCBAROCLOR 1254/PCBCON	D&C	HEXANE ACETONE	END OVER END	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE ACETONE	MICROWAVE TM218.	GCMS
>C6C40	WET	HEXANE ACETONE	SHAKER	GC FD
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE ACETONE	SHAKER	GC FD
SEMIVOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GCMS

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
PCB7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCBAROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVCC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by R	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FD

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description 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 Anorthophyllite	-
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.



Priority Geotechnical Ltd
Unit 12
Owenacurra Business Park
Midleton
Co Cork
Co Cork

Attention: Colette Kelly

CERTIFICATE OF ANALYSIS

Date: 19 September 2012
Customer: D_PRIORGEOT_CRK
Sample Delivery Group (SDG): 120706-80
Your Reference: P12030
Location: Haulbowline
Report No: 194771

We received 9 samples on Friday July 06, 2012 and 9 of these samples were scheduled for analysis which was completed on Wednesday September 19, 2012. 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: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5846142	261020			04/07/2012
5846139	266498			04/07/2012
5846145	534284			04/07/2012
5846138	770734			04/07/2012
5846147	798741			04/07/2012
5846144	832111			04/07/2012
5846146	963090			04/07/2012
5846141	966135			04/07/2012
5846140	987654			04/07/2012

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



SDG: 120706-80
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 194771
 Superseded Report:

LEACH Results Legend	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container										
						5846142	5846139	5846145	5846138	5846144	5846146	5846141	5846140		
X Test N No Determination Possible															
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
Anions by Kone (w)	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
BOD True Total	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
COD Unfiltered	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9					X	X	X	X	X	X	X	X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
Fluoride	All	NDPs: 0 Tests: 2							X					X	
Free Sulphur	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
GRO by GC-FID (W)	All	NDPs: 0 Tests: 9					X	X	X	X	X	X	X	X	X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 9				X	X	X	X	X	X	X	X	X	X



CERTIFICATE OF ANALYSIS

SDG: 120706-80
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 194771
 Superseded Report:

LEACH Results Legend Test No Determination Possible	Lab Sample No(s)	Customer Sample Reference	AGS Reference	Depth (m)	Container	
		5846142	261020			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle
		5846139	266498			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle
		5846145	534284			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle
		5846138	770734			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle
	5846144	832111			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle	
	5846146	963090			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle	
	5846141	966135			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle	
	5846140	987654			Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 11plastic (ALE221) 11 green glass bottle	
Nitrite by Kone (w)	All	NDPs: 0 Tests: 9				
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 9				
pH Value	All	NDPs: 0 Tests: 9				
Phenols by ms (w)	All	NDPs: 0 Tests: 6				
Saline TON	All	NDPs: 0 Tests: 9				
Sulphide	All	NDPs: 0 Tests: 9				
TOC (Saline)*	All	NDPs: 0 Tests: 9				
TPH CWG (W)	All	NDPs: 0 Tests: 9				
VOC MS (W)	All	NDPs: 0 Tests: 5				



SDG: 120706-80
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 194771
 Superseded Report:

LEACH Results Legend X Test N No Determination Possible	Lab Sample No(s)	5846147				
	Customer Sample Reference	798741				
	AGS Reference					
	Depth (m)					
	Container	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1(l)plastic (ALE221) 1l green glass bottle				
Alkalinity as CaCO3	All	NDPs: 0 Tests: 1	X			
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 9		X		
Anions by Kone (w)	All	NDPs: 0 Tests: 9	X			
BOD True Total	All	NDPs: 0 Tests: 9	X			
COD Unfiltered	All	NDPs: 0 Tests: 9	X			
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 9	X			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 9			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 9	X			
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	X			
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 9	X			
Free Sulphur	All	NDPs: 0 Tests: 9	X			
GRO by GC-FID (W)	All	NDPs: 0 Tests: 9				X
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 9	X			
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 9	X			
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 9	X			



SDG: 120706-80
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 194771
 Superseded Report:

LEACH Results Legend X Test N No Determination Possible	Lab Sample No(s)	5846147			
	Customer Sample Reference	798741			
	AGS Reference				
	Depth (m)				
	Container	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1(l)plastic (ALE221) 1l green glass bottle			
Nitrite by Kone (w)	All	NDPs: 0 Tests: 9			X
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 9	X		
pH Value	All	NDPs: 0 Tests: 9	X		
Saline TON	All	NDPs: 0 Tests: 9	X		
Sulphide	All	NDPs: 0 Tests: 9	X		
TOC (Saline)*	All	NDPs: 0 Tests: 9	X		
TPH CWG (W)	All	NDPs: 0 Tests: 9	X		



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Results Legend		Customer Sample R	261020	266498	534284	770734	798741	832111
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
M	mCERTS accredited.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
S	Deviating sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012
aq	Aqueous / settled sample.		120706-80	120706-80	120706-80	120706-80	120706-80	120706-80
diss.filt	Dissolved / filtered sample.		5846142	5846139	5846145	5846138	5846147	5846144
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							
Component	LOD/Units	Method						
TOC (Saline)*	<1 mg/l	SUB	40.9	<1	<1	3.11	<1	50.3
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043					<5	
BOD, unfiltered	<1 mg/l	TM045	17.5	<5	<2	<2	<2	17.7
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	2.26	2	<0.2	3.28	3.06	2.52
Sulphide	<0.01 mg/l	TM101	<0.01	0.014	<0.01	<0.01	<0.01	<0.01
Fluoride	<0.5 mg/l	TM104				<0.5		
COD, unfiltered	<7 mg/l	TM107	506	464	386	568	355	466
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	30.7	42.6	41.9	41.3	42.5	30.9
Barium (diss.filt)	<0.03 µg/l	TM152	170	54.9	3.12	106	23.1	183
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.7	1.86	<0.07	<0.7	<0.07	<0.7
Cobalt (diss.filt)	<0.06 µg/l	TM152				1.18		
Molybdenum (diss.filt)	<0.24 µg/l	TM152				17.6		
Phosphorus (diss.filt)	<6.3 µg/l	TM152				<63		
Thallium (diss.filt)	<0.96 µg/l	TM152				<9.6		
Tin (diss.filt)	<0.36 µg/l	TM152				9.32		
Nitrite as NO2	<0.05 mg/l	TM184	0.232	1.1	<0.05	<0.05	1.5	0.248
Sulphate	<2 mg/l	TM184	1300	2350	2190	2170	2320	1300
Chloride	<2 mg/l	TM184	13200	17800	17500	17200	18000	12600
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	0.02
PCB congener 52	<0.015 µg/l	TM197	0.03	<0.015	<0.015	<0.015	<0.015	0.05
PCB congener 101	<0.015 µg/l	TM197	0.03	<0.015	<0.015	<0.015	<0.015	0.05
PCB congener 118	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015	<0.015	0.04
PCB congener 138	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015	<0.015	0.04
PCB congener 153	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015	<0.015	0.03
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	0.13	<0.105	<0.105	<0.105	<0.105	0.23
Phenol	<0.5 µg/l	TM205	9.89		<2.8	<3		9.51
2-methylphenol	<0.5 µg/l	TM205	1.31		<0.5	<0.5		1.25
3-methylphenol	<0.5 µg/l	TM205	3.81		<0.5	<0.5		3.58
4-methylphenol	<0.5 µg/l	TM205	6.76		<0.5	<0.5		3.47
2-chlorophenol	<0.5 µg/l	TM205	1.13		<0.5	<0.5		<0.5
2,4-dimethylphenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		1.03
4-chloro-3-methylphenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
2,6-dichlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5
4-Chlorophenol	<0.5 µg/l	TM205	<0.5		<0.5	<0.5		<0.5



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Results Legend			Customer Sample R		261020	266498	534284	770734	798741	832111
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference							
M	mCERTS accredited.			Saline D	Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.			04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
aq	Aqueous / settled sample.			06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012
diss.filt	Dissolved / filtered sample.			120706-80	120706-80	120706-80	120706-80	120706-80	120706-80	120706-80
tot.unfilt	Total / unfiltered sample.			5846142	5846139	5846145	5846138	5846147	5846144	5846144
**	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									
Component	LOD/Units	Method								
2,4-dichlorophenol	<0.5 µg/l	TM205			<0.5		<0.5		<0.5	
2-nitrophenol	<0.5 µg/l	TM205			<0.5		<0.5		<0.5	
2,4,6-trichlorophenol	<0.5 µg/l	TM205			<0.5		<0.5		<0.5	
2,4,5-trichlorophenol	<0.5 µg/l	TM205			<0.5		<0.5		<0.5	
4-nitrophenol	<0.5 µg/l	TM205			<0.5		<0.5		<0.5	
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205			<0.5		<0.5		<0.5	
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205			<0.5		<0.5		<0.5	
2,4-dinitrophenol	<2.5 µg/l	TM205			<5		<2.5		<5	
DNOC	<3 µg/l	TM205			<6		<3		<6	
Pentachlorophenol	<2 µg/l	TM205			<2		<2		<2	
Dinoseb	<4 µg/l	TM205			<8		<4		<8	
Cyanide, Total	<0.05 mg/l	TM227			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Free	<0.05 mg/l	TM227			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cyanide, Complex	<0.05 mg/l	TM227			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Thiocyanate	<0.05 mg/l	TM227			<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium (diss.filt)	<0.012 mg/l	TM228			1530	445	485	485	425	1750
Sodium (diss.filt)	<0.076 mg/l	TM228			8270	10300	9300	9890	9840	7100
Magnesium (diss.filt)	<0.036 mg/l	TM228			27.8	1030	992	909	1070	0.845
Potassium (diss.filt)	<2.335 mg/l	TM228			305	362	299	338	360	278
Chromium, Hexavalent	<0.03 mg/l	TM241			<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
pH	<1 pH Units	TM256			10.4	8.02	7.54	8.6	7.82	11.4
Arsenic (Saline)	<0.5 µg/l	TM270			3.11	1.51	2.47	2.16	2.44	3.06
Aluminium (Saline)	<3.7 µg/l	TM270			69.9	60.7	44.7	54.3	139	36.4
Antimony (Saline)	<1 µg/l	TM270			1.46	<1	<1	<1	<1	1.55
Boron (Saline)	<201 µg/l	TM270			560	2740	2150	2310	3100	505
Cadmium (Saline)	<0.15 µg/l	TM270			<0.15	<0.15	0.904	<0.15	1.42	<0.15
Chromium (Saline)	<1.5 µg/l	TM270			4.91	4.32	6	3.7	3.87	5.46
Copper (Saline)	<1 µg/l	TM270			146	1.45	<1	<1	1.65	249
Iron (Saline)	<4 µg/l	TM270			<4	<4	<4	<4	<4	<4
Lead (Saline)	<0.2 µg/l	TM270			7.79	<0.2	<0.2	<0.2	<0.2	64.2
Manganese (Saline)	<0.3 µg/l	TM270			<0.3	1370	59.7	727	850	<0.3
Mercury (Saline)	<0.15 µg/l	TM270			<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Nickel (saline)	<1.1 µg/l	TM270			41.4	18.5	5.29	5.21	24.1	50.1
Selenium (Saline)	<0.5 µg/l	TM270			1.15	0.516	0.548	<0.5	<0.5	1.54
Vanadium (Saline)	<4 µg/l	TM270			22.7	26.1	39.6	29.2	37.2	14



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Table with columns for Results Legend, Customer Sample R, and various sample IDs (261020, 266498, 534284, 770734, 798741, 832111). Rows include components like Zinc (Saline), Saline TON as NO3, Saline Nitrate as NO3, and Sulphur, Free, with associated LOD/Units and Method columns.



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Results Legend		Customer Sample R	963090	966135	987654		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference					
M	mCERTS accredited.		Saline D	Saline D	Saline D		
S	Deviating sample.		04/07/2012	04/07/2012	04/07/2012		
aq	Aqueous / settled sample.						
diss.filt	Dissolved / filtered sample.		06/07/2012	06/07/2012	06/07/2012		
tot.unfilt	Total / unfiltered sample.		120706-80	120706-80	120706-80		
**	Subcontracted test.		5846146	5846141	5846140		
	% 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						
Component	LOD/Units		Method				
TOC (Saline)*	<1 mg/l	SUB	3.16	<1	278		
BOD, unfiltered	<1 mg/l	TM045	<2	<2	18.4		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	2.99	<0.2	0.447		
Sulphide	<0.01 mg/l	TM101	<0.01	<0.01	<0.01		
Fluoride	<0.5 mg/l	TM104			<0.5		
COD, unfiltered	<7 mg/l	TM107	283	624	1220		
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	37.6	38.3	31		
Barium (diss.filt)	<0.03 µg/l	TM152	121	12.7	114		
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.7	<0.07		
Cobalt (diss.filt)	<0.06 µg/l	TM152			1.41		
Molybdenum (diss.filt)	<0.24 µg/l	TM152			51.5		
Phosphorus (diss.filt)	<6.3 µg/l	TM152			<6.3		
Thallium (diss.filt)	<0.96 µg/l	TM152			<0.96		
Tin (diss.filt)	<0.36 µg/l	TM152			<0.36		
Nitrite as NO2	<0.05 mg/l	TM184	<0.05	<0.05	0.464		
Sulphate	<2 mg/l	TM184	2250	2150	1610		
Chloride	<2 mg/l	TM184	16900	17600	13100		
PCB congener 28	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 118	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105		
Phenol	<0.5 µg/l	TM205		<2.8	<2.8		
2-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
4-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
2-chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5		
2,4-dimethylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
4-chloro-3-methylphenol	<0.5 µg/l	TM205		<0.5	<0.5		
2,6-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5		
4-Chlorophenol	<0.5 µg/l	TM205		<0.5	<0.5		
2,4-dichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5		



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Results Legend			Customer Sample R			963090	966135	987654		
#	ISO17025 accredited.		Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Saline D	Saline D	Saline D				
M	mCERTS accredited.			04/07/2012	04/07/2012	04/07/2012				
S	Deviating sample.			06/07/2012	06/07/2012	06/07/2012				
aq	Aqueous / settled sample.			120706-80	120706-80	120706-80				
diss.filt	Dissolved / filtered sample.			5846146	5846141	5846140				
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									
Component	LOD/Units	Method								
2-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,4,6-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,4,5-trichlorophenol	<0.5 µg/l	TM205		<0.5	<0.5					
4-nitrophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205		<0.5	<0.5					
2,4-dinitrophenol	<2.5 µg/l	TM205		<5	<5					
DNOC	<3 µg/l	TM205		<6	<6					
Pentachlorophenol	<2 µg/l	TM205		<2	<2					
Dinoseb	<4 µg/l	TM205		<8	<8					
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05					
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05					
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05					
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05					
Calcium (diss.filt)	<0.012 mg/l	TM228	551	622	837					
Sodium (diss.filt)	<0.076 mg/l	TM228	9730	13600	7330					
Magnesium (diss.filt)	<0.036 mg/l	TM228	934	1280	382					
Potassium (diss.filt)	<2.335 mg/l	TM228	354	384	274					
Chromium, Hexavalent	<0.03 mg/l	TM241	<0.03 #	<0.03 #	<0.03 #					
pH	<1 pH Units	TM256	8.56	7.71	9.68					
Arsenic (Saline)	<0.5 µg/l	TM270	2.87 #	2.07 #	2.43 #					
Aluminium (Saline)	<3.7 µg/l	TM270	43.4 #	50.3 #	40.5 #					
Antimony (Saline)	<1 µg/l	TM270	<1 #	<1 #	3.43 #					
Boron (Saline)	<201 µg/l	TM270	2130 #	2140 #	1420 #					
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15 #	0.636 #	<0.15 #					
Chromium (Saline)	<1.5 µg/l	TM270	4.38 #	4.59 #	4.85 #					
Copper (Saline)	<1 µg/l	TM270	<1 #	<1 #	6.66 #					
Iron (Saline)	<4 µg/l	TM270	<4 #	<4 #	<4 #					
Lead (Saline)	<0.2 µg/l	TM270	<0.2 #	<0.2 #	1.23 #					
Manganese (Saline)	<0.3 µg/l	TM270	709 #	128 #	<0.3 #					
Mercury (Saline)	<0.15 µg/l	TM270	<0.15 #	<0.15 #	<0.15 #					
Nickel (saline)	<1.1 µg/l	TM270	5.06 #	6.69 #	7.59 #					
Selenium (Saline)	<0.5 µg/l	TM270	1.22 #	<0.5 #	1.26 #					
Vanadium (Saline)	<4 µg/l	TM270	37.8 #	36.1 #	33.7 #					
Zinc (Saline)	<2.1 µg/l	TM270	<2.1 #	13.4 #	<2.1 #					



CERTIFICATE OF ANALYSIS

Validated

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Table with columns for Results Legend, Customer Sample R, and data columns for samples 963090, 966135, and 987654. Includes rows for Saline TON as NO3, Saline Nitrate as NO3, and Sulphur, Free.



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

TPH CWG (W)

Table with 9 columns for sample IDs (261020, 266498, 534284, 770734, 798741, 832111) and rows for various chemical components like GRO Surrogate %, Methyl tertiary butyl ether (MTBE), Benzene, Toluene, Ethylbenzene, etc.



SDG: 120706-80
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 194771
 Superseded Report:

TPH CWG (W)

Results Legend		Customer Sample R	963090	966135	987654				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference							
M	mCERTS accredited.								
S	Deviating sample.								
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								
				Saline D 04/07/2012	Saline D 04/07/2012	Saline D 04/07/2012			
				06/07/2012 120706-80 5846146	06/07/2012 120706-80 5846141	06/07/2012 120706-80 5846140			
Component	LOD/Units	Method							
GRO Surrogate % recovery**	%	TM245	128	111	117				
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50				
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3				
Benzene	<7 µg/l	TM245	<7	<7	<7				
Toluene	<4 µg/l	TM245	<4	<4	<4				
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5				
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8				
o-Xylene	<3 µg/l	TM245	<3	<3	<3				
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11				
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28				
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10				
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10				
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10				
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10				
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10				
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	<10	<10	<10				
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	<10	<10	<10				
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	<10	<10	<10				
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10				
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10				
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10				
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10				
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10				
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	<10	<10	<10				
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10				
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	<10	<10	<10				
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	<10	<10	16				



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

VOC MS (W)

Results Legend		Customer Sample R	261020	534284	832111	966135	987654	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
aq	Aqueous / settled sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012
diss.filt	Dissolved / filtered sample.		120706-80	120706-80	120706-80	120706-80	120706-80	120706-80
tot.unfilt	Total / unfiltered sample.		5846142	5846145	5846144	5846141	5846140	5846140
*	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							
Component	LOD/Units		Method					
Dibromofluoromethane**	%	TM208	97.8	100	2.78	99.8	105	
Toluene-d8**	%	TM208	102	101	99.5	100	101	
4-Bromofluorobenzene**	%	TM208	98.4	101	96	97.1	97.8	
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3	<3	
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1	<1	
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Benzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Toluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	



CERTIFICATE OF ANALYSIS

SDG: 120706-80
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number: 4559
 Report Number: 194771
 Superseded Report:

VOC MS (W)

Results Legend		Customer Sample R	261020	534284	832111	966135	987654	
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D	Saline D	Saline D
S	Deviating sample.		04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012	04/07/2012
aq	Aqueous / settled sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012	06/07/2012
diss.fit	Dissolved / filtered sample.		120706-80	120706-80	120706-80	120706-80	120706-80	120706-80
tot.unfit	Total / unfiltered sample.		5846142	5846145	5846144	5846141	5846140	5846140
**	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							
Component	LOD/Units		Method					
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	<1	
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	<1	



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Notification of Deviating Samples

Sample Number	Customer Sample Ref.	Depth (m)	Matrix	Test Name	Component Name	Comment
5958792	798741		SALINE_D	Alkalinity as CaCO3	Saline Carbonate Alkalinity as CaCO3	Sample holding time exceeded

Note : Test results may be compromised



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
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Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM270	Thermo Electron Application Note AN_E0640: X Series ICP-MS: Using automated collision cell ICP-MS with rapid in-sample switching to achieve ultimate performance in environmental analysis.	Dissolved Metals in Saline Matrices by CCT ICP-MS		
TM281		The Determination of Total Oxidized Nitrogen in Saline Matrices using the Kone Spectrophotometric Analysers		
TM294		Determination of Free Sulphur in liquids by HPLC		

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



SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Test Completion Dates

Lab Sample No(s)	5846142	5846139	5846145	5846138	5846147	5846144	5846146	5846141	5846140
Customer Sample Ref.	261020	266498	534284	770734	798741	832111	963090	966135	987654
AGS Ref.									
Depth									
Type	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D	SALINE_D
Alkalinity as CaCO3					31-Jul-2012				
Ammoniacal Nitrogen	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012
Anions by Kone (w)	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012	16-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012
BOD True Total	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
COD Unfiltered	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Conductivity (at 20 deg.C)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Cyanide Comp/Free/Total/Thiocyanate	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Dissolved Metals by ICP-MS	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
EPH CWG (Aliphatic) Aqueous GC (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
EPH CWG (Aromatic) Aqueous GC (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
Fluoride				11-Jul-2012					11-Jul-2012
Free Sulphur	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
GRO by GC-FID (W)	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012	10-Jul-2012
Hexavalent Chromium (w)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Metals analysis (Saline Sample)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Metals by iCap-OES Dissolved (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Nitrite by Kone (w)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
PCB Congeners - Aqueous (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
pH Value	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012	13-Jul-2012	11-Jul-2012
Phenols by ms (w)	16-Jul-2012		16-Jul-2012	19-Sep-2012		16-Jul-2012		16-Jul-2012	16-Jul-2012
Saline TON	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012
Sulphide	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012
TOC (Saline)*	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012	26-Jul-2012
TPH CWG (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
VOC MS (W)	12-Jul-2012		12-Jul-2012			15-Jul-2012		12-Jul-2012	12-Jul-2012



CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

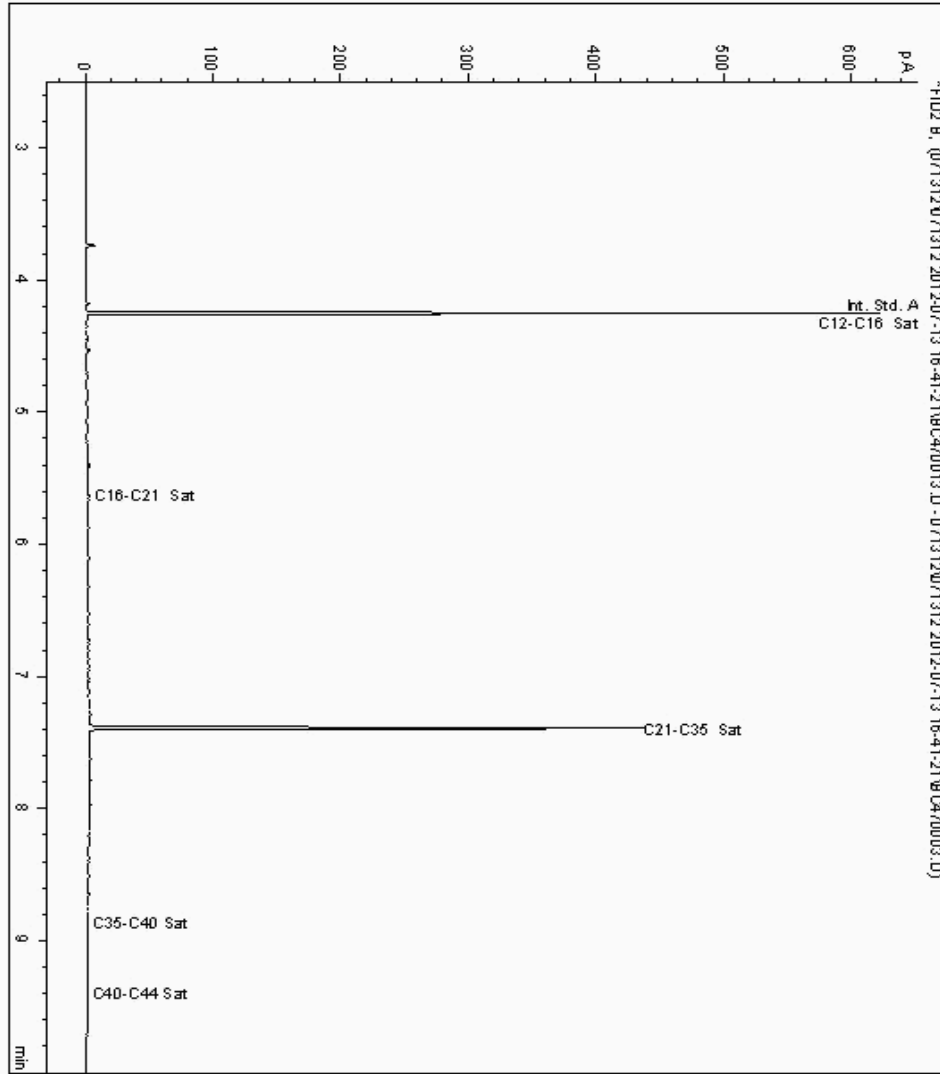
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858118
Sample ID : 261020

Depth :

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

Sample Identity: 5704465-5858118
Date Acquired : 13/07/12 20:26:12
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

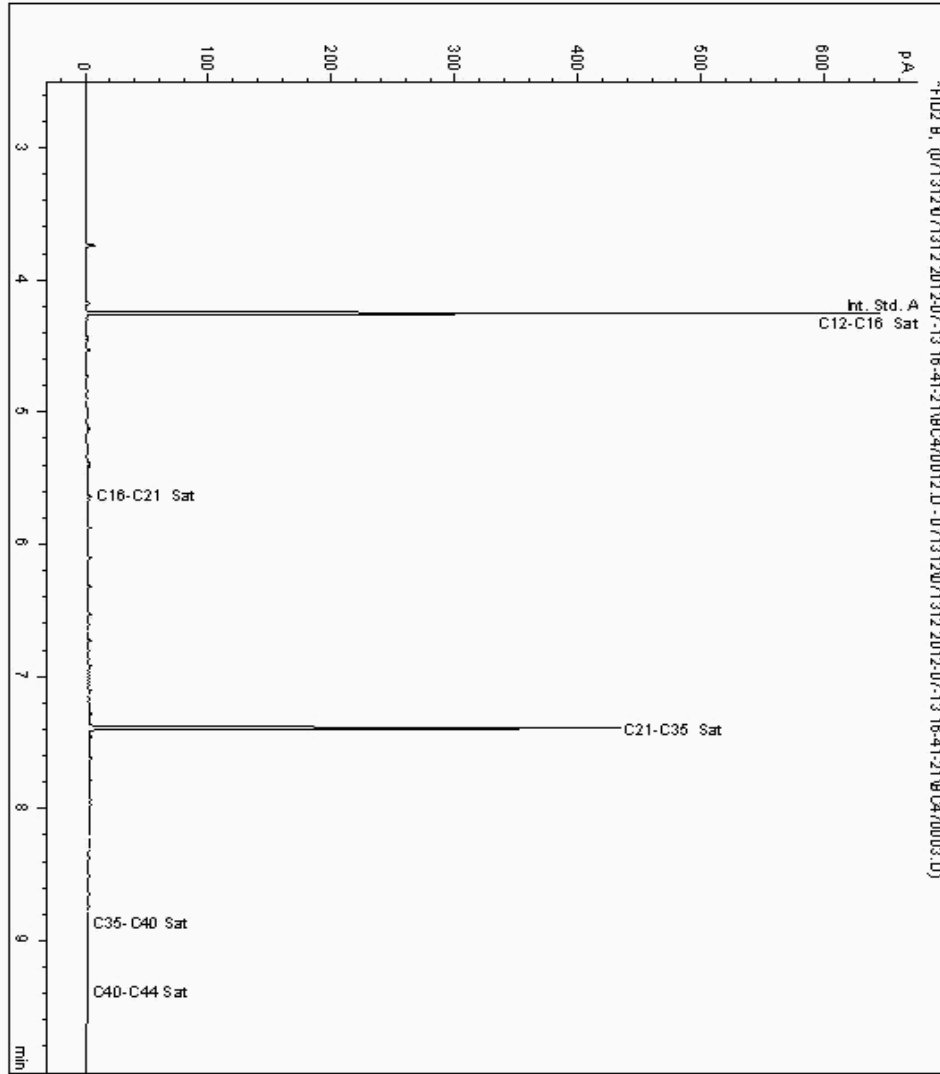
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858288
Sample ID : 832111

Depth :

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

Sample Identity: 5704494-5858288
Date Acquired : 13/07/12 20:07:07
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

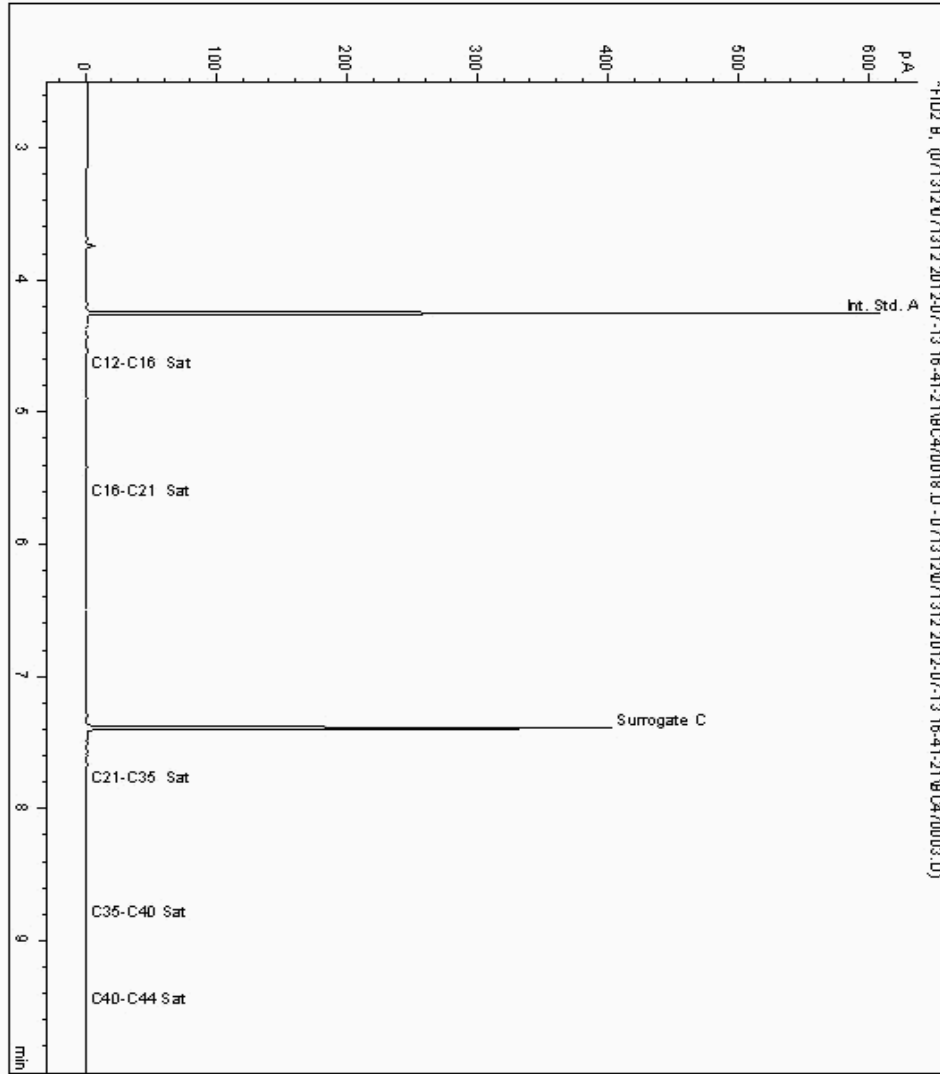
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858378
Sample ID : 963090

Depth :

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

Sample Identity: 5704552-5858378
Date Acquired : 13/07/12 22:01:10
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

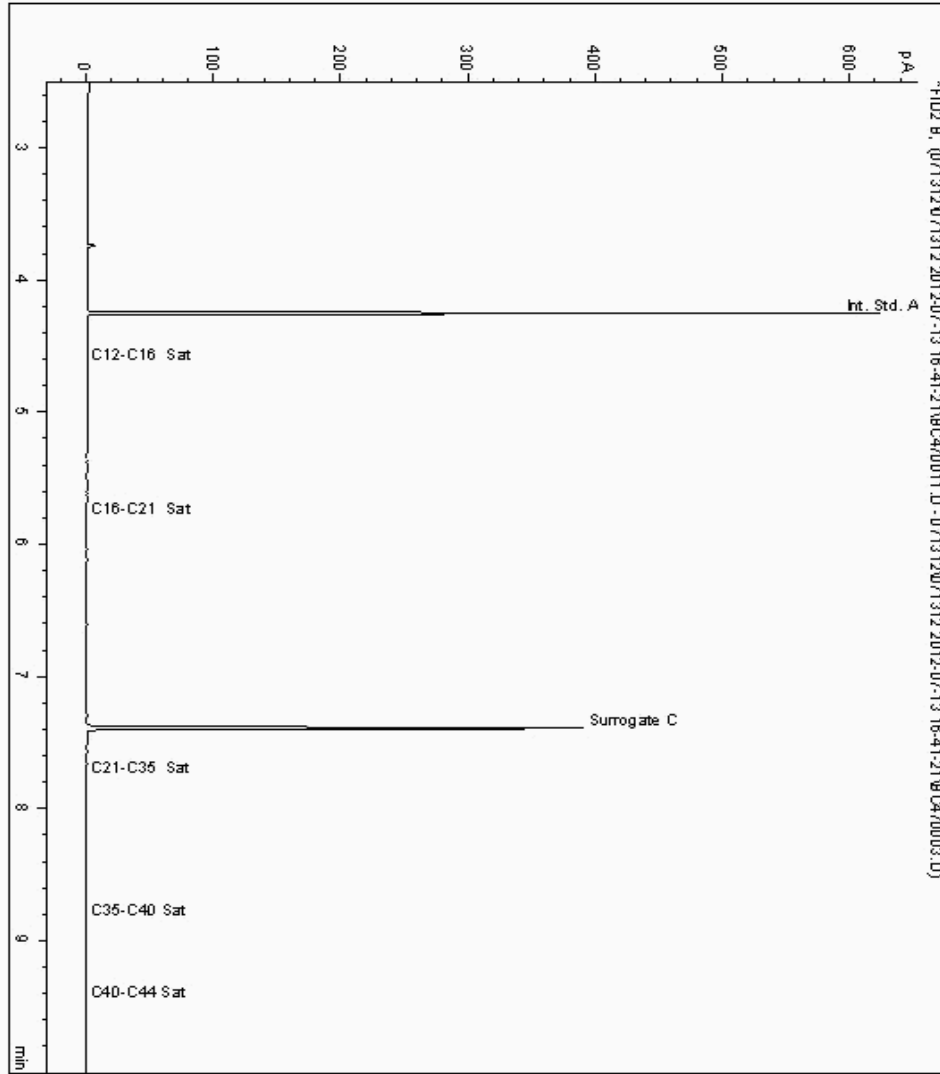
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858399
Sample ID : 534284

Depth :

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

Sample Identity: 5704523-5858399
Date Acquired : 13/07/12 19:48:13
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

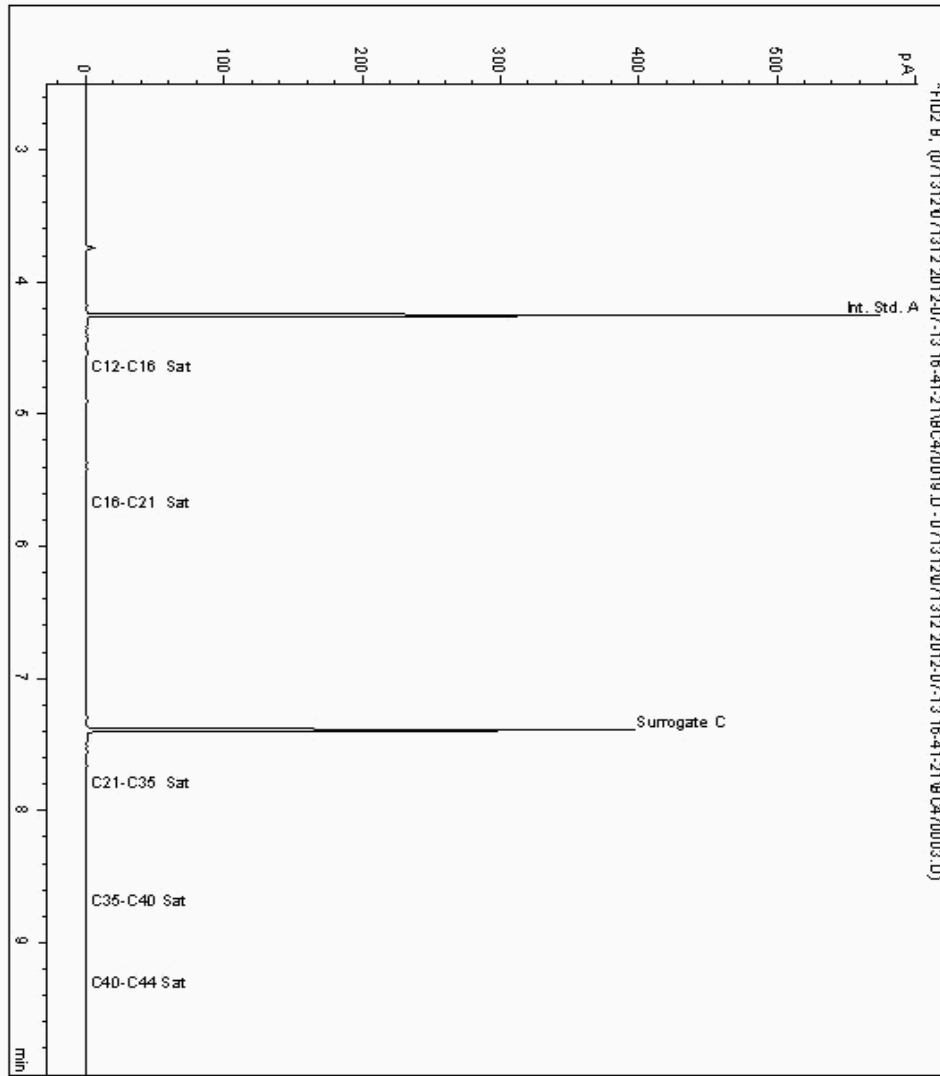
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858453
Sample ID : 798741

Depth :

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

Sample Identity: 5704579-5858453
Date Acquired : 13/07/12 22:20:13
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

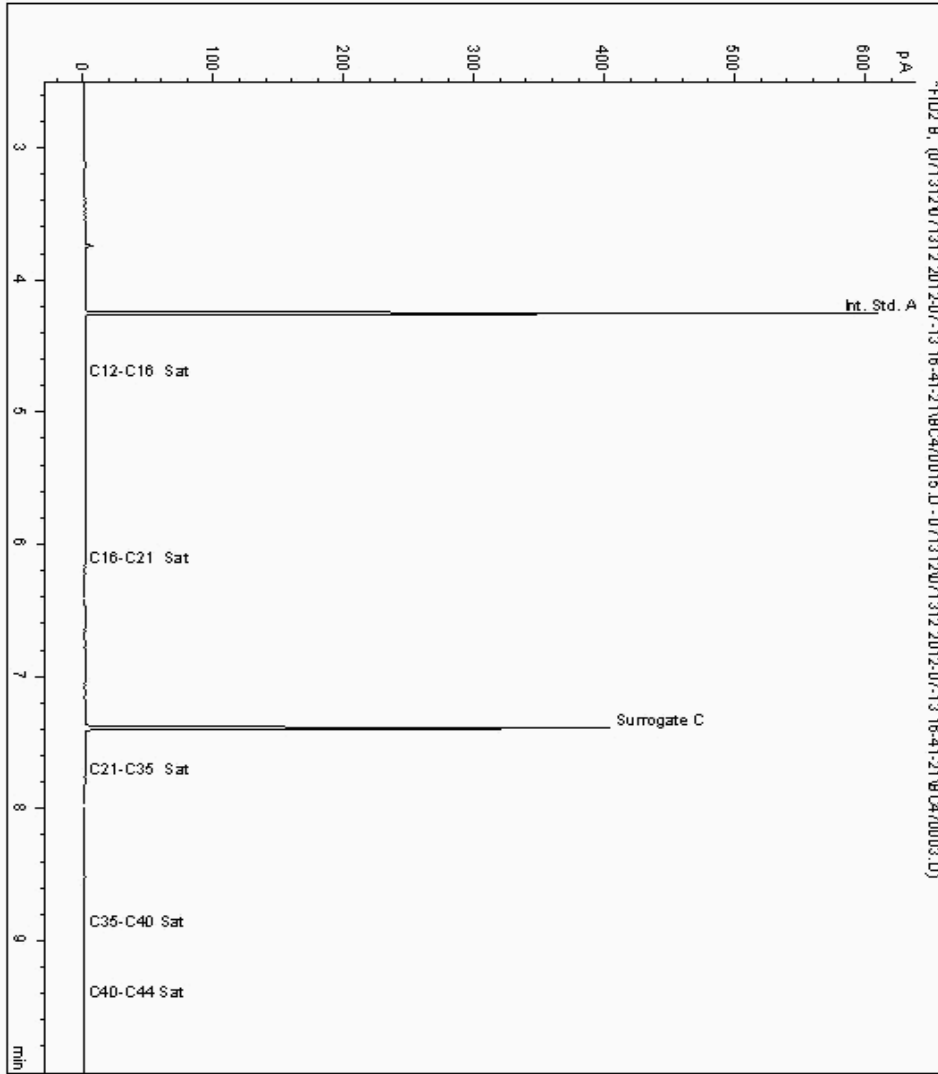
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858564
Sample ID : 770734

Depth :

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

Sample Identity: 5704341-5858564
Date Acquired : 13/07/12 21:04:06
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

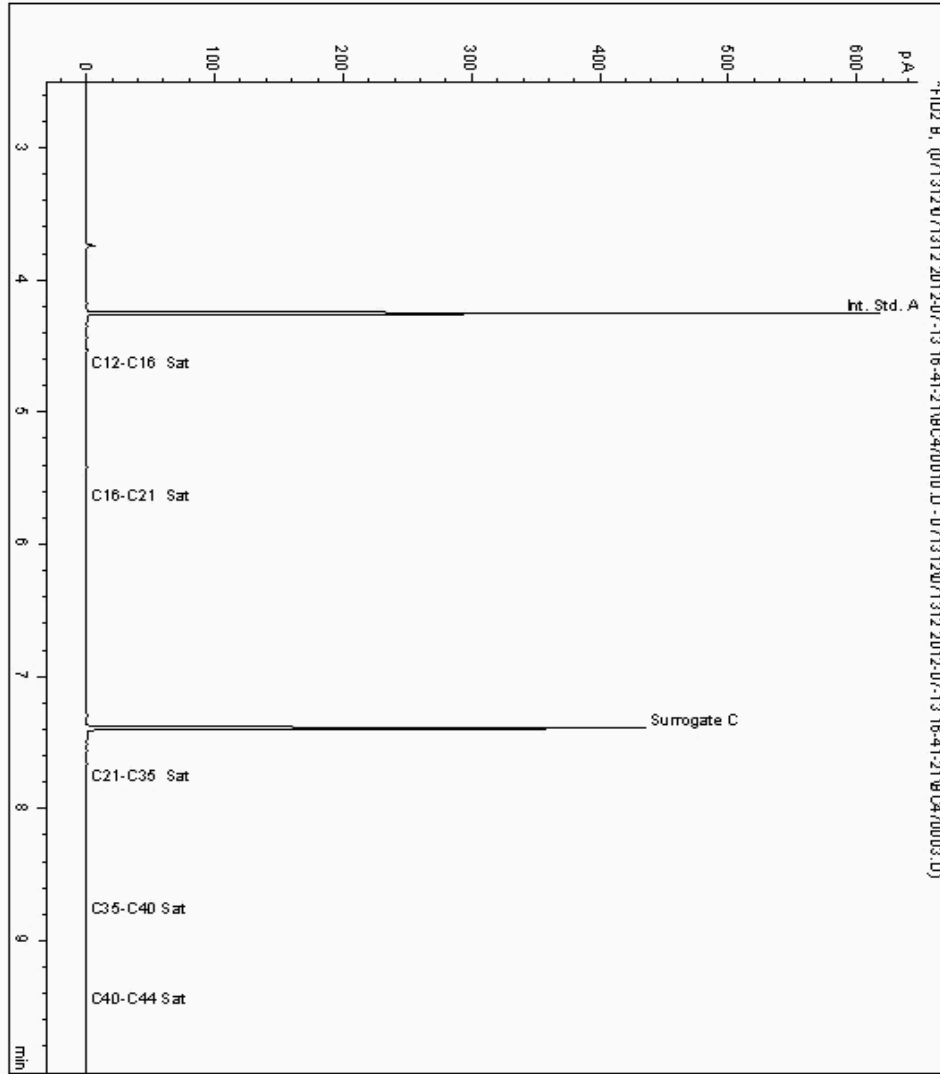
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858588
Sample ID : 266498

Depth :

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

Sample Identity: 5704372-5858588
Date Acquired : 13/07/12 19:29:22
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

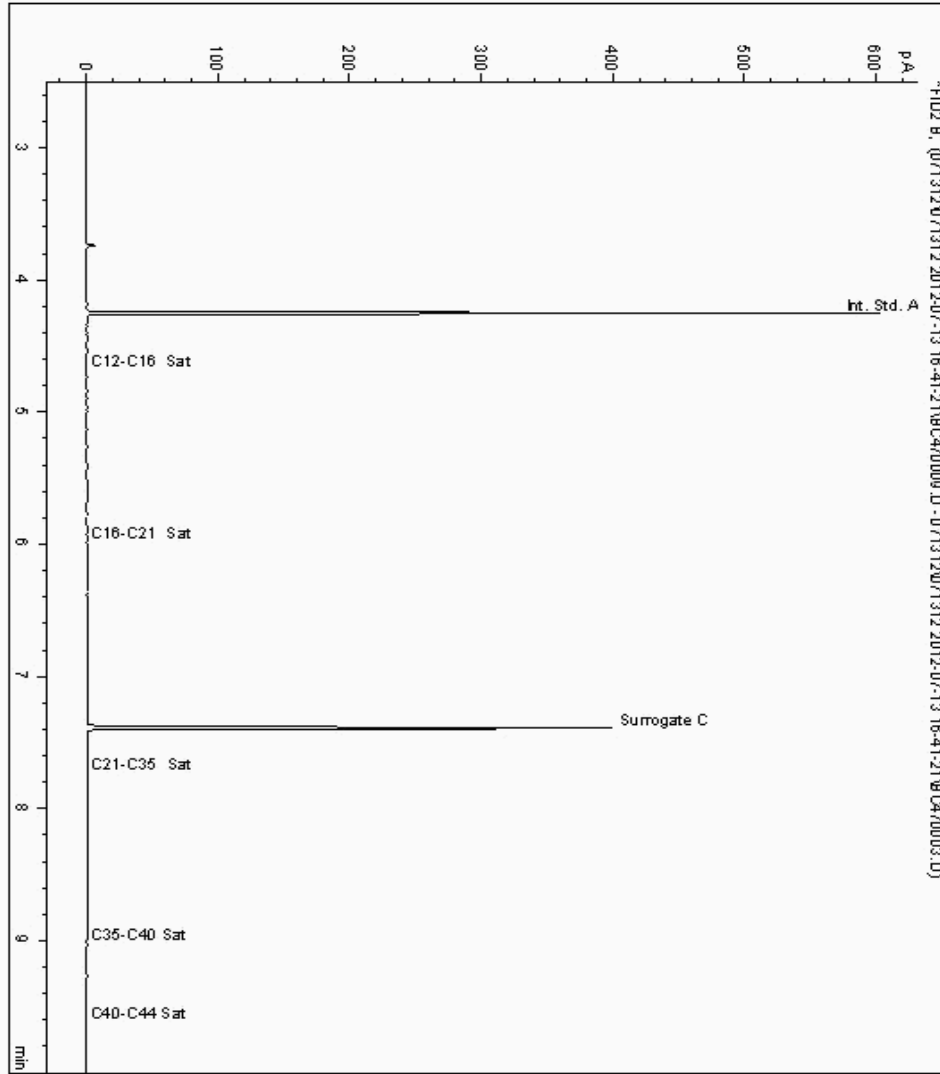
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858598
Sample ID : 987654

Depth :

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

Sample Identity: 5704400-5858598
Date Acquired : 13/07/12 19:10:31
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

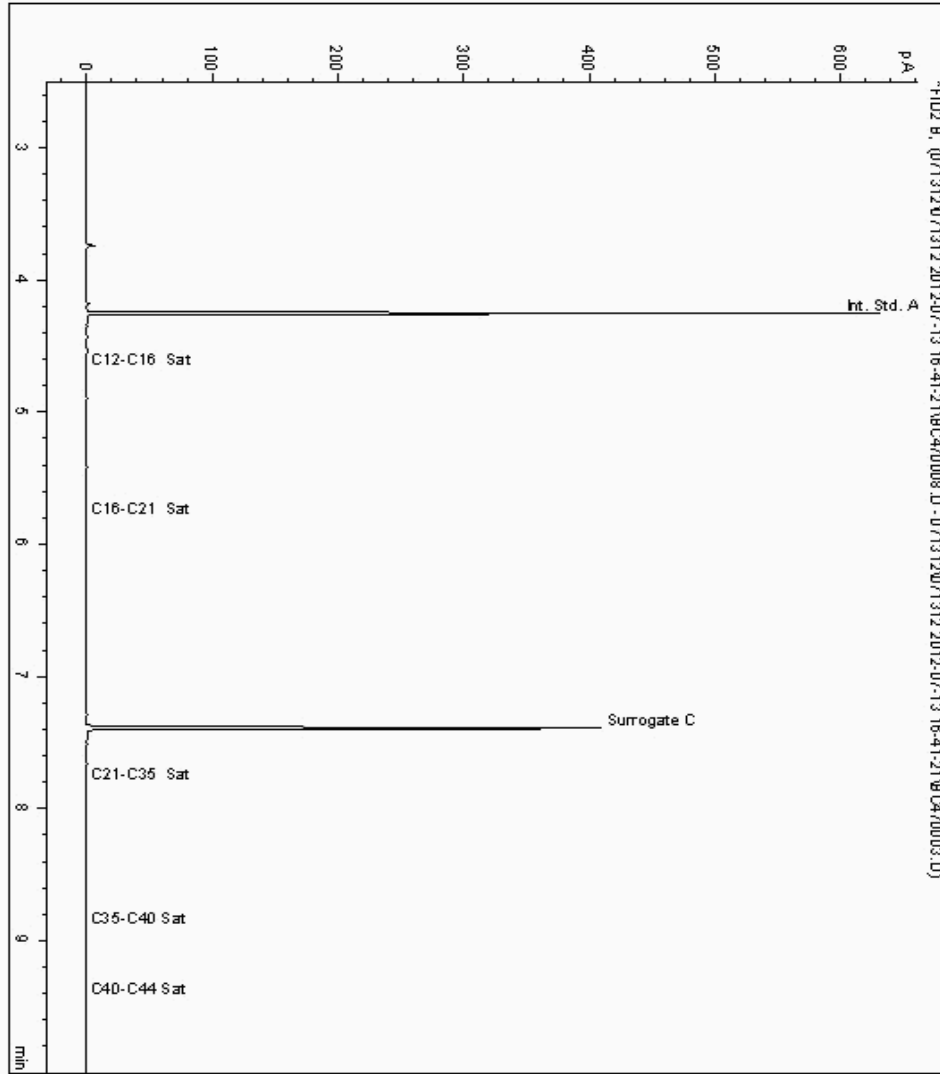
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858639
Sample ID : 966135

Depth :

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

Sample Identity: 5704436-5858639
Date Acquired : 13/07/12 18:51:27
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

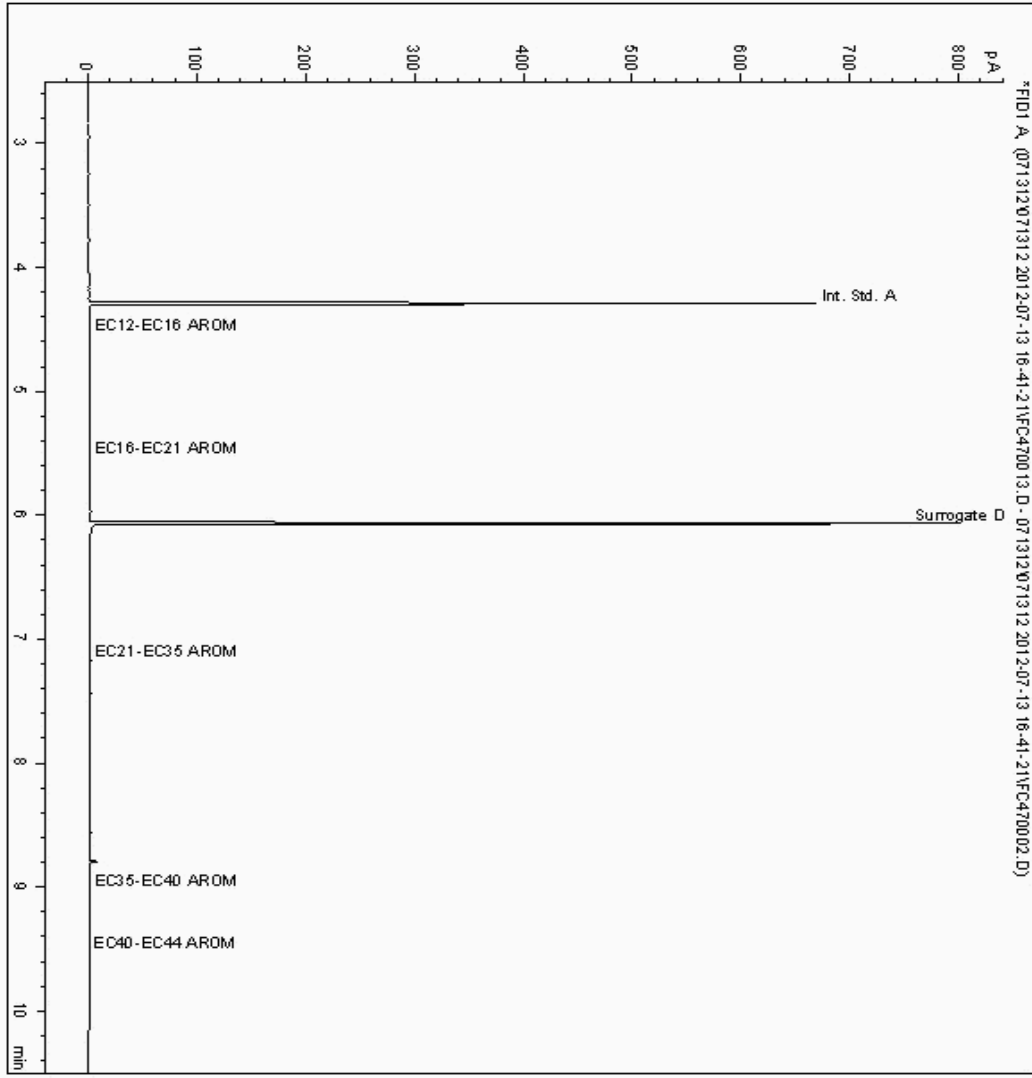
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858118
Sample ID : 261020

Depth :

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

Sample Identity: 5704466-5858118
Date Acquired : 13/07/12 20:26:12
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

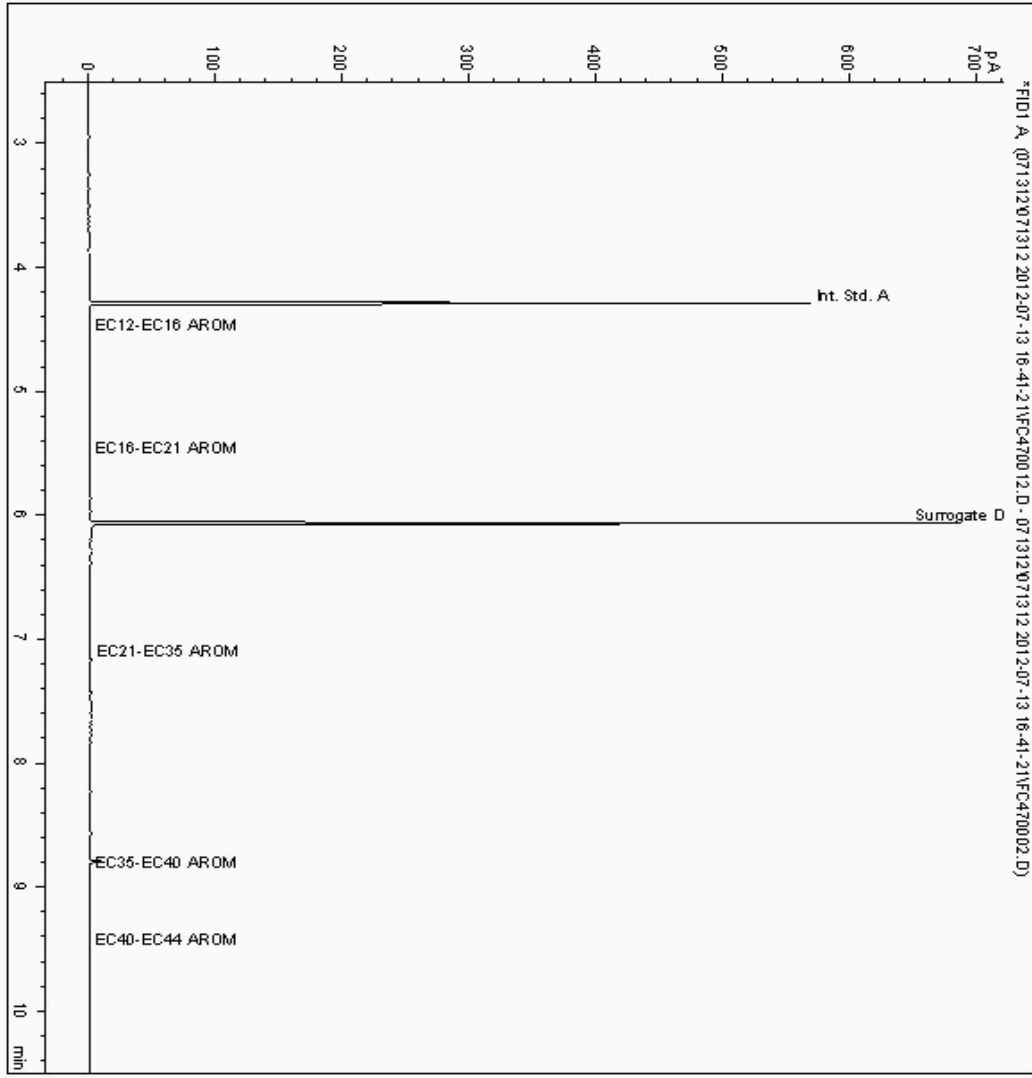
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858288
Sample ID : 832111

Depth :

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

Sample Identity: 5704495-5858288
Date Acquired : 13/07/12 20:07:07
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

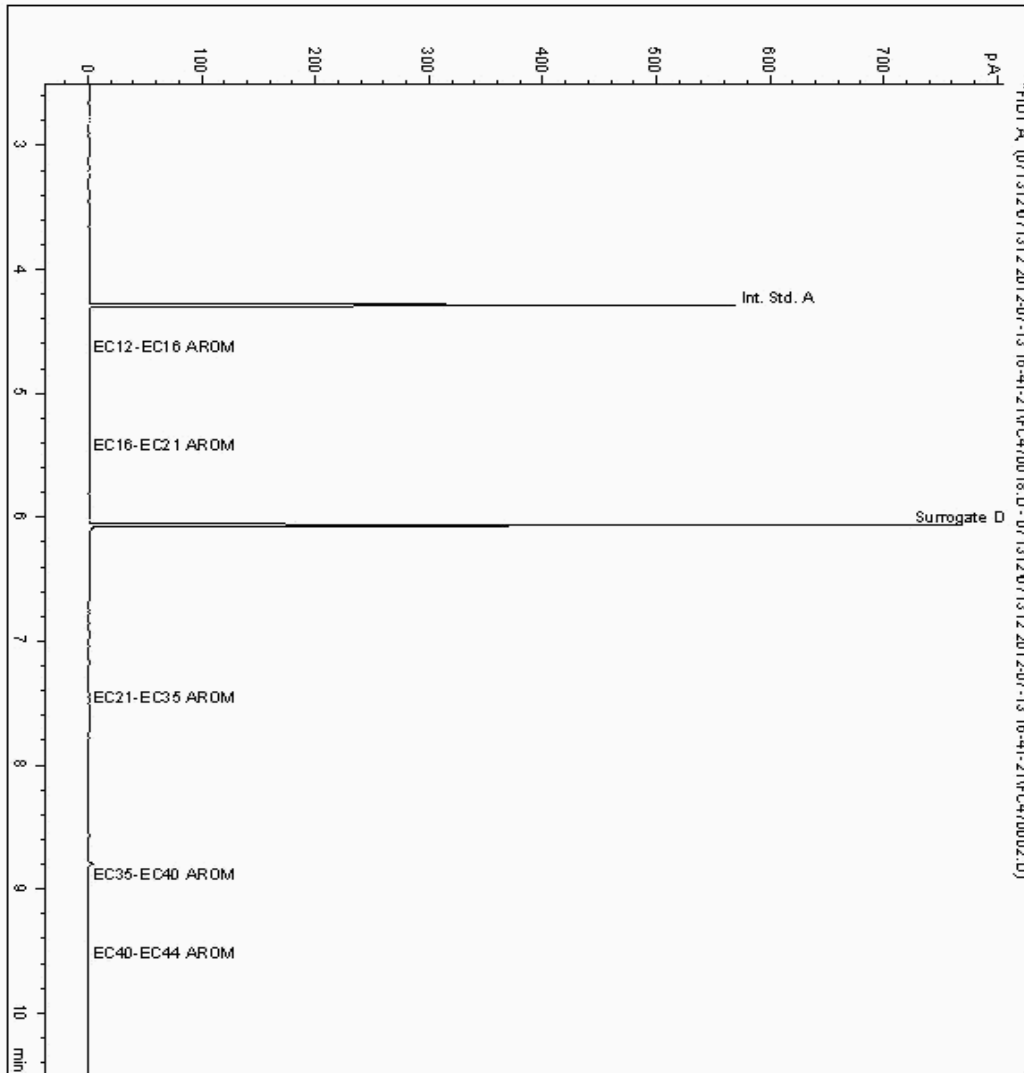
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858378
Sample ID : 963090

Depth :

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

Sample Identity: 5704553-5858378
Date Acquired : 13/07/12 22:01:10
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

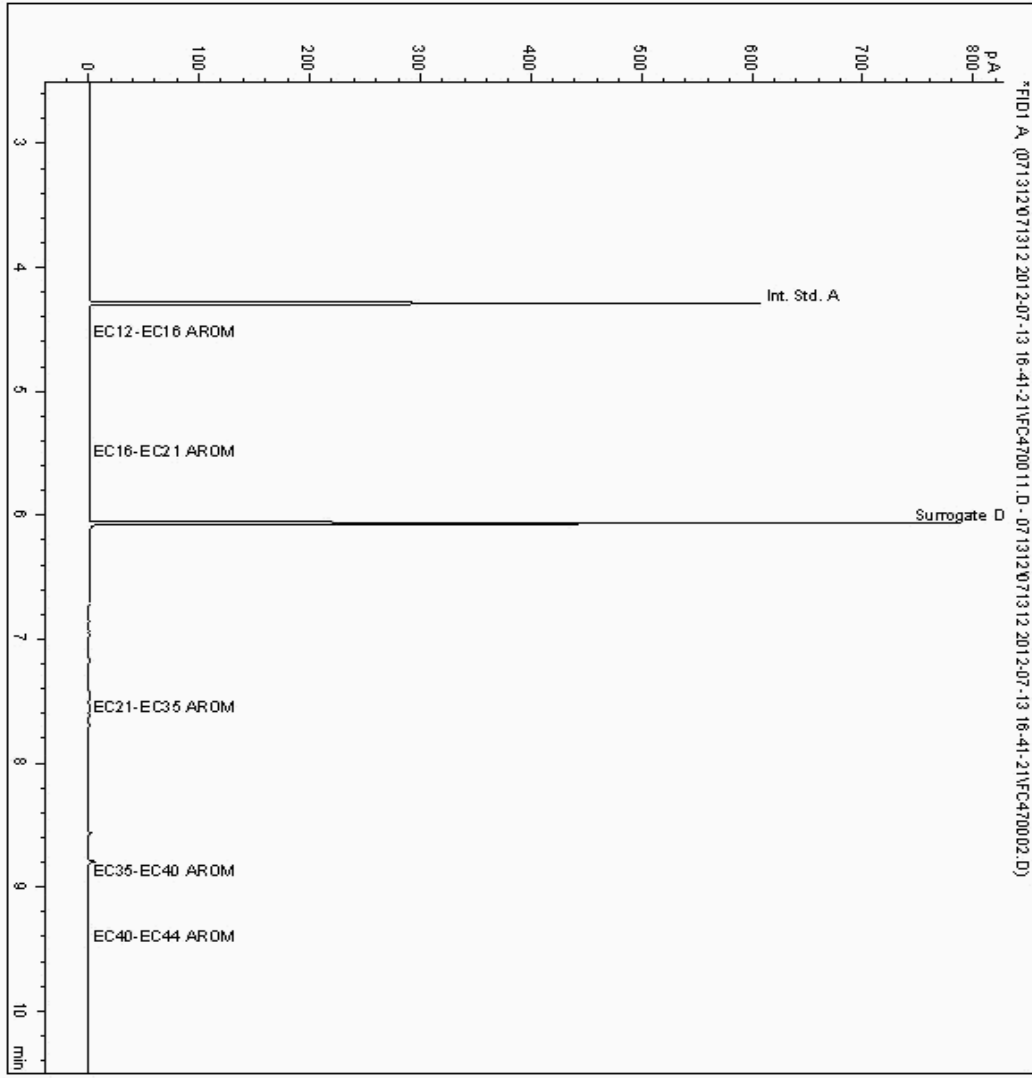
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858399
Sample ID : 534284

Depth :

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

Sample Identity: 5704524-5858399
Date Acquired : 13/07/12 19:48:13
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

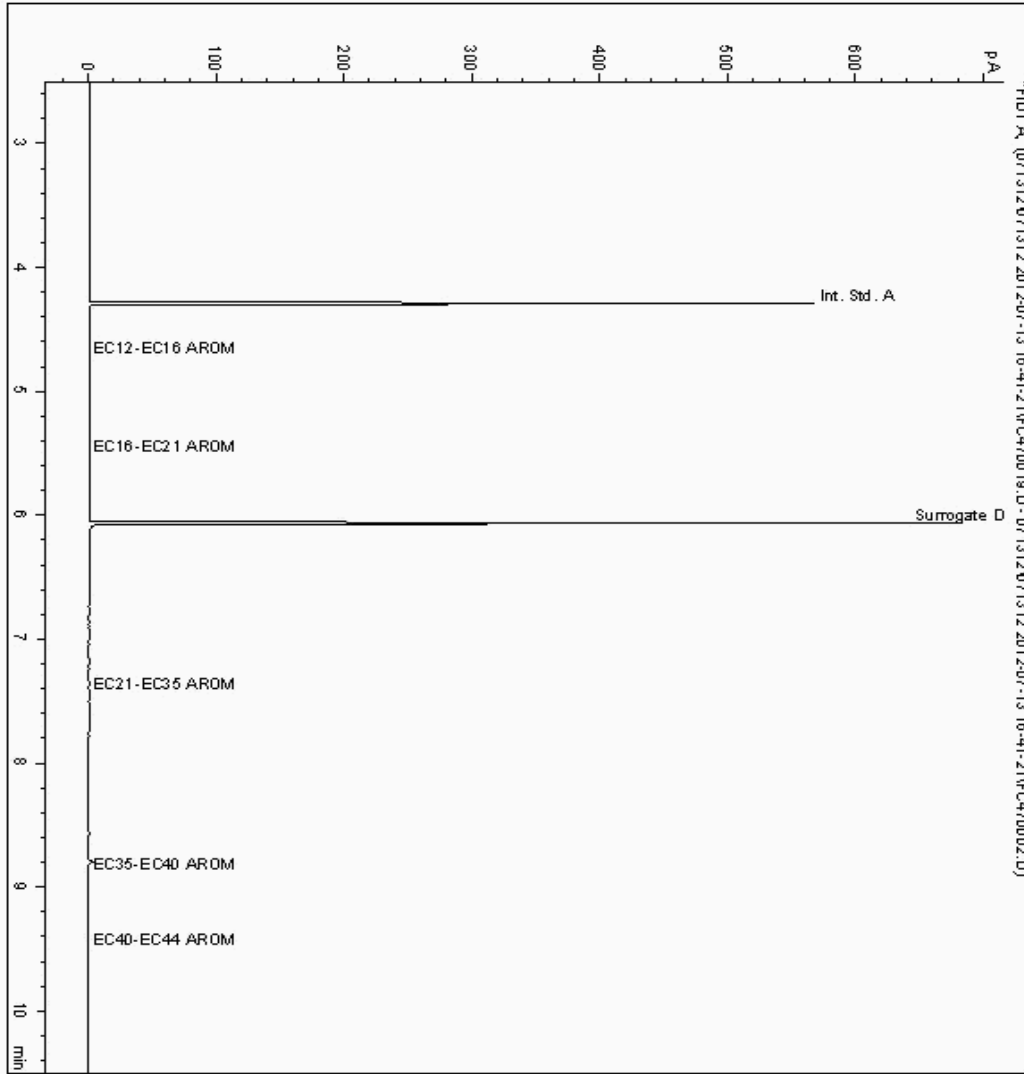
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858453
Sample ID : 798741

Depth :

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

Sample Identity: 5704580-5858453
Date Acquired : 13/07/12 22:20:13
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

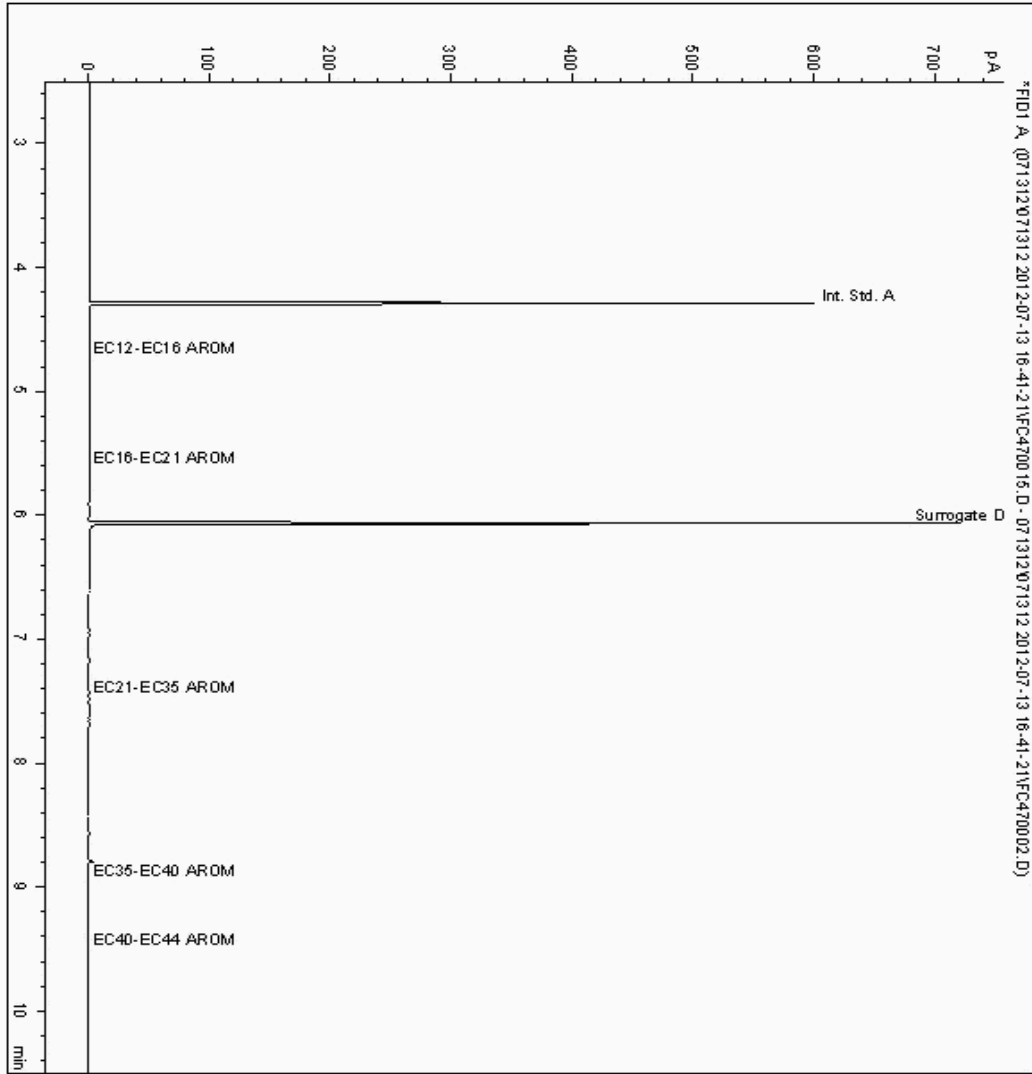
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858564
Sample ID : 770734

Depth :

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

Sample Identity: 5704342-5858564
Date Acquired : 13/07/12 21:04:06
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

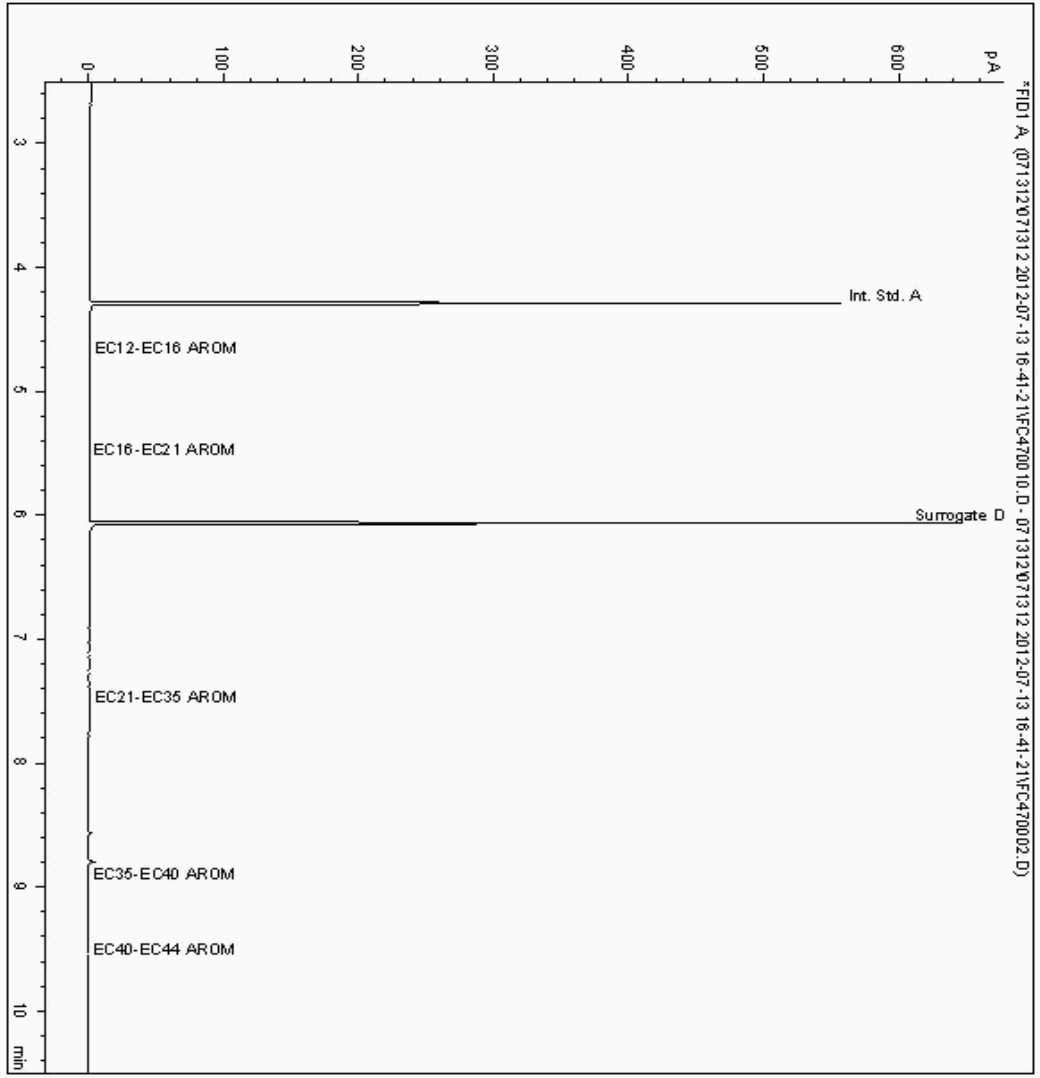
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858588
Sample ID : 266498

Depth :

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

Sample Identity: 5704373-5858588
Date Acquired : 13/07/12 19:29:22
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

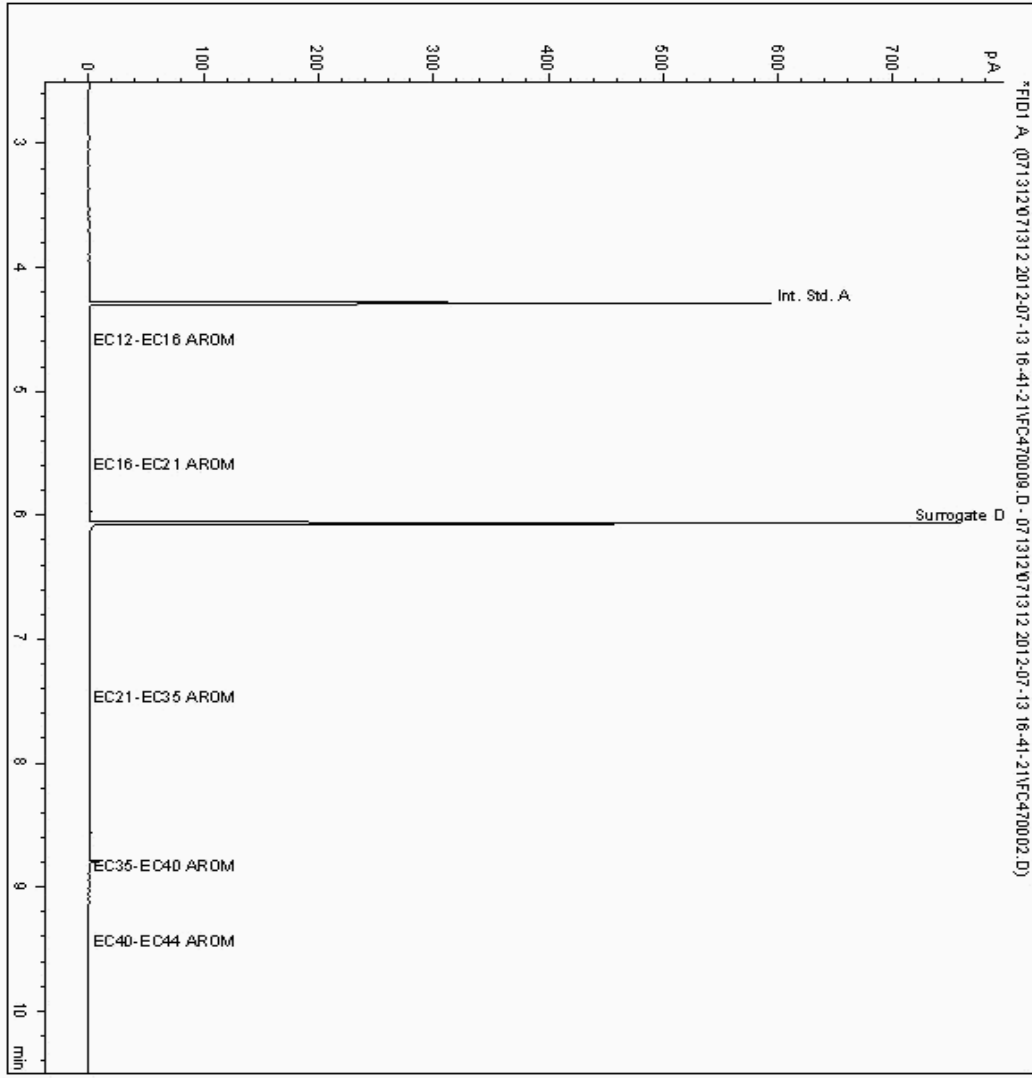
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858598
Sample ID : 987654

Depth :

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

Sample Identity: 5704401-5858598
Date Acquired : 13/07/12 19:10:31
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

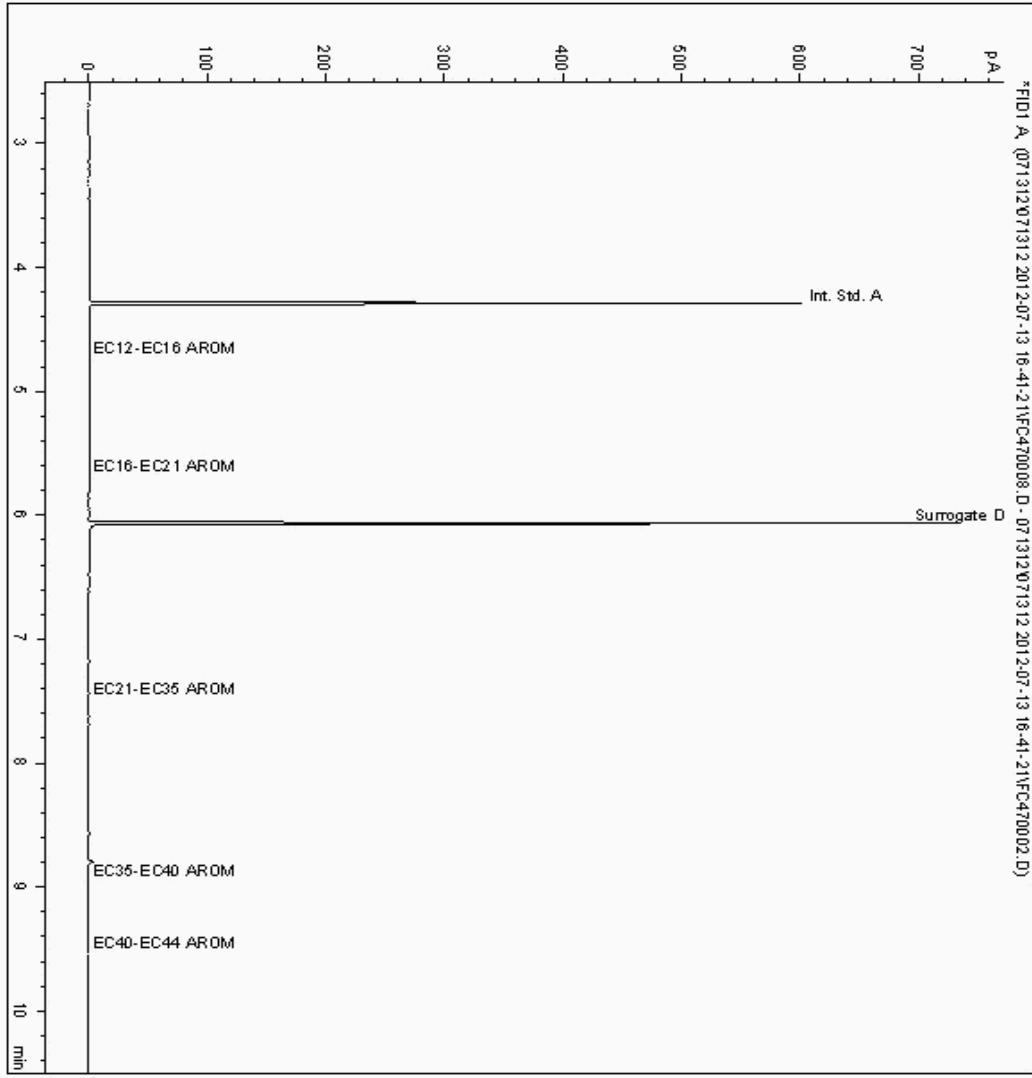
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858639
Sample ID : 966135

Depth :

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

Sample Identity: 5704437-5858639
Date Acquired : 13/07/12 18:51:27
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

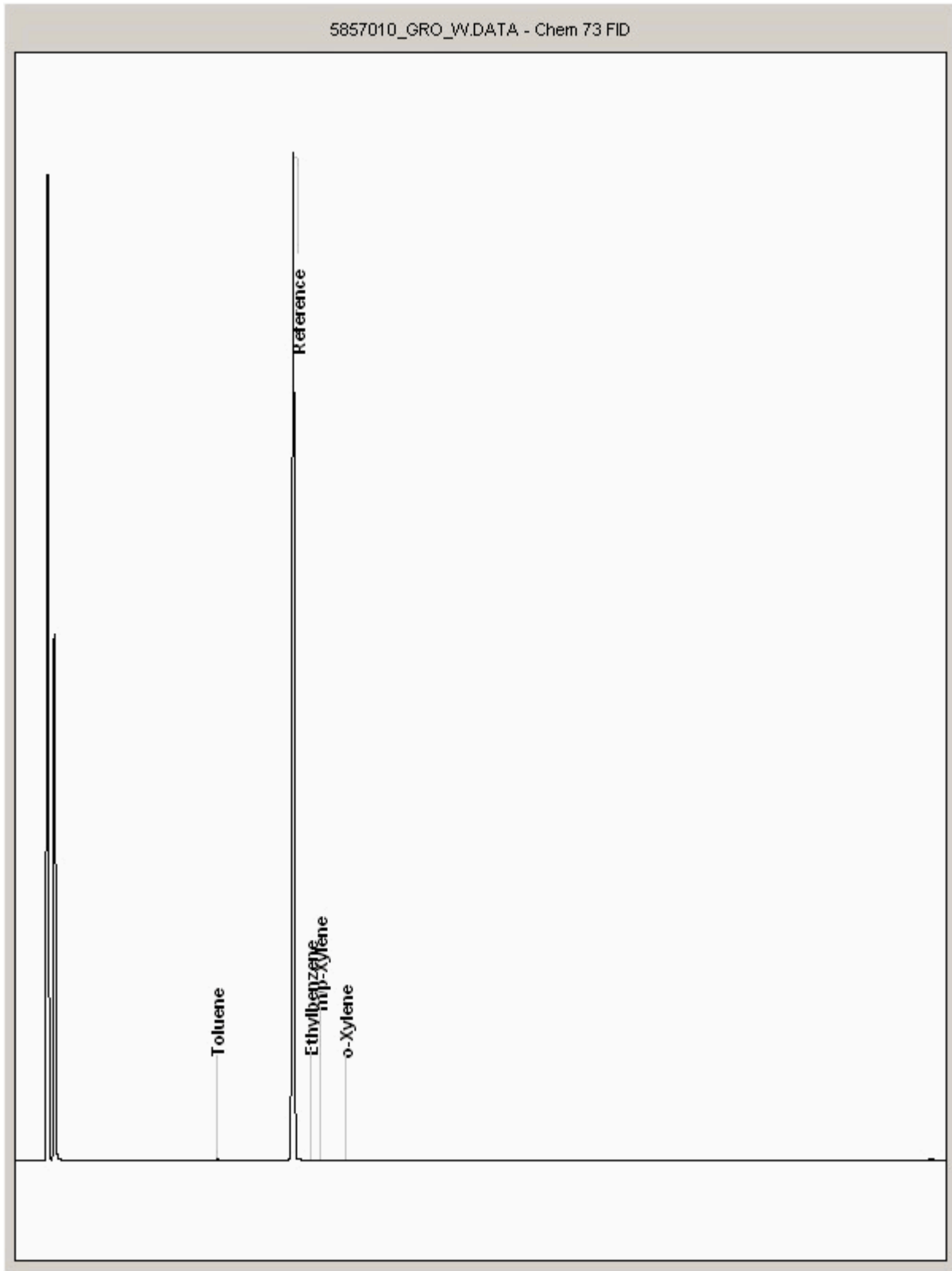
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857010
Sample ID : 770734

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

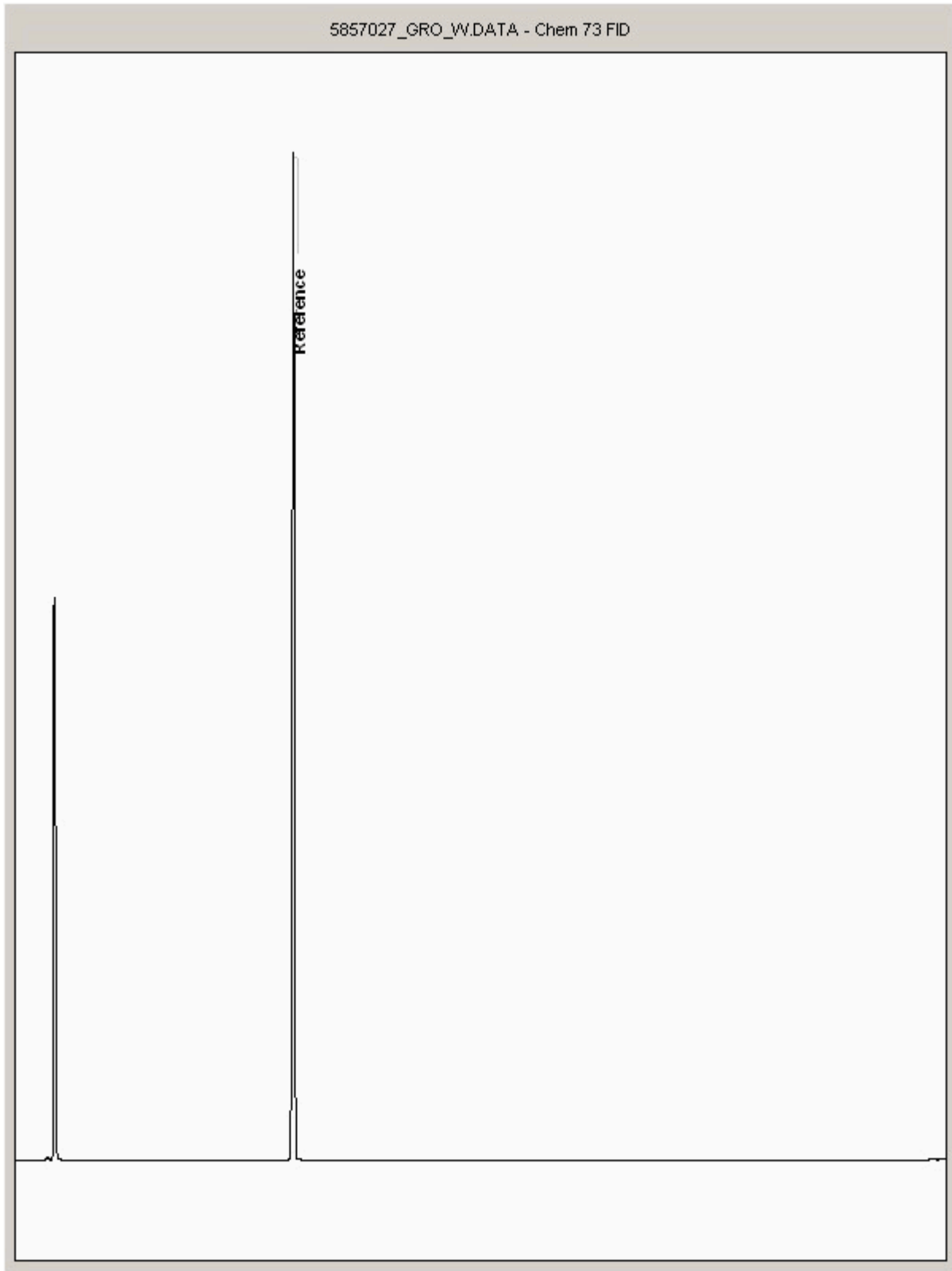
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857027
Sample ID : 266498

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

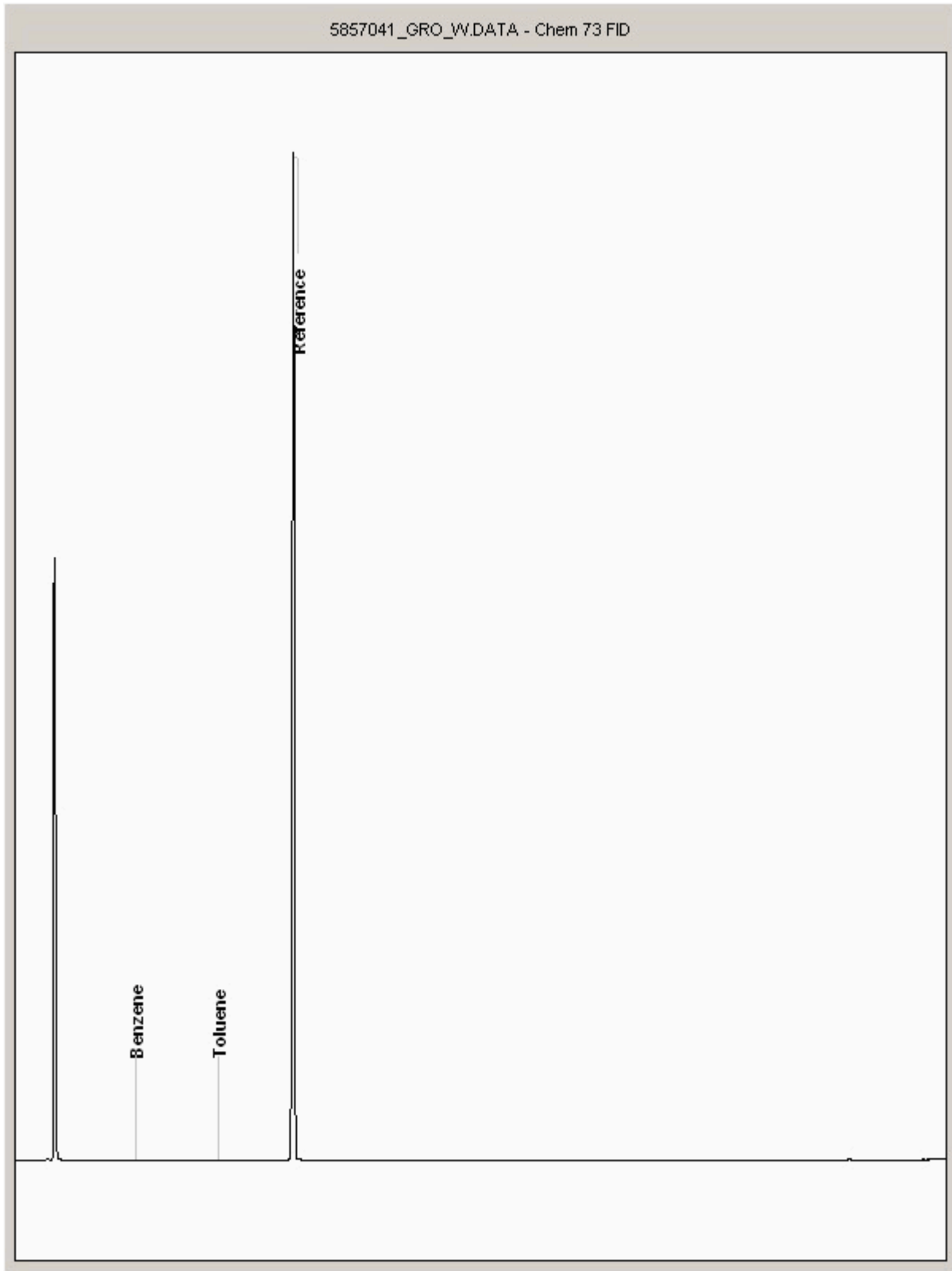
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857041
Sample ID : 987654

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

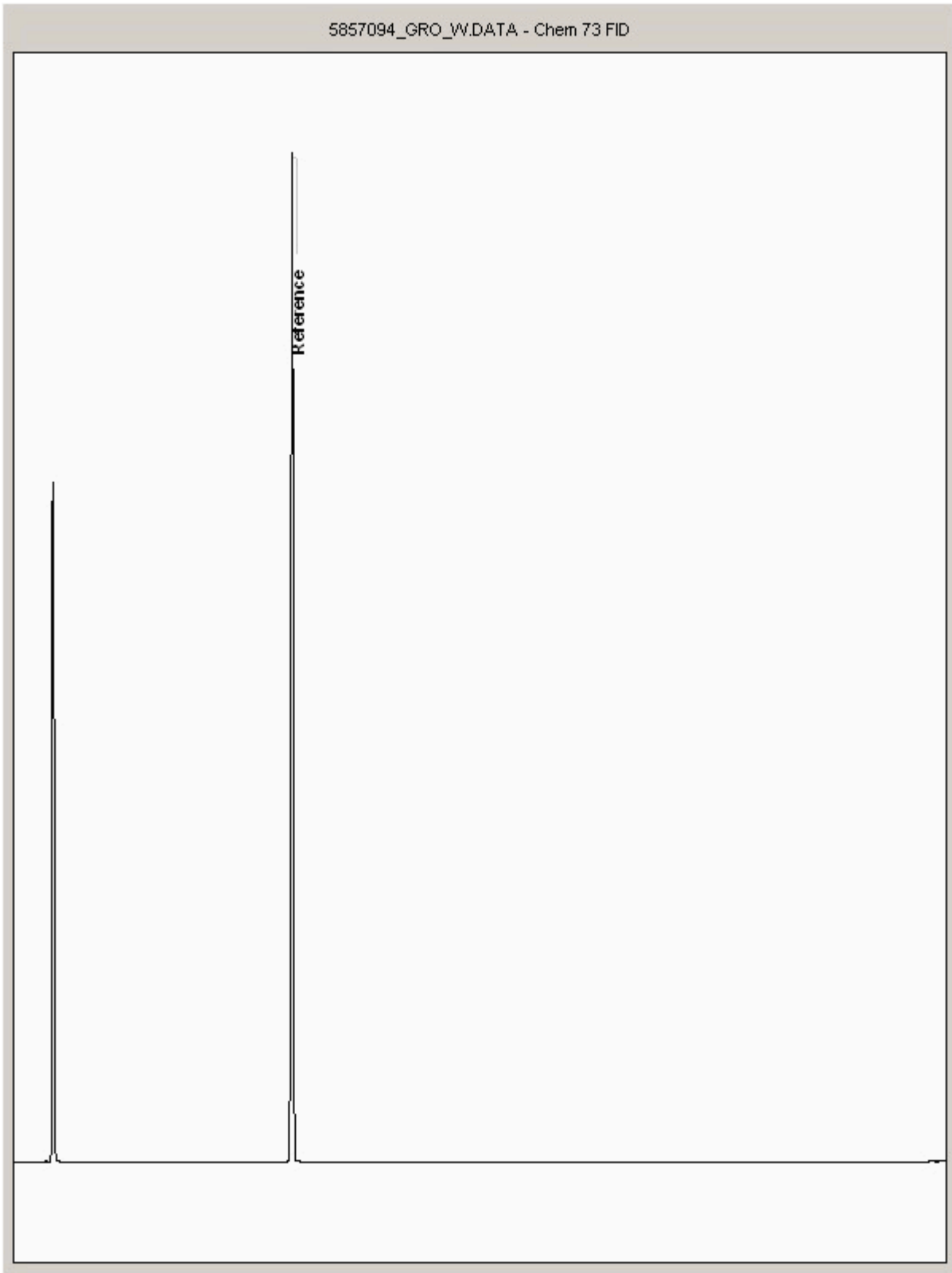
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857094
Sample ID : 966135

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

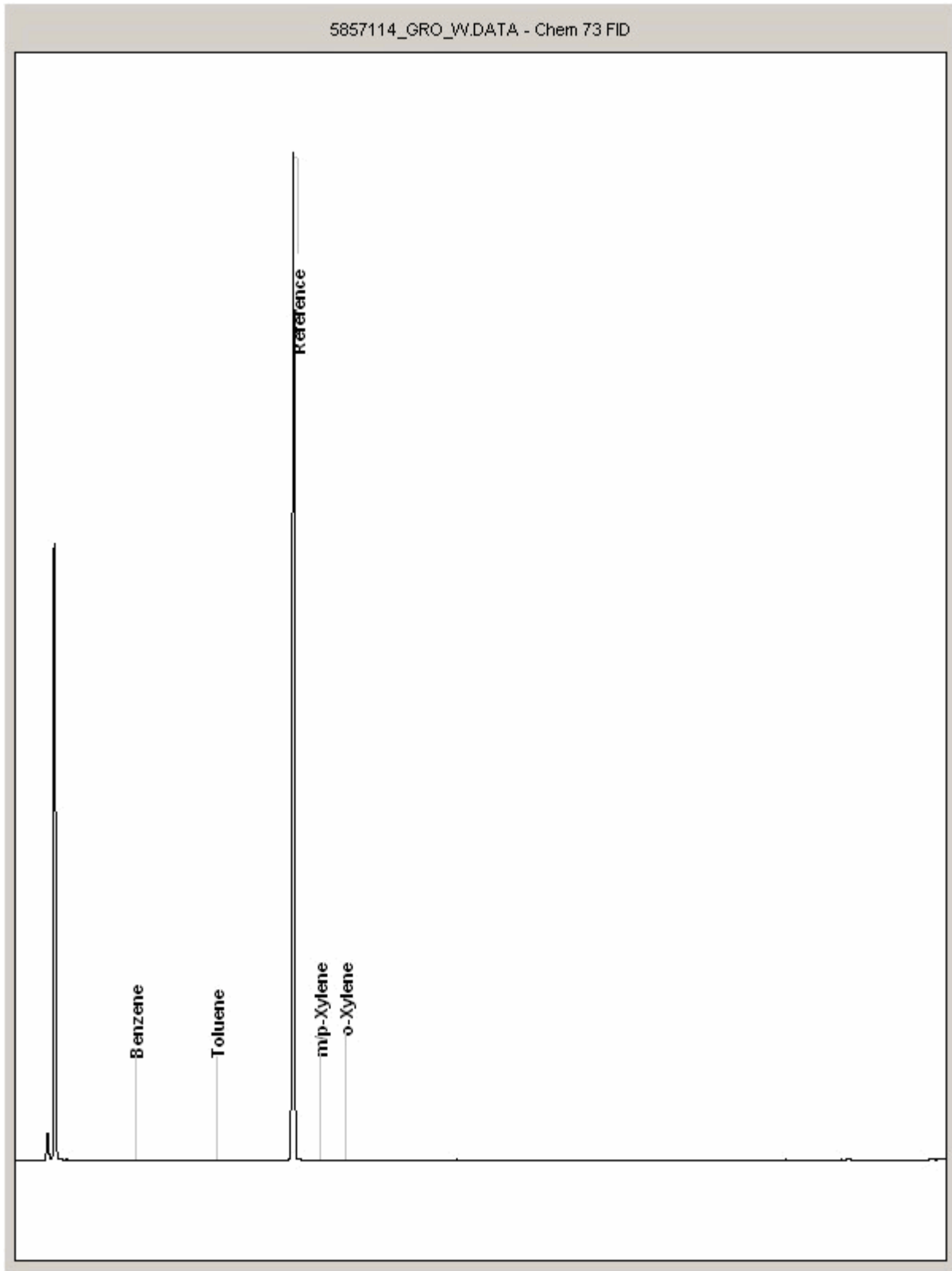
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857114
Sample ID : 261020

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

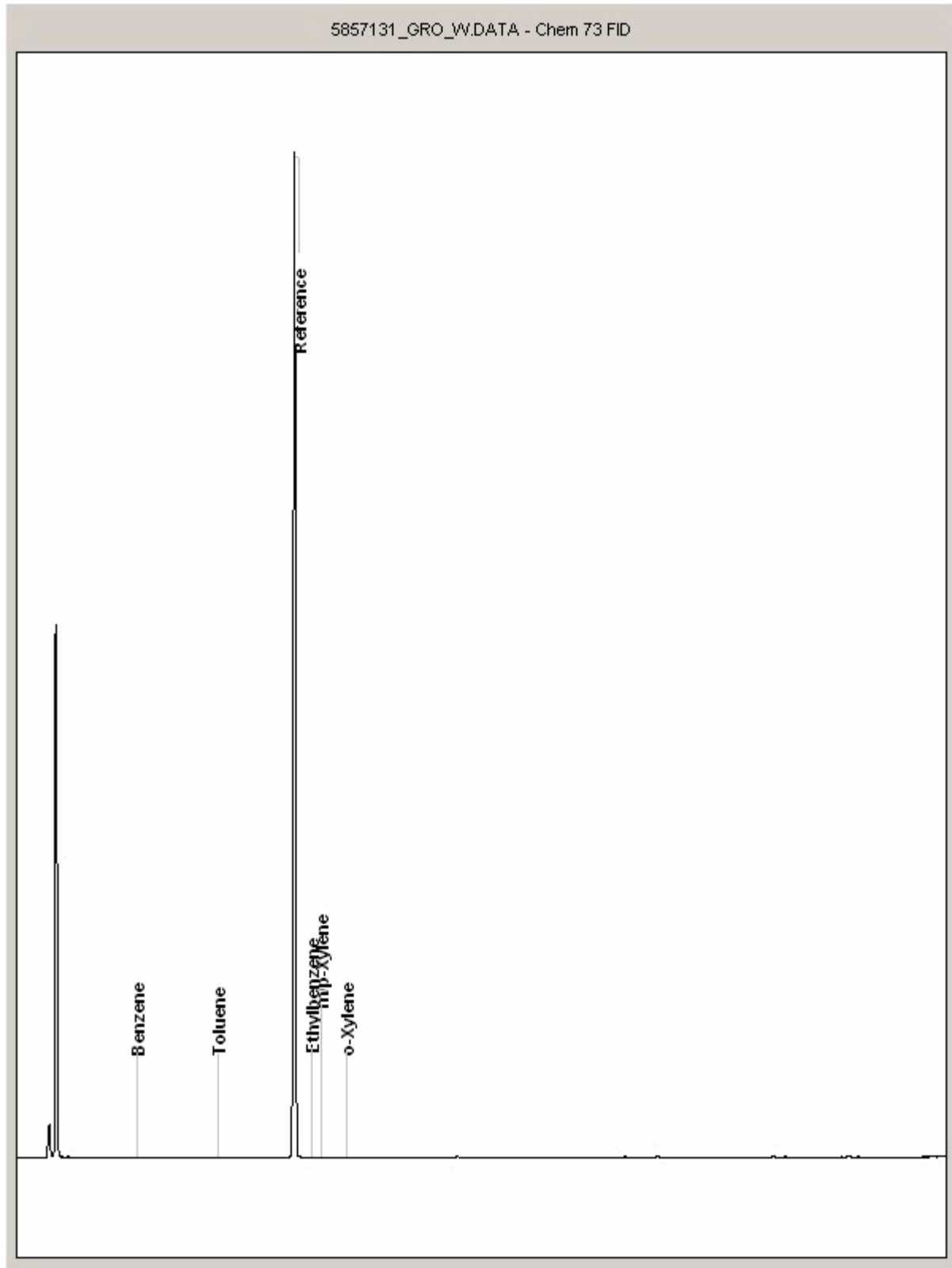
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857131
Sample ID : 832111

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

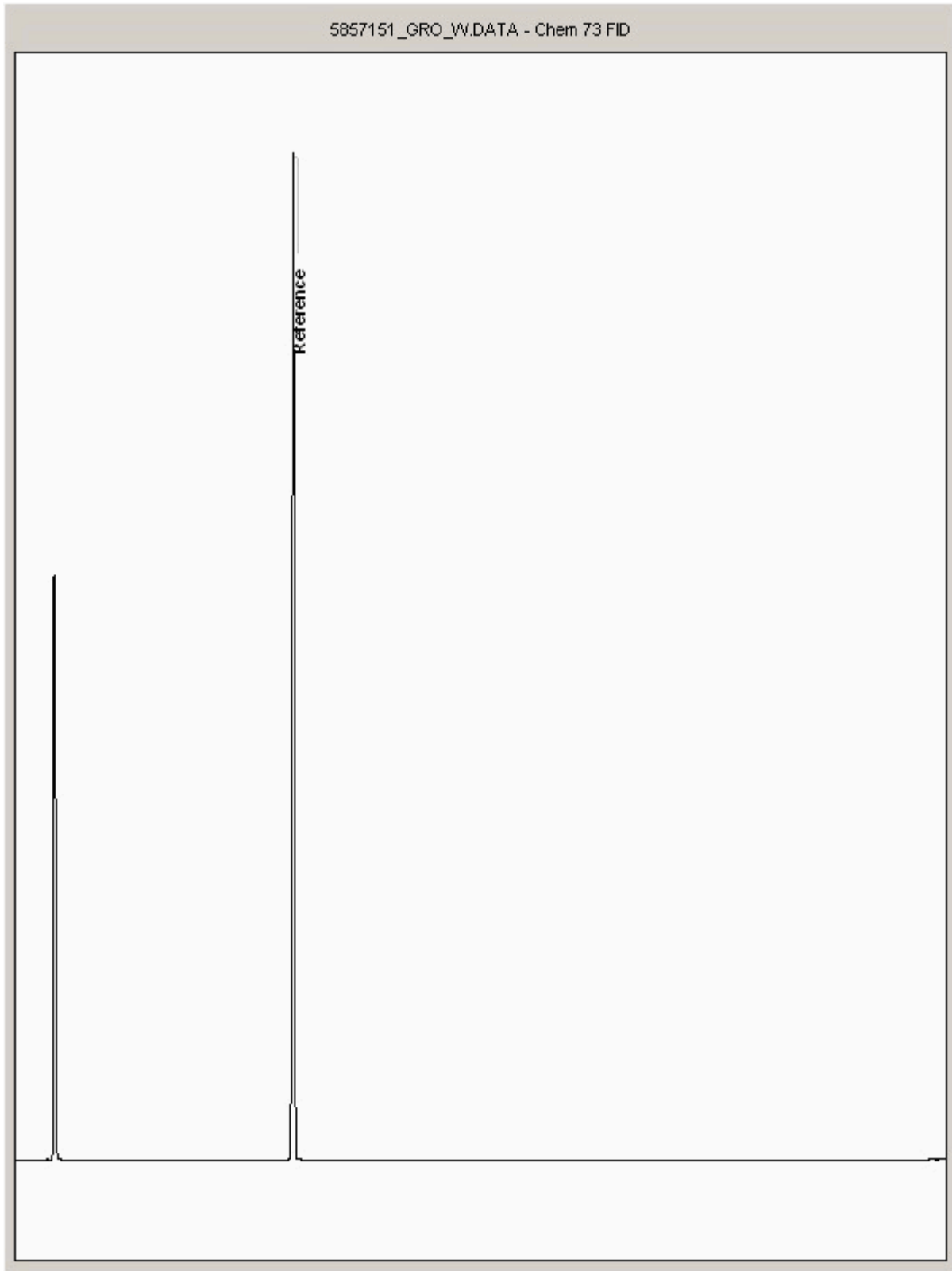
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857151
Sample ID : 534284

Depth :





CERTIFICATE OF ANALYSIS

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

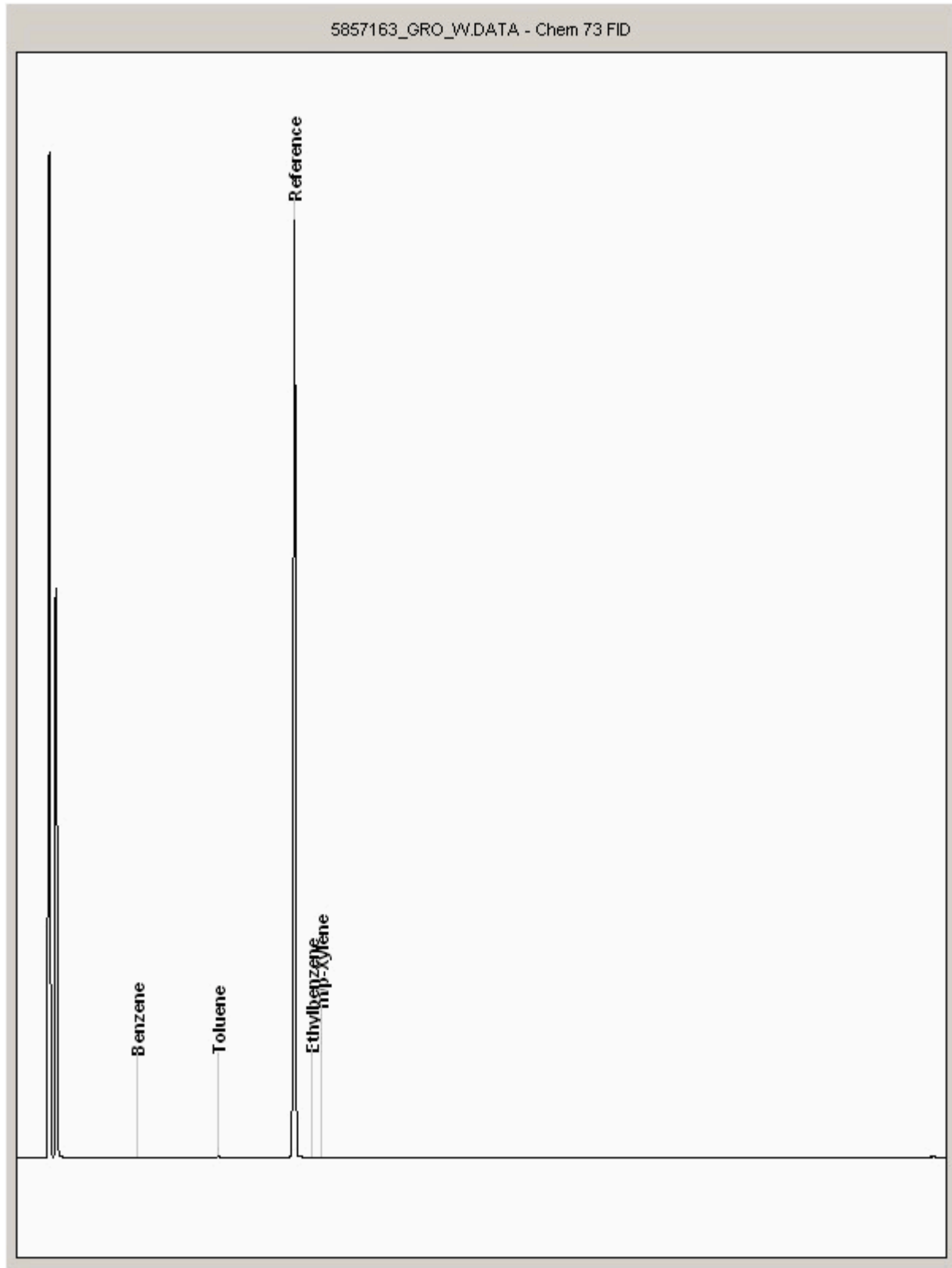
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857163
Sample ID : 963090

Depth :





SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

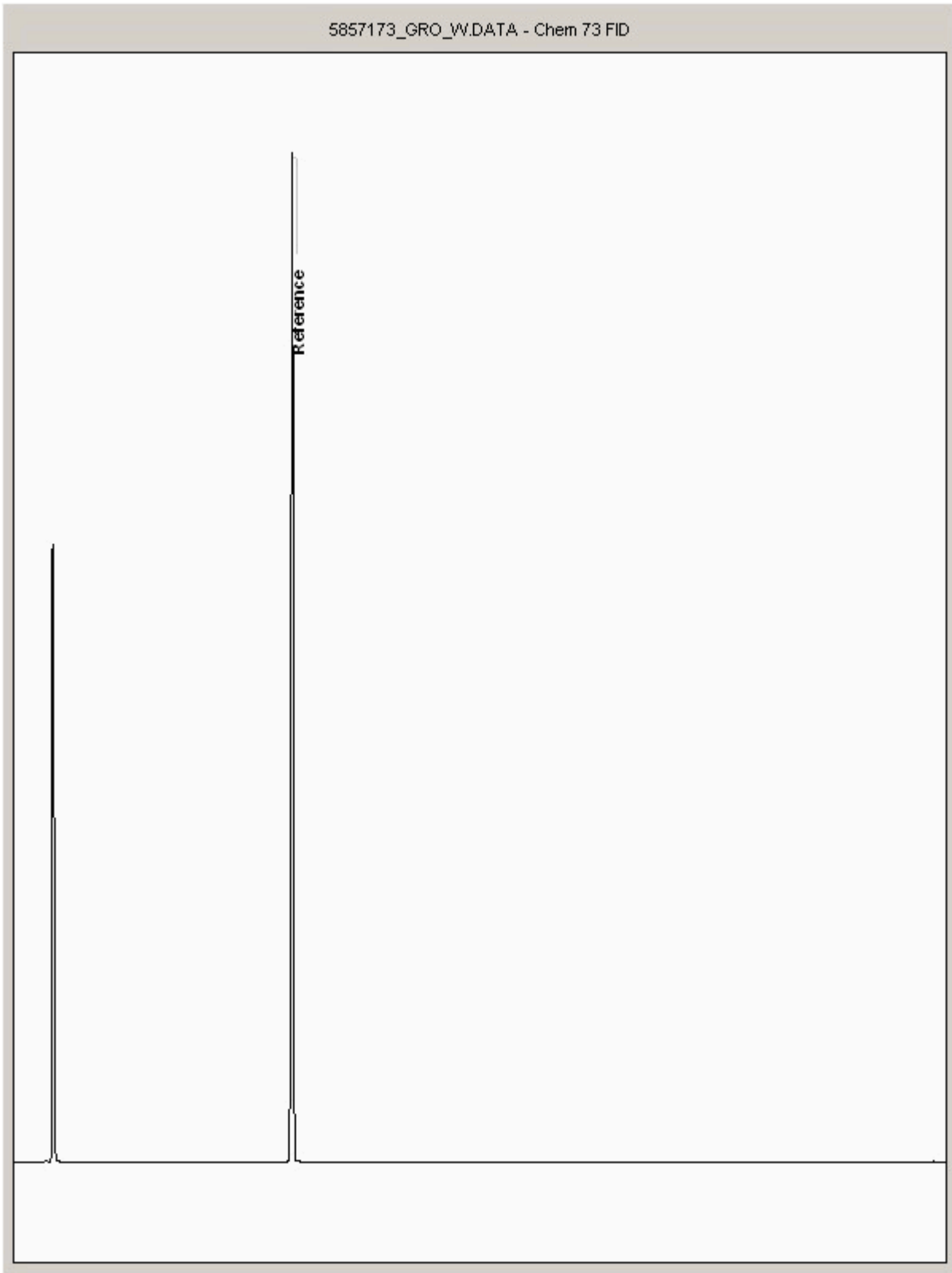
Order Number: 4559
Report Number: 194771
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5857173
Sample ID : 798741

Depth :



Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 9 samples described below.

Samples Registered on:	11-Jul-2012
Analysis Started on:	23-Jul-2012
Analysis Completed on:	25-Jul-2012
Results for Batch Number	20041597
Your Purchase Order Number:	150621

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Client: ALcontrol Laboratories Chester
Folder No: 002000710
Comments: 5858151 - 798741
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	<1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000711
Comments: 5858342 - 987654
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)
Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	278	mg/l	1	None	NM	1102

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000712
Comments: 5858406 - 534284
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	<1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000713
Comments: 5858446 - 963090
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	3.16	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000714
Comments: 5858789 - 832111
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	50.3	mg/l	1	None	NM	1102

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000715
Comments: 5859203 - 266498
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	<1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000716
Comments: 5859328 - 770734
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	3.11	mg/l	1	None	NM	1102

Final Report

Report ID - 20041597 - 1

Batch description: 120706 - 80 - TOC Saline Analysis

Reported on:
26-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000717
Comments: 5859472 - 966135
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	<1	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000718
Comments: 5859598 - 261020
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 4-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	40.9	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041597

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

SDG: 120706-80
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number: 4559
Report Number: 194771
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 and CEN Leach tests, flash point, 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 2 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.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DOM	SOX THERM	GC-MS
HERBICIDES	D&C	HEXANE/ACETONE	SOX THERM	GC-MS
PESTICIDES	D&C	HEXANE/ACETONE	SOX THERM	GC-MS
EPH (DFO)	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 CWGBY GC	D&C	HEXANE/ACETONE	END OVER END	GC-FID
PCBAROCLOR 1254 / PCB CON	D&C	HEXANE/ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE/ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE/ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE/ACETONE	SHAKER	GC-FID
SEMIVOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC-MS
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
PCB7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC-MS
PCBAROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC-MS
SVCC	DCM	LIQUID/LIQUID SHAKE	GC-MS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GC-MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC-MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC-MS
TH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by R	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC-FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description 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).

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.

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



Priority Geotechnical Ltd
Unit 12
Owenacurra Business Park
Midleton
Co Cork
Co Cork

Attention: Colette Kelly

CERTIFICATE OF ANALYSIS

Date: 24 July 2012
Customer: D_PRIORGEOT_CRK
Sample Delivery Group (SDG): 120707-30
Your Reference: P12030
Location: Haulbowline
Report No: 188481

We received 4 samples on Friday July 06, 2012 and 4 of these samples were scheduled for analysis which was completed on Tuesday July 24, 2012. 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: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
5849871	405311			05/07/2012
5849868	457113			05/07/2012
5849870	685680			05/07/2012
5849869	984114			05/07/2012

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



SDG: 120707-30
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 188481
 Superseded Report:

LEACH Results Legend <input checked="" type="checkbox"/> Test <input checked="" type="checkbox"/> No Determination Possible	Lab Sample No(s)	5849871	5849868	5849870	5849869
	Customer Sample Reference	405311	457113	685680	984114
	AGS Reference				
	Depth (m)				
	Container	1l green glass bottle	Vial (ALE297)	NaOH (ALE245)	H2SO4 (ALE244)
Alkalinity as CaCO3	All	NDPs: 0 Tests: 2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Anions by Kone (w)	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
BOD True Total	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
COD Unfiltered	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Conductivity (at 20 deg.C)	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Fluoride	All	NDPs: 0 Tests: 2	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Free Sulphur	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
GRO by GC-FID (W)	All	NDPs: 0 Tests: 4		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Hexavalent Chromium (w)	All	NDPs: 0 Tests: 2		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Metals analysis (Saline Sample)	All	NDPs: 0 Tests: 4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>



SDG: 120707-30
 Job: D_PRIORGEOT_CRK-44
 Client Reference: P12030

Location: Haulbowline
 Customer: Priority Geotechnical Ltd
 Attention: Colette Kelly

Order Number:
 Report Number: 188481
 Superseded Report:

LEACH Results Legend Test No Determination Possible	Lab Sample No(s)	5849871	5849868	5849870	5849869					
	Customer Sample Reference	405311	457113	685680	984114					
	AGS Reference									
	Depth (m)									
	Container	1l green glass bottle	1l green glass bottle	1l green glass bottle	Vial (ALE297) NaOH (ALE245) H2SO4 (ALE244) 1l plastic (ALE221)					
Metals by iCap-OES Dissolved (W)	All	NDPs: 0 Tests: 4								
Nitrite by Kone (w)	All	NDPs: 0 Tests: 4								
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 4								
pH Value	All	NDPs: 0 Tests: 4								
Phenols by ms (w)	All	NDPs: 0 Tests: 4								
Saline TON	All	NDPs: 0 Tests: 4								
Sulphide	All	NDPs: 0 Tests: 4								
TOC (Saline)*	All	NDPs: 0 Tests: 4								
TPH CWG (W)	All	NDPs: 0 Tests: 4								
VOC MS (W)	All	NDPs: 0 Tests: 4								



SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Results Legend		Customer Sample R	405311	457113	685680	984114		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D		
S	Deviating sample.		05/07/2012	05/07/2012	05/07/2012	05/07/2012		
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012		
tot.unfilt	Total / unfiltered sample.		120707-30	120707-30	120707-30	120707-30		
**	Subcontracted test.		5849871	5849868	5849870	5849869		
	% 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							
Component	LOD/Units		Method					
TOC (Saline)*	<1 mg/l	SUB	85	1.71	3.81	4.49		
Saline Carbonate Alkalinity as CaCO3	<5 mg/l	TM043	<5			<5		
BOD, unfiltered	<1 mg/l	TM045	<10	<2	<2	<2		
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099	3.57	0.308	1.84	<0.2		
Sulphide	<0.01 mg/l	TM101	<0.01	<0.01	<0.01	<0.01		
Fluoride	<0.5 mg/l	TM104	<0.5			0.695		
COD, unfiltered	<7 mg/l	TM107	2830	<280	370	426		
Conductivity @ 20 deg.C	<0.005 mS/cm	TM120	35.9	40.8	37.1	40.1		
Barium (diss.filt)	<0.03 µg/l	TM152	171	3.12	20.3	3.09		
Beryllium (diss.filt)	<0.07 µg/l	TM152	<0.07	<0.7	<0.7	<0.7		
Cobalt (diss.filt)	<0.06 µg/l	TM152	3.01			<0.6		
Molybdenum (diss.filt)	<0.24 µg/l	TM152	28.1			<2.4		
Phosphorus (diss.filt)	<6.3 µg/l	TM152	18.4			<63		
Thallium (diss.filt)	<0.96 µg/l	TM152	<0.96			<9.6		
Tin (diss.filt)	<0.36 µg/l	TM152	<0.36			<3.6		
Nitrite as NO2	<0.05 mg/l	TM184	0.507	0.081	0.263	0.103		
Sulphate	<2 mg/l	TM184	2080	2280	2100	2310		
Chloride	<2 mg/l	TM184	15900	17200	16200	17200		
PCB congener 28	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015		
PCB congener 52	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 101	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 118	<0.015 µg/l	TM197	0.02	<0.015	<0.015	<0.015		
PCB congener 138	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 153	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
PCB congener 180	<0.015 µg/l	TM197	<0.015	<0.015	<0.015	<0.015		
Sum of detected EC7 PCB's	<0.105 µg/l	TM197	<0.105	<0.105	<0.105	<0.105		
Phenol	<0.5 µg/l	TM205	<2.8	<2.8	<2.8	<2.8		
2-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
3-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
4-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2-chlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2,4-dimethylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
4-chloro-3-methylphenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2,6-dichlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
4-Chlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		



SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Results Legend		Customer Sample R	405311	457113	685680	984114		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D		
S	Deviating sample.		05/07/2012	05/07/2012	05/07/2012	05/07/2012		
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		06/07/2012	06/07/2012	06/07/2012	06/07/2012		
(F)	Trigger breach confirmed		120707-30	120707-30	120707-30	120707-30		
			5849871	5849868	5849870	5849869		
Component	LOD/Units	Method						
2,4-dichlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2-nitrophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2,4,6-trichlorophenol	<0.5 µg/l	TM205	0.73	<0.5	<0.5	<0.5		
2,4,5-trichlorophenol	<0.5 µg/l	TM205	0.54	<0.5	<0.5	<0.5		
4-nitrophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2,3,5,6-tetrachlorophenol	<0.5 µg/l	TM205	<0.5	<0.5	<0.5	<0.5		
2,3,4,6-tetrachlorophenol	<0.5 µg/l	TM205	2.1	<0.5	<0.5	<0.5		
2,4-dinitrophenol	<2.5 µg/l	TM205	<5	<5	<5	<5		
DNOC	<3 µg/l	TM205	<6	<6	<6	<6		
Pentachlorophenol	<2 µg/l	TM205	<2	<2	<2	<2		
Dinoseb	<4 µg/l	TM205	<8	<8	<8	<8		
Cyanide, Total	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05		
Cyanide, Free	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05		
Cyanide, Complex	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05		
Thiocyanate	<0.05 mg/l	TM227	<0.05	<0.05	<0.05	<0.05		
Calcium (diss.filt)	<0.012 mg/l	TM228	619	333	640	355		
Sodium (diss.filt)	<0.076 mg/l	TM228	10400	12100	11700	15600		
Magnesium (diss.filt)	<0.036 mg/l	TM228	784	1150	852	1330		
Potassium (diss.filt)	<2.335 mg/l	TM228	346	414	388	446		
Chromium, Hexavalent	<0.03 mg/l	TM241		<0.03 #	<0.03 #			
pH	<1 pH Units	TM256	7.92	7.85	8.09	7.88		
Arsenic (Saline)	<0.5 µg/l	TM270	1.51 #	2.07 #	1.33 #	2.04 #		
Aluminium (Saline)	<3.7 µg/l	TM270	45.1 #	48.9 #	44.8 #	44.2 #		
Antimony (Saline)	<1 µg/l	TM270	4.12 #	3.24 #	3.2 #	15.2 #		
Boron (Saline)	<201 µg/l	TM270	1470 #	3650 #	1820 #	3860 #		
Cadmium (Saline)	<0.15 µg/l	TM270	<0.15 #	3.63 #	<0.15 #	3.52 #		
Chromium (Saline)	<1.5 µg/l	TM270	3.72 #	5.62 #	3.69 #	5.91 #		
Copper (Saline)	<1 µg/l	TM270	1.62 #	1.39 #	2.25 #	1.4 #		
Iron (Saline)	<4 µg/l	TM270	<4 #	<4 #	<4 #	<4 #		
Lead (Saline)	<0.2 µg/l	TM270	<0.2 #	<0.2 #	<0.2 #	<0.2 #		
Manganese (Saline)	<0.3 µg/l	TM270	1180 #	240 #	1650 #	123 #		
Mercury (Saline)	<0.15 µg/l	TM270	<0.15 #	<0.15 #	<0.15 #	<0.15 #		
Nickel (saline)	<1.1 µg/l	TM270	7.33 #	7.43 #	6.6 #	7.21 #		
Selenium (Saline)	<0.5 µg/l	TM270	3.11 #	2.08 #	1.19 #	2.07 #		
Vanadium (Saline)	<4 µg/l	TM270	14 #	14.9 #	18.5 #	11 #		



CERTIFICATE OF ANALYSIS

Validated

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Table with columns for Results Legend, Customer Sample R, and various chemical components (Zinc, Saline TON as NO3, Sulphur, Free) across multiple sample IDs (405311, 457113, 685680, 984114).



CERTIFICATE OF ANALYSIS

SDG: 120707-30 Job: D_PRIORGEOT_CRK-44 Client Reference: P12030	Location: Haulbowline Customer: Priority Geotechnical Ltd Attention: Colette Kelly	Order Number: Report Number: 188481 Superseded Report:
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TPH CWG (W)

Results Legend		Customer Sample R	405311	457113	685680	984114		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.							
S	Deviating sample.							
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							
Component	LOD/Units		Method					
GRO Surrogate % recovery**	%	TM245	96	92	89	89		
GRO >C5-C12	<50 µg/l	TM245	<50	<50	<50	<50		
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245	<3	<3	<3	<3		
Benzene	<7 µg/l	TM245	<7	<7	<7	<7		
Toluene	<4 µg/l	TM245	<4	<4	<4	<4		
Ethylbenzene	<5 µg/l	TM245	<5	<5	<5	<5		
m,p-Xylene	<8 µg/l	TM245	<8	<8	<8	<8		
o-Xylene	<3 µg/l	TM245	<3	<3	<3	<3		
Sum of detected Xylenes	<11 µg/l	TM245	<11	<11	<11	<11		
Sum of detected BTEX	<28 µg/l	TM245	<28	<28	<28	<28		
Aliphatics >C5-C6	<10 µg/l	TM245	<10	<10	<10	<10		
Aliphatics >C6-C8	<10 µg/l	TM245	<10	<10	<10	<10		
Aliphatics >C8-C10	<10 µg/l	TM245	<10	<10	<10	<10		
Aliphatics >C10-C12	<10 µg/l	TM245	<10	<10	<10	<10		
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10		
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174	73	<10	<10	<10		
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174	2280	<10	116	<10		
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174	2350	<10	116	<10		
Aromatics >EC5-EC7	<10 µg/l	TM245	<10	<10	<10	<10		
Aromatics >EC7-EC8	<10 µg/l	TM245	<10	<10	<10	<10		
Aromatics >EC8-EC10	<10 µg/l	TM245	<10	<10	<10	<10		
Aromatics >EC10-EC12	<10 µg/l	TM245	<10	<10	<10	<10		
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174	<10	<10	<10	<10		
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174	32	<10	<10	<10		
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174	586	<10	<10	<10		
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174	618	<10	<10	<10		
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174	2980	<10	124	<10		



SDG: 120707-30
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 Client Reference: P12030

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 Superseded Report:

VOC MS (W)

Results Legend		Customer Sample R	405311	457113	685680	984114		
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s) AGS Reference						
M	mCERTS accredited.		Saline D	Saline D	Saline D	Saline D		
S	Deviating sample.		05/07/2012	05/07/2012	05/07/2012	05/07/2012		
aq	Aqueous / settled sample.		06/07/2012	06/07/2012	06/07/2012	06/07/2012		
diss.filt	Dissolved / filtered sample.		120707-30	120707-30	120707-30	120707-30		
tot.unfilt	Total / unfiltered sample.		5849871	5849868	5849870	5849869		
*	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							
Component	LOD/Units		Method					
Dibromofluoromethane**	%	TM208	112	108	115	109		
Toluene-d8**	%	TM208	100	101	100	99.8		
4-Bromofluorobenzene**	%	TM208	95.1	98.1	95.5	96.3		
Dichlorodifluoromethane	<1 µg/l	TM208	<1	<1	<1	<1		
Chloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
Vinyl chloride	<1 µg/l	TM208	<1	<1	<1	<1		
Bromomethane	<1 µg/l	TM208	<1	<1	<1	<1		
Chloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
Trichlorofluoromethane	<1 µg/l	TM208	<1	<1	<1	<1		
1,1-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
Carbon disulphide	<1 µg/l	TM208	<1	<1	<1	<1		
Dichloromethane	<3 µg/l	TM208	<3	<3	<3	<3		
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	<1	<1	<1		
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
1,1-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
2,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
Bromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
Chloroform	<1 µg/l	TM208	<1	<1	<1	<1		
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
1,1-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
Carbontetrachloride	<1 µg/l	TM208	<1	<1	<1	<1		
1,2-Dichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
Benzene	<1 µg/l	TM208	<1	<1	<1	<1		
Trichloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
1,2-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
Dibromomethane	<1 µg/l	TM208	<1	<1	<1	<1		
Bromodichloromethane	<1 µg/l	TM208	<1	<1	<1	<1		
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
Toluene	<1 µg/l	TM208	<1	<1	<1	<1		
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	<1	<1	<1		
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	<1	<1	<1		
1,3-Dichloropropane	<1 µg/l	TM208	<1	<1	<1	<1		
Tetrachloroethene	<1 µg/l	TM208	<1	<1	<1	<1		
Dibromochloromethane	<1 µg/l	TM208	<1	<1	<1	<1		



SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

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Attention: Colette Kelly

Order Number:
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Superseded Report:

VOC MS (W)

Results Legend			Customer Sample R				
#	ISO17025 accredited.		405311	457113	685680	984114	
M	mCERTS accredited.						
S	Deviating sample.						
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						
Component	LOD/Units	Method	405311	457113	685680	984114	
1,2-Dibromoethane	<1 µg/l	TM208	<1	<1	<1	<1	
Chlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	
Ethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	
m,p-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	
o-Xylene	<1 µg/l	TM208	<1	<1	<1	<1	
Styrene	<1 µg/l	TM208	<1	<1	<1	<1	
Bromoform	<1 µg/l	TM208	<1	<1	<1	<1	
Isopropylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208	<1	<1	<1	<1	
1,2,3-Trichloropropane	<1 µg/l	TM208	<1	<1	<1	<1	
Bromobenzene	<1 µg/l	TM208	<1	<1	<1	<1	
Propylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	
2-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	
1,3,5-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	
4-Chlorotoluene	<1 µg/l	TM208	<1	<1	<1	<1	
tert-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	
1,2,4-Trimethylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	
sec-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	
4-iso-Propyltoluene	<1 µg/l	TM208	<1	<1	<1	<1	
1,3-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	
1,4-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	
n-Butylbenzene	<1 µg/l	TM208	<1	<1	<1	<1	
1,2-Dichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208	<1	<1	<1	<1	
1,2,4-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	
Hexachlorobutadiene	<1 µg/l	TM208	<1	<1	<1	<1	
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208	<1	<1	<1	<1	
Naphthalene	<1 µg/l	TM208	<1	<1	<1	<1	
1,2,3-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	
1,3,5-Trichlorobenzene	<1 µg/l	TM208	<1	<1	<1	<1	



CERTIFICATE OF ANALYSIS

SDG: 120707-30
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Table of Results - Appendix

Method No	Reference	Description	Wet/Dry Sample ¹	Surrogate Corrected
SUB		Subcontracted Test		
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples		
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids		
TM061	Method for the Determination of EPH,Massachusetts Dept.of EP, 1998	Determination of Extractable Petroleum Hydrocarbons by GC-FID (C10-C40)		
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser		
TM101	Method 4500B & C, AWWA/APHA, 20th Ed., 1999	Determination of Sulphide in soil and water samples using the Kone Analyser		
TM104	Method 4500F, AWWA/APHA, 20th Ed., 1999	Determination of Fluoride using the Kone Analyser		
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9:1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM197	Modified: US EPA Method 8082.EA Method 174 and 5109631	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Waters		
TM205		Determination of Phenols in Waste Waters using Solid Phase Extraction, Acetylation, Gas Chromatography and Mass Selective Detection		
TM208	Modified: US EPA Method 8260b & 624	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters		
TM227	Standard methods for the examination of waters and wastewaters 20th Edition, AWWA/APHA Method 4500.	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate		
TM228	US EPA Method 6010B	Determination of Major Cations in Water by iCap 6500 Duo ICP-OES		
TM241	Methods for the Examination of Waters and Associated Materials; Chromium in Raw and Potable Waters and Sewage Effluents 1980.	The Determination of Hexavalent Chromium in Waters and Leachates using the Kone Analyser		
TM245	By GC-FID	Determination of GRO by Headspace in waters		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLpH pH Meter		
TM270	Thermo Electron Application Note AN_E0640: X Series ICP-MS: Using automated collision cell ICP-MS with rapid in-sample switching to achieve ultimate performance in environmental analysis.	Dissolved Metals in Saline Matrices by CCT ICP-MS		
TM281		The Determination of Total Oxidized Nitrogen in Saline Matrices using the Kone Spectrophotometric Analysers		
TM294		Determination of Free Sulphur in liquids by HPLC		

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



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Superseded Report:

Test Completion Dates

Lab Sample No(s)	5849871	5849868	5849870	5849869
Customer Sample Ref.	405311	457113	685680	984114
AGS Ref.				
Depth				
Type	SALINE_D	SALINE_D	SALINE_D	SALINE_D
Alkalinity as CaCO3	13-Jul-2012			13-Jul-2012
Ammoniacal Nitrogen	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012
Anions by Kone (w)	14-Jul-2012	14-Jul-2012	14-Jul-2012	14-Jul-2012
BOD True Total	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
COD Unfiltered	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Conductivity (at 20 deg.C)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Cyanide Comp/Free/Total/Thiocyanate	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Dissolved Metals by ICP-MS	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
EPH CWG (Aliphatic) Aqueous GC (W)	16-Jul-2012	13-Jul-2012	16-Jul-2012	16-Jul-2012
EPH CWG (Aromatic) Aqueous GC (W)	16-Jul-2012	13-Jul-2012	16-Jul-2012	16-Jul-2012
Fluoride	11-Jul-2012			11-Jul-2012
Free Sulphur	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
GRO by GC-FID (W)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Hexavalent Chromium (w)		11-Jul-2012	11-Jul-2012	
Metals analysis (Saline Sample)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Metals by iCap-OES Dissolved (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012
Nitrite by Kone (w)	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
PCB Congeners - Aqueous (W)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
pH Value	11-Jul-2012	11-Jul-2012	11-Jul-2012	11-Jul-2012
Phenols by ms (w)	16-Jul-2012	16-Jul-2012	16-Jul-2012	16-Jul-2012
Saline TON	18-Jul-2012	18-Jul-2012	18-Jul-2012	18-Jul-2012
Sulphide	13-Jul-2012	13-Jul-2012	13-Jul-2012	13-Jul-2012
TOC (Saline)*	24-Jul-2012	24-Jul-2012	24-Jul-2012	24-Jul-2012
TPH CWG (W)	16-Jul-2012	13-Jul-2012	16-Jul-2012	16-Jul-2012
VOC MS (W)	12-Jul-2012	12-Jul-2012	12-Jul-2012	12-Jul-2012



CERTIFICATE OF ANALYSIS

SDG: 120707-30
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Order Number:
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Chromatogram

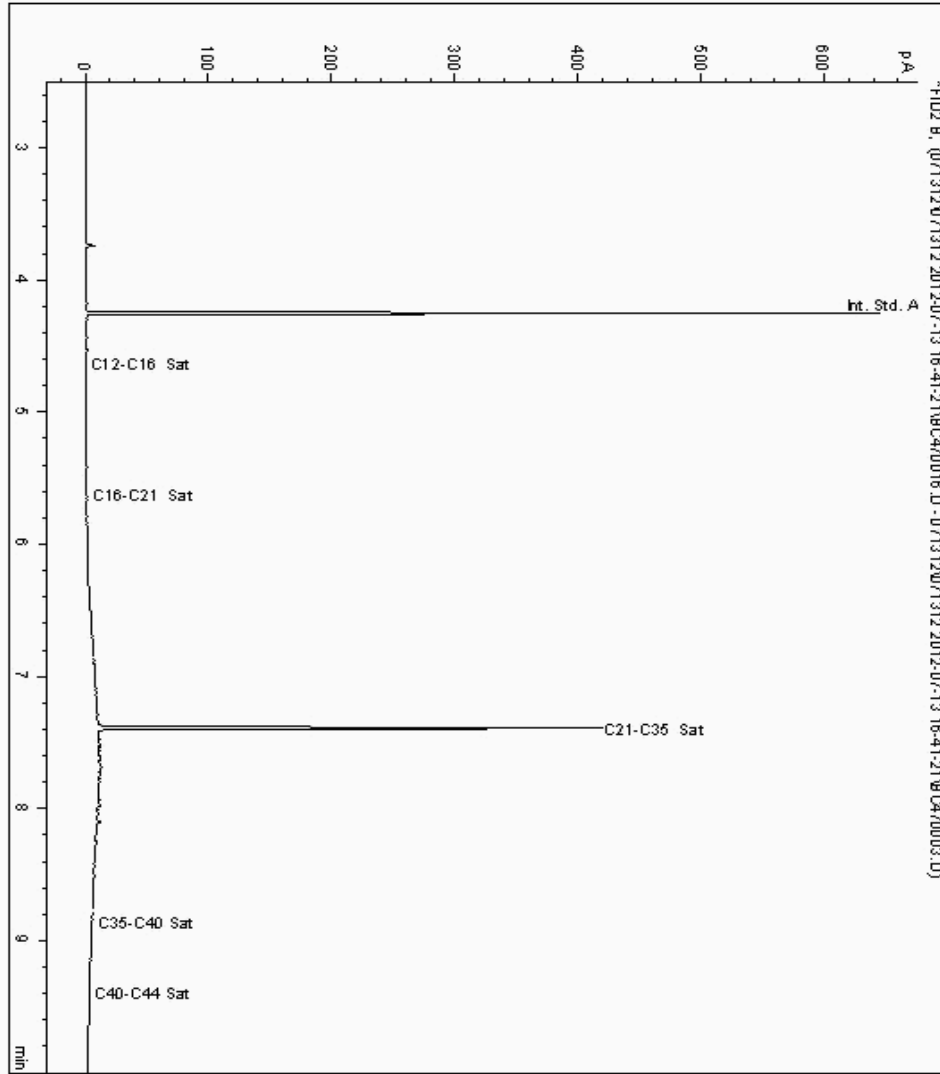
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858107
Sample ID : 405311

Depth :

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

Sample Identity: 5706619-5858107
Date Acquired : 13/07/12 21:23:10
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





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Chromatogram

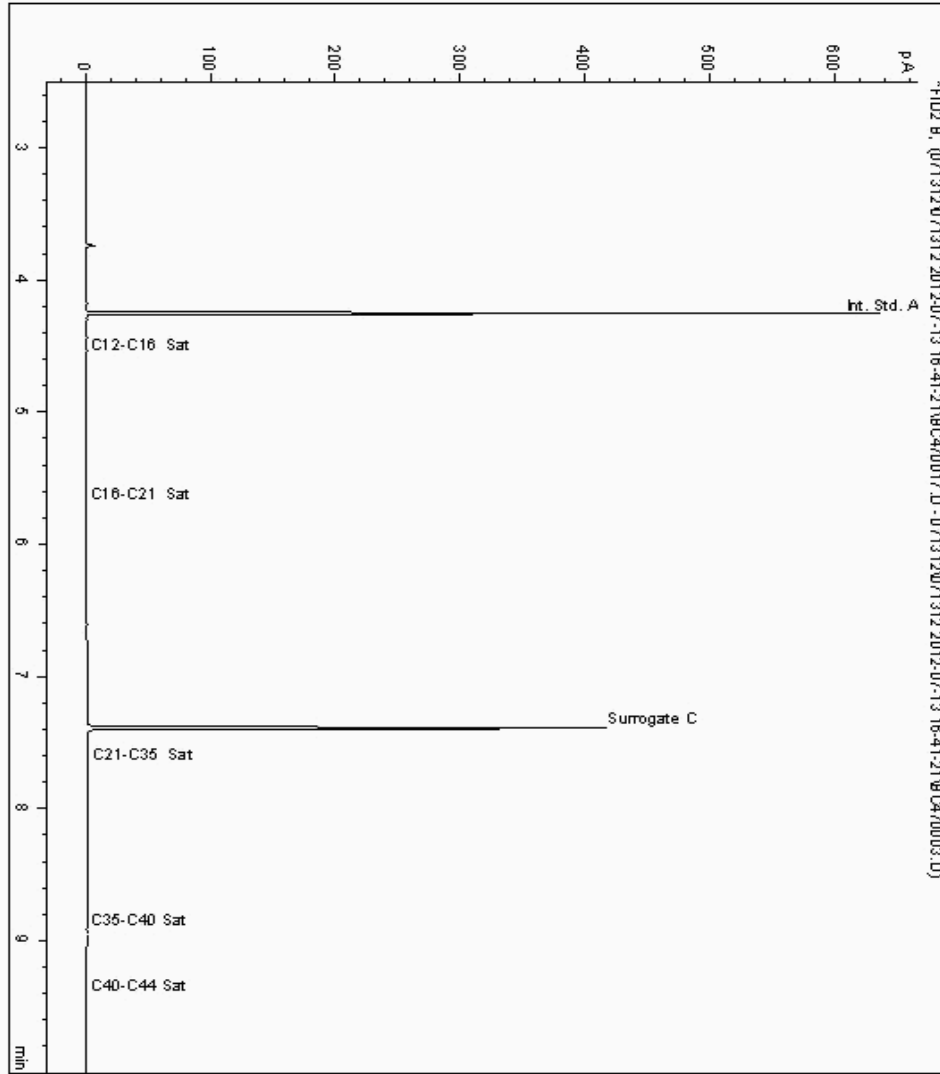
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858122
Sample ID : 685680

Depth :

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

Sample Identity: 5706579-5858122
Date Acquired : 13/07/12 21:42:08
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





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Superseded Report:

Chromatogram

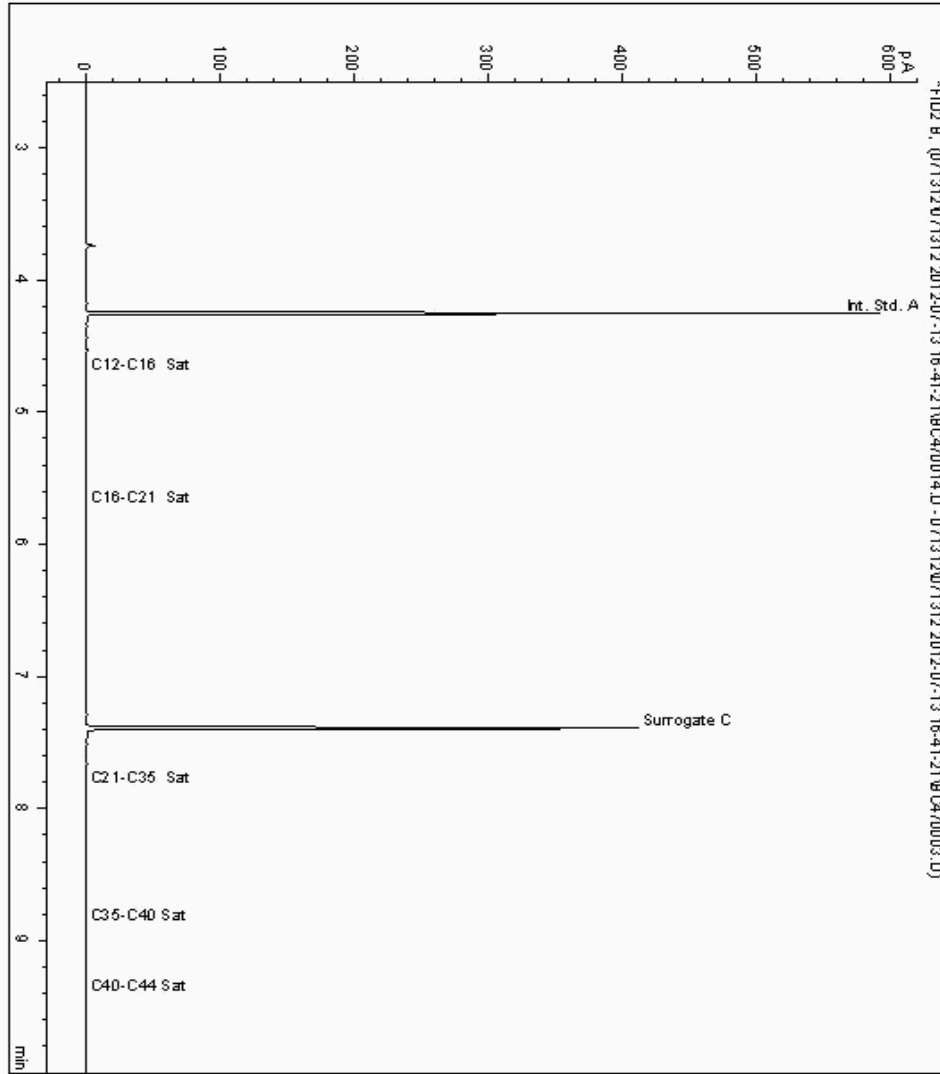
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858135
Sample ID : 984114

Depth :

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

Sample Identity: 5706549-5858135
Date Acquired : 13/07/12 20:45:09
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

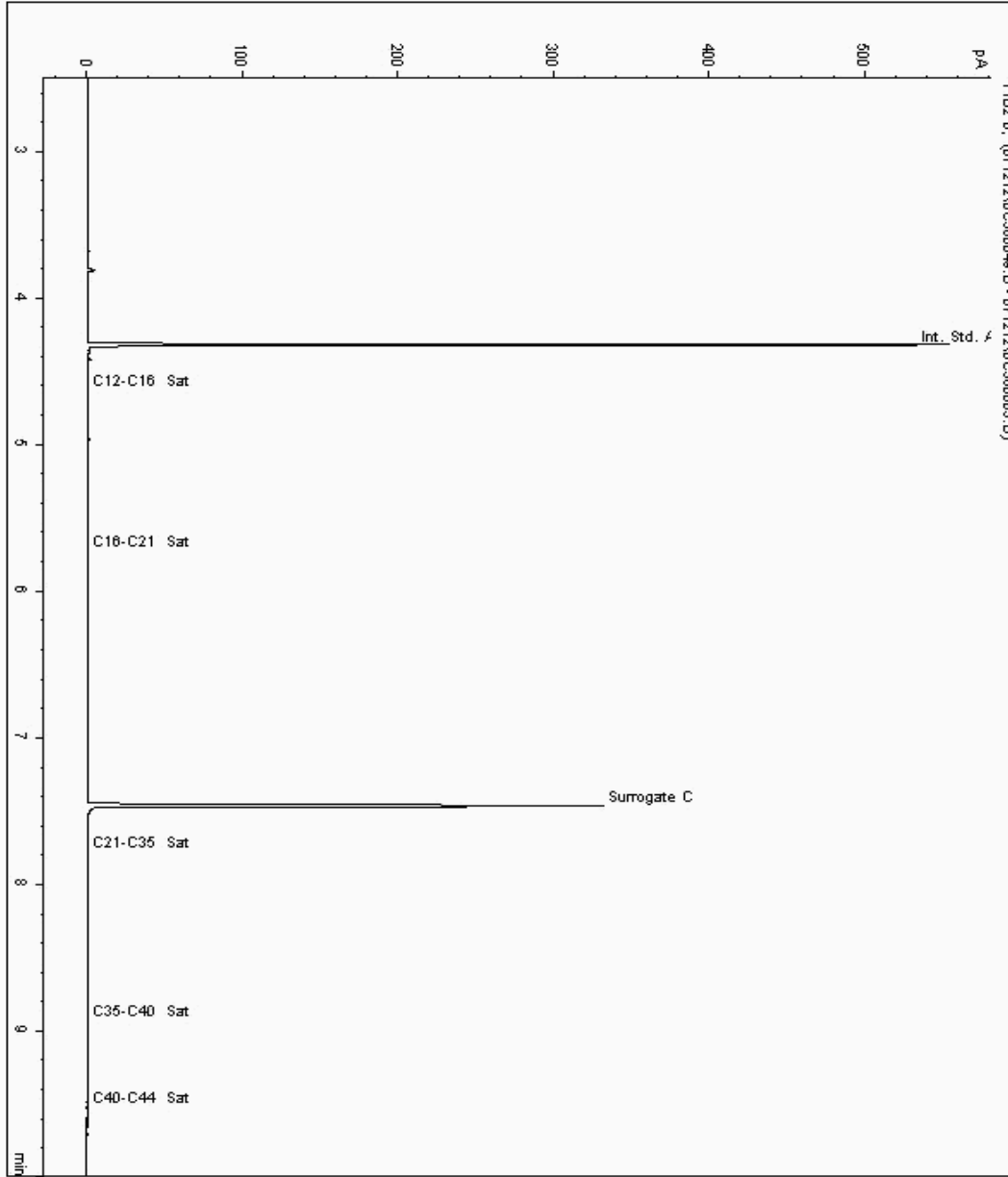
Analysis: EPH CWG (Aliphatic) Aqueous GC (W)

Sample No : 5858162
Sample ID : 457113

Depth :

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

Sample Identity: 5706520-5858162
Date Acquired : 13/07/12 07:00:08 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

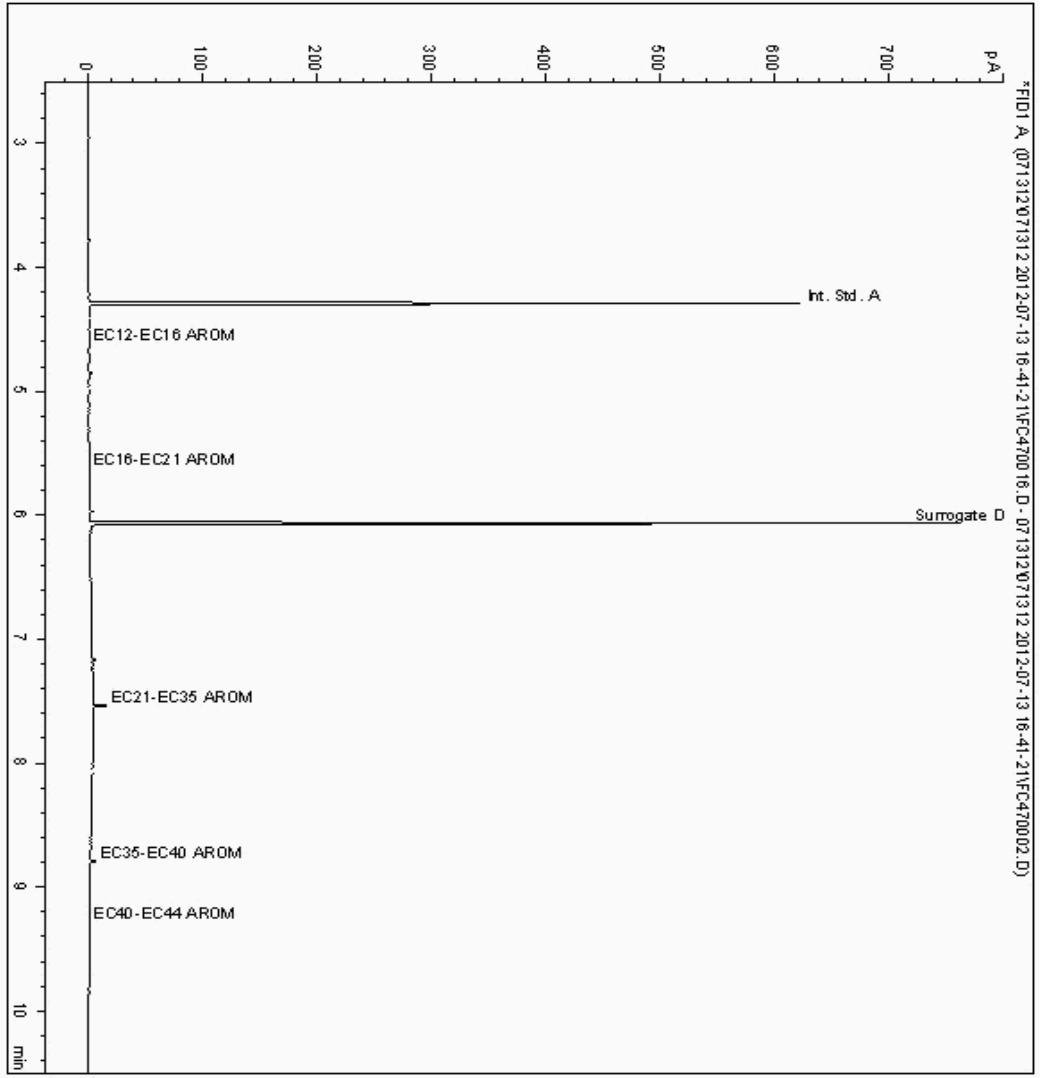
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858107
Sample ID : 405311

Depth :

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

Sample Identity: 5706620-5858107
Date Acquired : 13/07/12 21:23:10
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

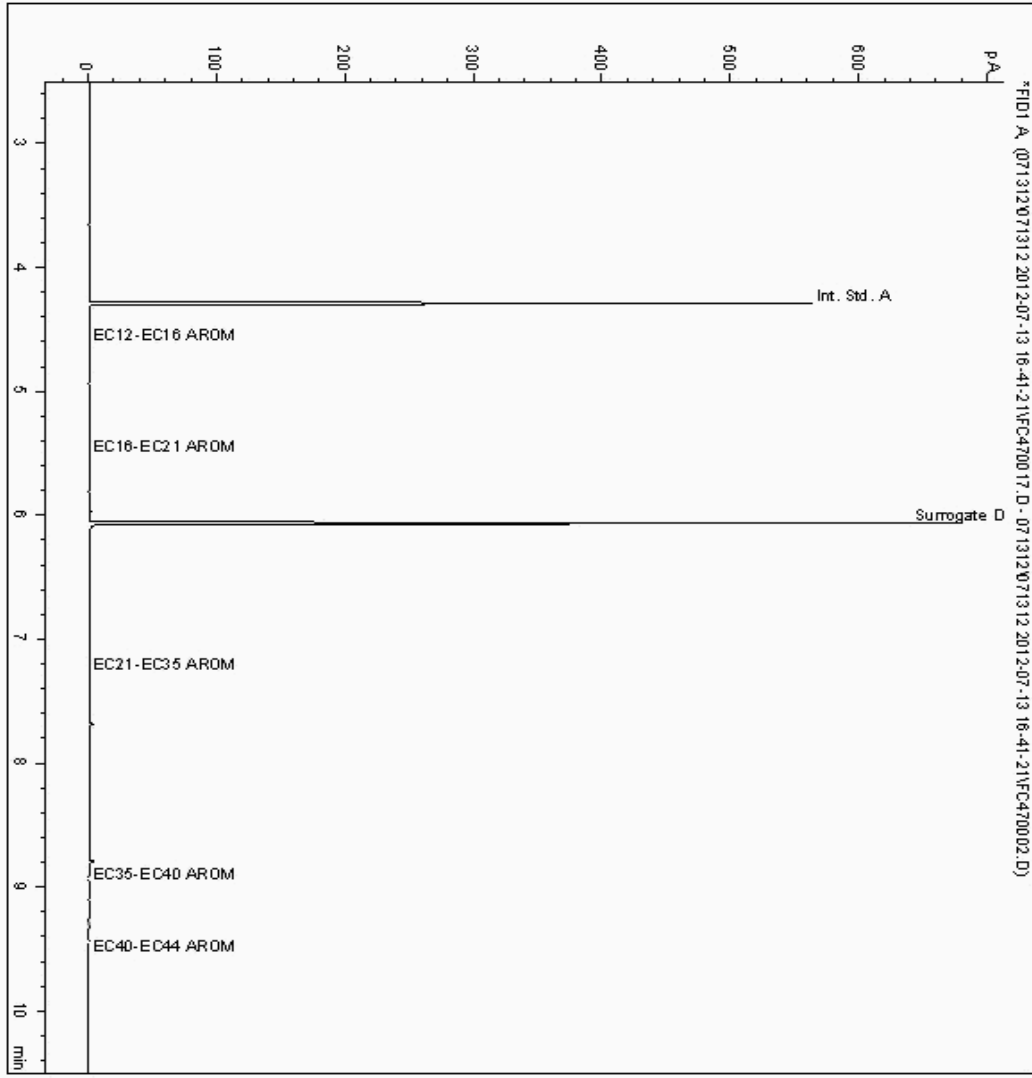
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858122
Sample ID : 685680

Depth :

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

Sample Identity: 5706580-5858122
Date Acquired : 13/07/12 21:42:08
Units :
Dilution :
CF : 1
Multiplier : 0.017





CERTIFICATE OF ANALYSIS

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

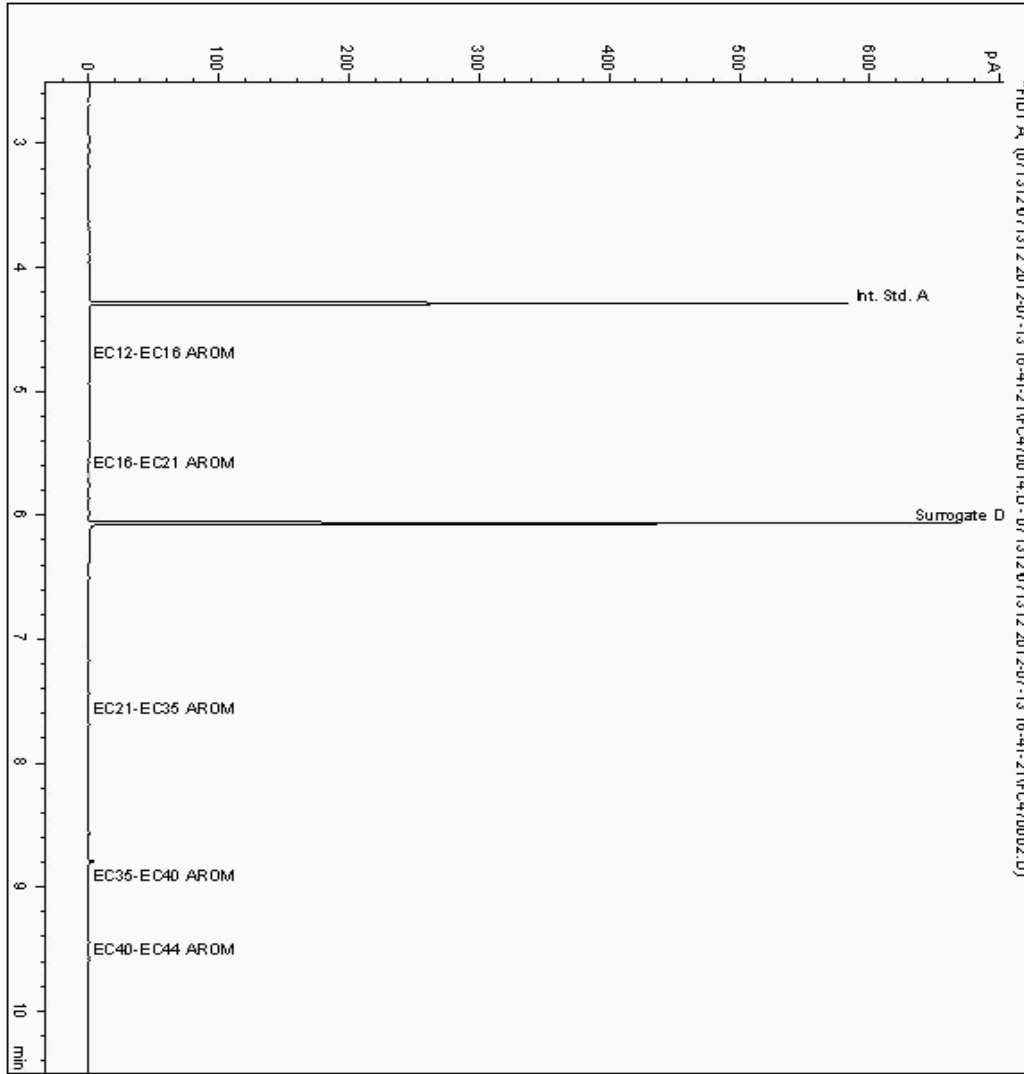
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858135
Sample ID : 984114

Depth :

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

Sample Identity: 5706550-5858135
Date Acquired : 13/07/12 20:45:09
Units :
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

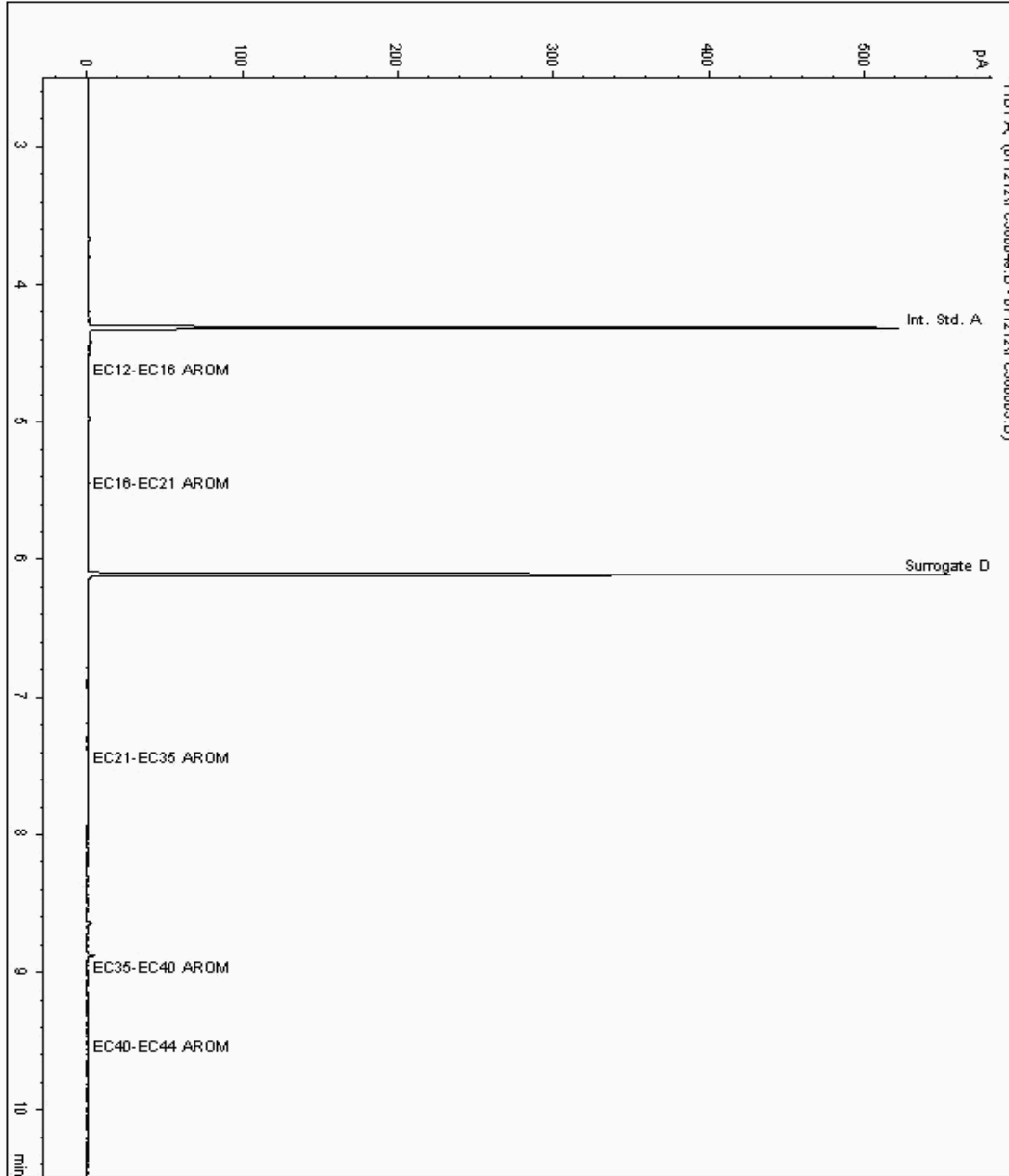
Analysis: EPH CWG (Aromatic) Aqueous GC (W)

Sample No : 5858162
Sample ID : 457113

Depth :

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

Sample Identity: 5706521-5858162
Date Acquired : 13/07/12 07:00:08 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.017





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

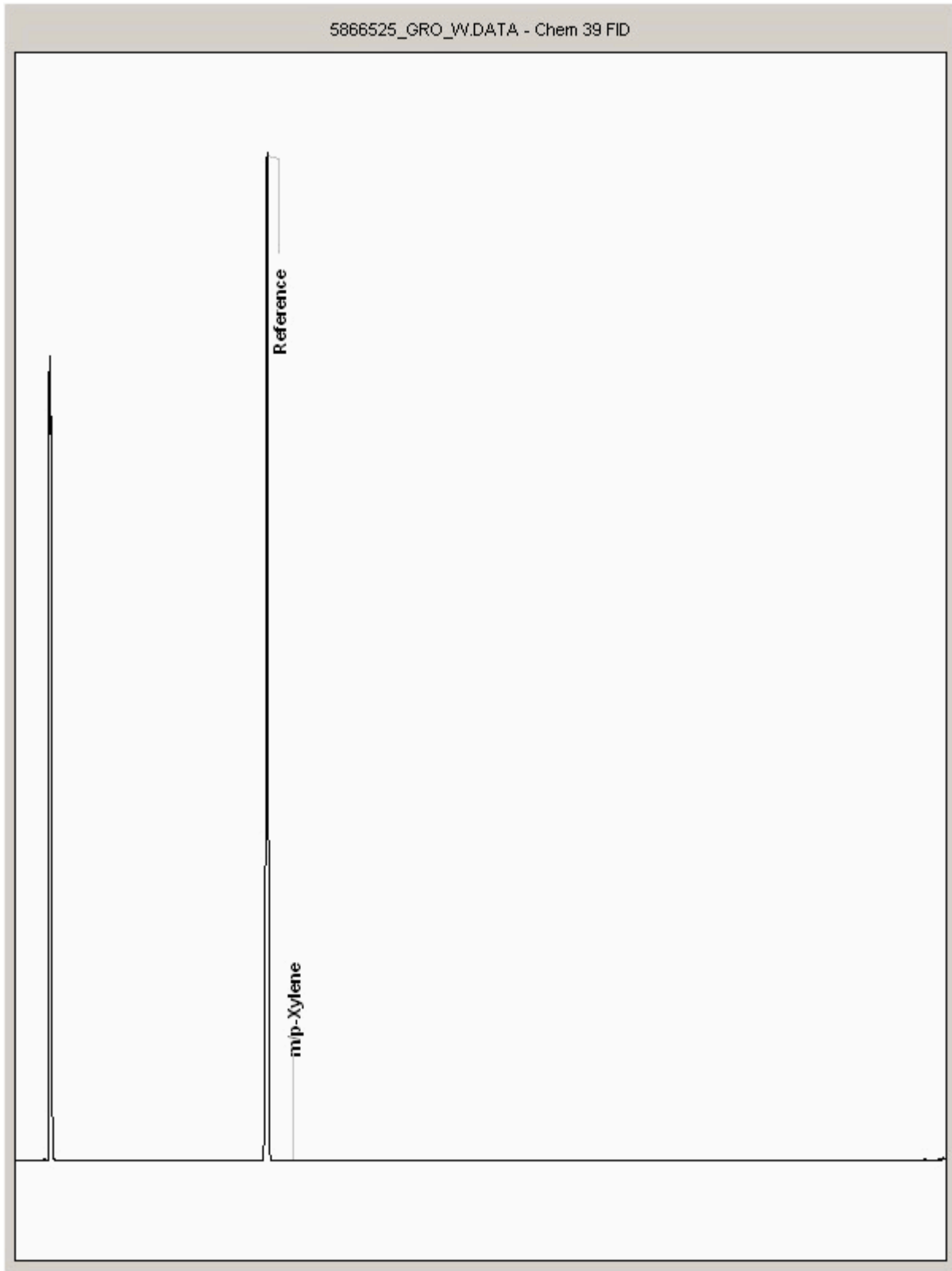
Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5866525
Sample ID : 457113

Depth :





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

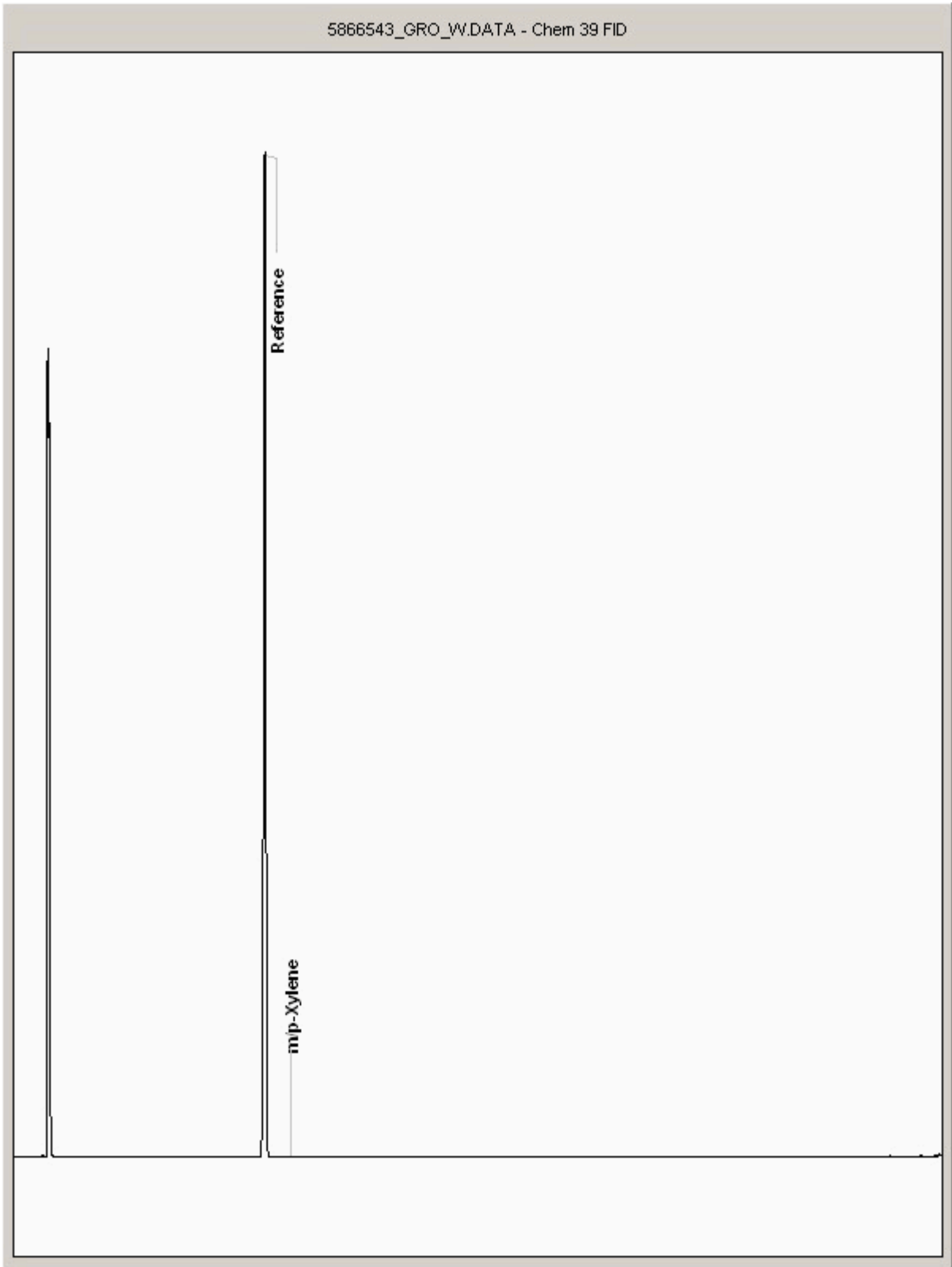
Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5866543
Sample ID : 984114

Depth :





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

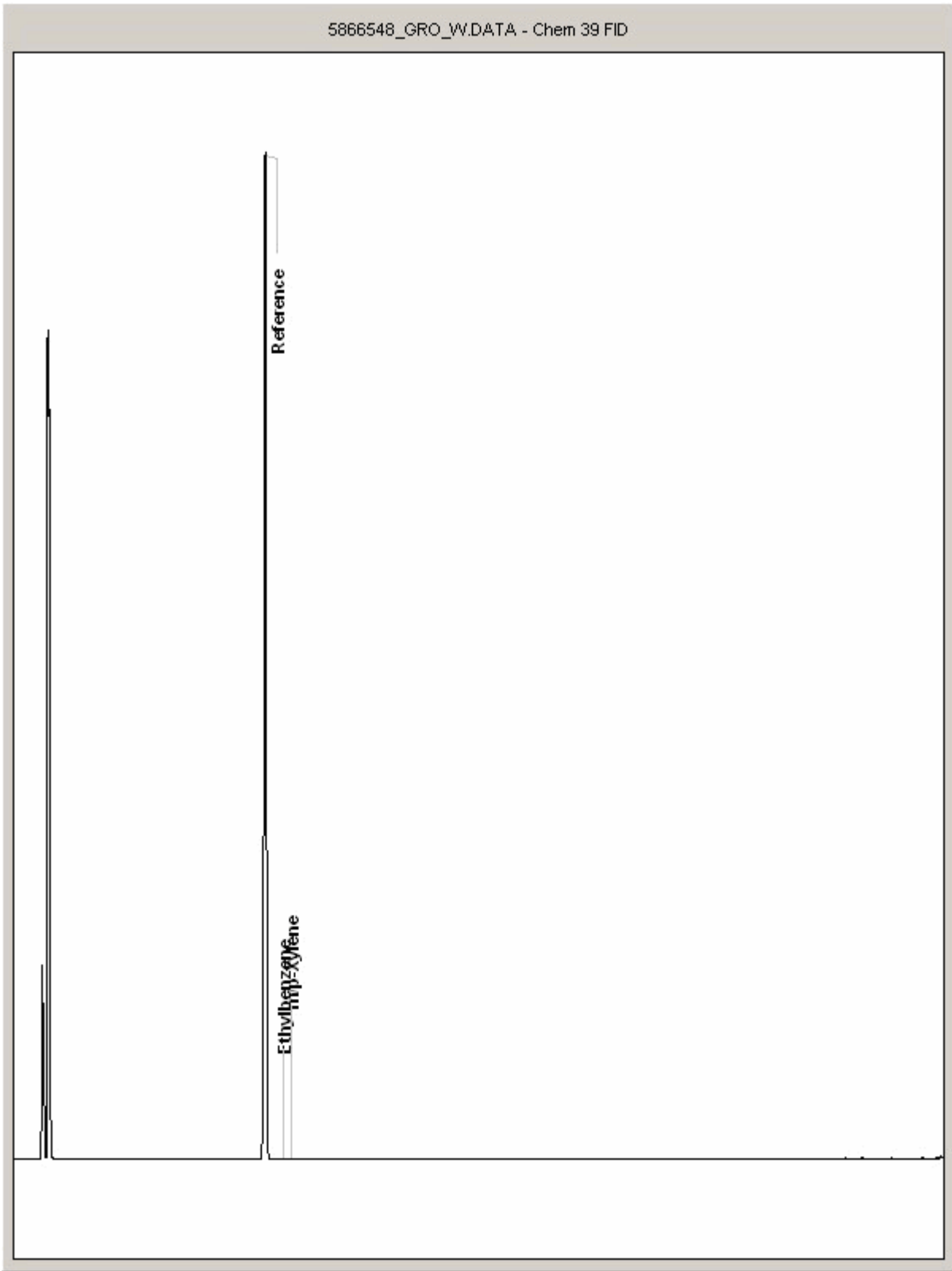
Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5866548
Sample ID : 685680

Depth :





SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

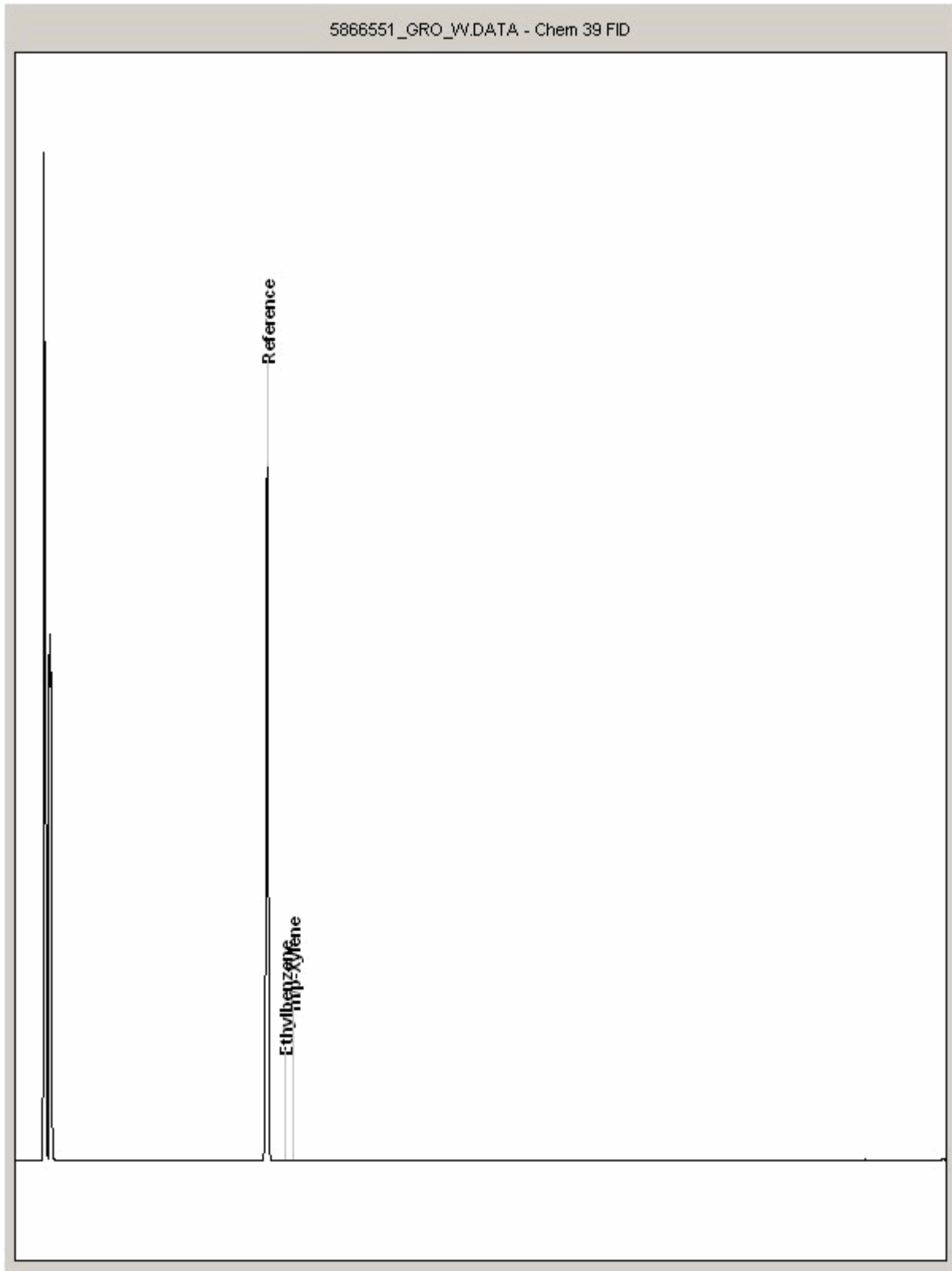
Order Number:
Report Number: 188481
Superseded Report:

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 5866551
Sample ID : 405311

Depth :



Hawarden Subcontractors
ALcontrol Laboratories Chester
Units 7 & 8 Hawarden Business Park
Off Manor Lane
Hawarden
Deeside
CH5 3US

Dear Hawarden

Please find attached the results for the batch of 4 samples described below.

Samples Registered on:	11-Jul-2012
Analysis Started on:	23-Jul-2012
Analysis Completed on:	24-Jul-2012
Results for Batch Number	20041596
Your Purchase Order Number:	150621

You will be invoiced shortly by our accounts department.

If we can be of further assistance then please do not hesitate to contact us.

Yours sincerely



William Fardon
Customer Services Team Leader
Tel: (0113) 231 2177
nls@environment-agency.gov.uk

Opinions and interpretations expressed herein are outside the scope of UKAS Accreditation. Details of analytical procedures and performance data are available on request. The date of sample analysis is available on request.

The Environment Agency carries out analytical work to high standards and within the scope of its UKAS accreditation, but has no knowledge of whether the circumstances or the validity of the procedures used to obtain the samples provided to the laboratory were representative of the need for which the information was required.

The Environment Agency and/or its staff does not therefore accept any liability for the consequences of any acts or omissions made on the basis of the analysis or advice or interpretation provided.

Final Report

Report ID - 20041596 - 1

Batch description: 120707 - 30 - TOC Saline Analysis

Reported on:
24-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000706
Comments: 5857542 - 457113
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 5-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	1.71	mg/l	1	None	NM	1102

Final Report

Report ID - 20041596 - 1

Batch description: 120707 - 30 - TOC Saline Analysis

Reported on:
24-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000707
Comments: 5857709 - 984114
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 5-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	4.49	mg/l	1	None	NM	1102

Final Report

Report ID - 20041596 - 1

Batch description: 120707 - 30 - TOC Saline Analysis

Reported on:
24-Jul-2012

Client: ALcontrol Laboratories Chester
Folder No: 002000708
Comments: 5857780 - 685680
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 5-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	3.81	mg/l	1	None	NM	1102

Client: ALcontrol Laboratories Chester
Folder No: 002000709
Comments: 5857876 - 405311
Quote No: 7078

Project: Saline analysis 2011
Sampled on: 5-Jul-12 @ (Time not supplied)

Matrix: Saline Water

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>MRV</u>	<u>Accred</u>	<u>Lab ID</u>	<u>Testcode</u>
Carbon, Organic : Total as C :- {TOC}	85.0	mg/l	1	None	NM	1102

Method Description Summary for all samples in batch Number 20041596

1102 NM I TOC - furnace with IR detection



Mark Gale

Laboratory Site Manager

All reporting limits quoted are those achievable for clean samples of the relevant matrix. No allowance is made for instances when dilutions are necessary owing to the nature of the sample or insufficient volume of the sample being available. In these cases higher reporting limits may be quoted and will be above the MRV.

Solid sample results are determined on a "dried" sample fraction except for parameters where the method description identifies that "as received" sample was used.

Please note all samples will be retained for 10 working days for aqueous samples and 30 working days for solid samples after reporting unless otherwise agreed with Customer Services

Key to Accreditation: UKAS = Methodology accredited to ISO/IEC 17025:2005, MCertS = Methodology accredited to MCertS Performance Standard for testing of soils, none = Methodology not accredited

Key to Lab ID: LE = Leeds, LL = Llanelli, NM = Nottingham, SX = Starcross, SC = Sub-Contracted outside NLS, FI = Field Data, NLS = Calculated

Any subsequent version of this report denoted with a higher version number will supersede this and any previous versions

END OF TEST REPORT

SDG: 120707-30
Job: D_PRIORGEOT_CRK-44
Client Reference: P12030

Location: Haulbowline
Customer: Priority Geotechnical Ltd
Attention: Colette Kelly

Order Number:
Report Number: 188481
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 and CEN Leach tests, flash point, 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 2 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.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENTEXTRACTABLE MATTER	D&C	DOM	SOX THERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOX THERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DOM	SOX THERM	HPLC
PHENOLS BY GCMS	WET	DOM	SOX THERM	GCMS
HERBICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
PESTICIDES	D&C	HEXANE ACETONE	SOX THERM	GCMS
EPH (DRO)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (MIN OIL)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH (CLEANED UP)	D&C	HEXANE ACETONE	END OVER END	GC FD
EPH CWGBY GC	D&C	HEXANE ACETONE	END OVER END	GC FD
PCBAROCLOR 1254/PCBCON	D&C	HEXANE ACETONE	END OVER END	GCMS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE ACETONE	MICROWAVE TM218.	GCMS
>C6C40	WET	HEXANE ACETONE	SHAKER	GC FD
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE ACETONE	SHAKER	GC FD
SEMIVOLATILE ORGANIC COMPOUNDS	WET	DOM/ACETONE	SONICATE	GCMS

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
PCB7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
PCBAROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GCMS
SVCC	DCM	LIQUID/LIQUID SHAKE	GCMS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCPOPP	DCM	LIQUID/LIQUID SHAKE	GCMS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GCMS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GCMS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL BY R	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FD

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description 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).

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.

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



2139

Certificate of Analysis

Date: 10/07/2012

Certificate Number: 12-65237

Client: Priority Geotechnical Ltd
Unit 12B
Owenacurra Business Park
Middleton
Co. Cork

Our Reference: 12-65237

Client Reference: P12030

Contract Title: Haulbowline East Tip

Description: 31 water samples

Date Received: 02 July 2012

Date Started: 03 July 2012

Date Completed: 10 July 2012

Test Procedures: Identified by prefix DETSn, details available upon request.

Notes: Observations and interpretations are outside the scope of UKAS accreditation

Approved By: 
Paul Woodbridge, Senior Operations Manager

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Information in Support of the Analytical Results

Analysis

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425um sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample.

Key

- * Denotes test not included in laboratory scope of accreditation
- # Denotes test that holds MCERTS accreditation, however, MCERTS accreditation is only implied if the report carries the MCERTS logo
- \$ Denotes tests completed by an approved subcontractor
- I/S Denotes insufficient sample to carry out test
- U/S Denotes that the sample is not suitable for testing

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month

Liquids - 2 weeks

Asbestos (test portion) - 6 months

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65237

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	424247	424248	424249	424250
				Sample ID	974589	237415	654684	345662
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	23/06/2012	23/06/2012	23/06/2012	23/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETSC 3304	0.03		0.15	< 0.03	< 0.03	< 0.03
Acenaphthylene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04	< 0.04
Anthracene	ug/l	DETSC 3304	0.02		0.03	< 0.02	0.03	< 0.02
Benzo(a)anthracene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	ug/l	DETSC 3304	0.05		< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	ug/l	DETSC 3304	0.02		< 0.02	< 0.02	< 0.02	< 0.02
Benzo(k)fluoranthene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	ug/l	DETSC 3304	0.08		< 0.08	< 0.08	< 0.08	< 0.08
Chrysene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	ug/l	DETSC 3304	0.07		< 0.07	< 0.07	< 0.07	< 0.07
Fluorene	ug/l	DETSC 3304	0.04		0.07	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-c,d)pyrene	ug/l	DETSC 3304	0.05		< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	ug/l	DETSC 3304	0.06		0.25	< 0.06	0.13	< 0.06
Phenanthrene	ug/l	DETSC 3304	0.085		0.12	< 0.085	< 0.085	< 0.085
Pyrene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06	< 0.06
PAH	ug/l	DETSC 3304	0.2		0.69	< 0.20	0.35	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65237

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	424251	424252	424253	424254
				Sample ID	475461	533020	882654	637220
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	23/06/2012	23/06/2012	23/06/2012	23/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04	< 0.04
Anthracene	ug/l	DETSC 3304	0.02		< 0.02	< 0.02	< 0.02	< 0.02
Benzo(a)anthracene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	ug/l	DETSC 3304	0.05		< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	ug/l	DETSC 3304	0.02		< 0.02	< 0.02	< 0.02	< 0.02
Benzo(k)fluoranthene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	ug/l	DETSC 3304	0.08		< 0.08	< 0.08	< 0.08	< 0.08
Chrysene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	ug/l	DETSC 3304	0.07		< 0.07	< 0.07	< 0.07	< 0.07
Fluorene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-c,d)pyrene	ug/l	DETSC 3304	0.05		< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06	< 0.06
Phenanthrene	ug/l	DETSC 3304	0.085		< 0.085	< 0.085	< 0.085	< 0.085
Pyrene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06	< 0.06
PAH	ug/l	DETSC 3304	0.2		< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65237

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	424255	424256	424257	424258
				Sample ID	543939	952615	870938	983837
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	23/06/2012	23/06/2012	23/06/2012	23/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETSC 3304	0.03	< 0.03	0.07	< 0.03	0.09	
Acenaphthylene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	
Anthracene	ug/l	DETSC 3304	0.02	< 0.02	0.04	< 0.02	0.04	
Benzo(a)anthracene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	
Benzo(a)pyrene	ug/l	DETSC 3304	0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Benzo(b)fluoranthene	ug/l	DETSC 3304	0.02	< 0.02	< 0.02	< 0.02	< 0.02	
Benzo(k)fluoranthene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	
Benzo(g,h,i)perylene	ug/l	DETSC 3304	0.08	< 0.08	< 0.08	< 0.08	< 0.08	
Chrysene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	
Dibenzo(a,h)anthracene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	
Fluoranthene	ug/l	DETSC 3304	0.07	< 0.07	< 0.07	< 0.07	< 0.07	
Fluorene	ug/l	DETSC 3304	0.04	< 0.04	0.04	< 0.04	< 0.04	
Indeno(1,2,3-c,d)pyrene	ug/l	DETSC 3304	0.05	< 0.05	< 0.05	< 0.05	< 0.05	
Naphthalene	ug/l	DETSC 3304	0.06	< 0.06	0.51	< 0.06	0.55	
Phenanthrene	ug/l	DETSC 3304	0.085	< 0.085	0.13	< 0.085	0.12	
Pyrene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	
PAH	ug/l	DETSC 3304	0.2	< 0.20	0.91	< 0.20	0.93	

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65237

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	424259	424260	424261	424262
				Sample ID	345730	282822	880167	419835
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	23/06/2012	23/06/2012	23/06/2012	23/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETSC 3304	0.03		0.09	0.04	0.09	< 0.03
Acenaphthylene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04	< 0.04
Anthracene	ug/l	DETSC 3304	0.02		0.03	0.06	0.03	< 0.02
Benzo(a)anthracene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	ug/l	DETSC 3304	0.05		< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	ug/l	DETSC 3304	0.02		< 0.02	< 0.02	< 0.02	< 0.02
Benzo(k)fluoranthene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	ug/l	DETSC 3304	0.08		< 0.08	< 0.08	< 0.08	< 0.08
Chrysene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	ug/l	DETSC 3304	0.07		< 0.07	< 0.07	< 0.07	< 0.07
Fluorene	ug/l	DETSC 3304	0.04		0.05	< 0.04	0.04	< 0.04
Indeno(1,2,3-c,d)pyrene	ug/l	DETSC 3304	0.05		< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	ug/l	DETSC 3304	0.06		0.26	0.12	0.22	< 0.06
Phenanthrene	ug/l	DETSC 3304	0.085		0.10	< 0.085	< 0.085	< 0.085
Pyrene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06	< 0.06
PAH	ug/l	DETSC 3304	0.2		0.52	0.25	0.54	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65237

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	424263	424264	424265	424266
				Sample ID	733743	364540	74622	774814
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	23/06/2012	23/06/2012	23/06/2012	23/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETSC 3304	0.03	< 0.03	0.06	< 0.03	< 0.03	< 0.03
Acenaphthylene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Anthracene	ug/l	DETSC 3304	0.02	< 0.02	0.06	< 0.02	< 0.02	0.04
Benzo(a)anthracene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	ug/l	DETSC 3304	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	ug/l	DETSC 3304	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Benzo(k)fluoranthene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	ug/l	DETSC 3304	0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chrysene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	ug/l	DETSC 3304	0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
Fluorene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-c,d)pyrene	ug/l	DETSC 3304	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	ug/l	DETSC 3304	0.06	< 0.06	0.21	< 0.06	< 0.06	< 0.06
Phenanthrene	ug/l	DETSC 3304	0.085	< 0.085	< 0.085	< 0.085	< 0.085	< 0.085
Pyrene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
PAH	ug/l	DETSC 3304	0.2	< 0.20	0.50	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65237

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	424267	424268	424269	424270
				Sample ID	355340	966673	782115	515251
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	23/06/2012	23/06/2012	23/06/2012	23/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETSC 3304	0.03	< 0.03	0.13	0.11	< 0.03	< 0.03
Acenaphthylene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Anthracene	ug/l	DETSC 3304	0.02	0.03	0.08	0.05	< 0.02	< 0.02
Benzo(a)anthracene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	ug/l	DETSC 3304	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	ug/l	DETSC 3304	0.02	< 0.02	< 0.02	0.03	0.03	0.03
Benzo(k)fluoranthene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04
Benzo(g,h,i)perylene	ug/l	DETSC 3304	0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chrysene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	ug/l	DETSC 3304	0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
Fluorene	ug/l	DETSC 3304	0.04	< 0.04	0.10	0.07	< 0.04	< 0.04
Indeno(1,2,3-c,d)pyrene	ug/l	DETSC 3304	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	ug/l	DETSC 3304	0.06	< 0.06	0.32	0.23	< 0.06	< 0.06
Phenanthrene	ug/l	DETSC 3304	0.085	< 0.085	< 0.085	< 0.085	< 0.085	< 0.085
Pyrene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
PAH	ug/l	DETSC 3304	0.2	< 0.20	0.83	0.82	< 0.20	0.28

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65237

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	424271	424272	424273	424274
				Sample ID	256404	HW1	HW2	HW3
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	23/06/2012	23/06/2012	23/06/2012	23/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Anthracene	ug/l	DETSC 3304	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Benzo(a)anthracene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	ug/l	DETSC 3304	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	ug/l	DETSC 3304	0.02	0.03	< 0.02	< 0.02	< 0.02	< 0.02
Benzo(k)fluoranthene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	ug/l	DETSC 3304	0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08
Chrysene	ug/l	DETSC 3304	0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Fluoranthene	ug/l	DETSC 3304	0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07
Fluorene	ug/l	DETSC 3304	0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
Indeno(1,2,3-c,d)pyrene	ug/l	DETSC 3304	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Naphthalene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
Phenanthrene	ug/l	DETSC 3304	0.085	< 0.085	< 0.085	< 0.085	< 0.085	< 0.085
Pyrene	ug/l	DETSC 3304	0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
PAH	ug/l	DETSC 3304	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65237

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	424275	424276	424277
				Sample ID	HW4	HW5	HW6
				Depth			
				Sample Ref			
				Sample Type			
				Sampling Date	23/06/2012	23/06/2012	23/06/2012
				Sampling Time			
Test	Units	DETSxx	LOD				
Acenaphthene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03
Acenaphthylene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04
Anthracene	ug/l	DETSC 3304	0.02		< 0.02	< 0.02	< 0.02
Benzo(a)anthracene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04
Benzo(a)pyrene	ug/l	DETSC 3304	0.05		< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	ug/l	DETSC 3304	0.02		< 0.02	< 0.02	< 0.02
Benzo(k)fluoranthene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	ug/l	DETSC 3304	0.08		< 0.08	< 0.08	< 0.08
Chrysene	ug/l	DETSC 3304	0.03		< 0.03	< 0.03	< 0.03
Dibenzo(a,h)anthracene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06
Fluoranthene	ug/l	DETSC 3304	0.07		< 0.07	< 0.07	< 0.07
Fluorene	ug/l	DETSC 3304	0.04		< 0.04	< 0.04	< 0.04
Indeno(1,2,3-c,d)pyrene	ug/l	DETSC 3304	0.05		< 0.05	< 0.05	< 0.05
Naphthalene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06
Phenanthrene	ug/l	DETSC 3304	0.085		< 0.085	< 0.085	< 0.085
Pyrene	ug/l	DETSC 3304	0.06		< 0.06	< 0.06	< 0.06
PAH	ug/l	DETSC 3304	0.2		< 0.20	< 0.20	< 0.20

Sample Comments

DETS cannot be held responsible for the integrity of sample(s) received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating.

Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note "Guidance on Deviating Samples".

All samples received are listed below. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations.

If no sampled date (soils) or date/time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters), this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Lab No.	Sample ID	Date Sampled	Containers Received	Deviating due to holding time being exceeded for test	Deviating due to inappropriate container for test
424247	974589 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424248	237415 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424249	654684 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424250	345662 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424251	475461 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424252	533020 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424253	882654 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424254	637220 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424255	543939 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424256	952615 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424257	870938 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424258	983837 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		
424259	345730 WATER	23/06/2012	Glass Jar 250ml or less (250ml)		

424260	282822 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424261	880167 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424262	419835 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424263	733743 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424264	364540 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424265	74622 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424266	774814 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424267	355340 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424268	966673 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424269	782115 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424270	515251 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424271	256404 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424272	HW1 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424273	HW2 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424274	HW3 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424275	HW4 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424276	HW5 WATER	23/06/2012	Glass Jar 250ml or less (250ml)
424277	HW6 WATER	23/06/2012	Glass Jar 250ml or less (250ml)



Certificate of Analysis

Date: 25/07/2012

Certificate Number: 12-65622

Client: Priority Geotechnical Ltd
Unit 12B
Owenacurra Business Park
Middleton
Co. Cork

Our Reference: 12-65622

Client Reference: P12030

Contract Title: Haulbowline East Tip

Description: 47 water samples


Date Received: 10 July 2012

Date Started: 10 July 2012

Date Completed: 25 July 2012

Test Procedures: Identified by prefix DETSn, details available upon request.

Notes: Observations and interpretations are outside the scope of UKAS accreditation

Approved By: 
Rob Brown, Business Manager

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Information in Support of the Analytical Results

Analysis

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425um sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample.

Key

- * Denotes test not included in laboratory scope of accreditation
- # Denotes test that holds MCERTS accreditation, however, MCERTS accreditation is only implied if the report carries the MCERTS logo
- \$ Denotes tests completed by an approved subcontractor
- I/S Denotes insufficient sample to carry out test
- U/S Denotes that the sample is not suitable for testing

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month

Liquids - 2 weeks

Asbestos (test portion) - 6 months

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426429	426430	426431	426432
				Sample ID	158877	325675	254414	982927
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	03/07/2012	03/07/2012	03/07/2012	26/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.04	0.02	0.02
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.08
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.07	0.07	0.12
PAH	ug/l	DETS 074*	0.2	< 0.20	< 0.20	0.23	0.23	0.23

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426433	426434	426435	426436
				Sample ID	225370	405311	984114	685680
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	26/06/2012	04/07/2012	05/07/2012	05/07/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	0.02	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.01	0.98	0.09	0.12	0.12	0.12
PAH	ug/l	DETS 074*	0.2	1.0	< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426437	426438	426439	426440
				Sample ID	907491	865749	923033	457113
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	26/06/2012	27/06/2012	03/07/2012	05/07/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	0.06	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.01	0.39	0.02	< 0.01	< 0.01	< 0.01
PAH	ug/l	DETS 074*	0.2	0.45	< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426441	426442	426443	426444
				Sample ID	292411	221455	438131	564641
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	26/06/2012	26/06/2012	03/07/2012	02/07/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	0.02	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	0.01	< 0.01	0.02	0.02	0.02
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	0.04	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Pyrene	ug/l	DETS 074*	0.01	0.01	< 0.01	0.02	0.02	0.02
PAH	ug/l	DETS 074*	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426445	426446	426447	426448
				Sample ID	435284	364120	987451	658920
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	03/07/2012	02/07/2012	03/07/2012	28/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.03
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.25
PAH	ug/l	DETS 074*	0.2	< 0.20	< 0.20	< 0.20	< 0.20	0.29

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426449	426450	426451	426452
				Sample ID	561561	841212	534284	353699
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	28/06/2012	27/06/2012	04/07/2012	27/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	0.01	< 0.01	0.01	0.01	0.02
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.01	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.01	0.04	1.3	< 0.01	< 0.01	0.03
PAH	ug/l	DETS 074*	0.2	< 0.20	1.3	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426453	426454	426455	426456
				Sample ID	266498	932833	261020	685990
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	04/07/2012	26/06/2012	04/07/2012	26/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	0.03	0.08	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.03	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.02	< 0.01	< 0.01
PAH	ug/l	DETS 074*	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426457	426458	426459	426460
				Sample ID	987541	775326	966135	987654
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	27/06/2012	02/07/2012	04/07/2012	04/07/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.30
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.03
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.08
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.06
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	0.01	< 0.01	< 0.01	< 0.01	0.29
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.05
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	0.03	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.40
Pyrene	ug/l	DETS 074*	0.01	0.02	< 0.01	< 0.01	< 0.01	0.59
PAH	ug/l	DETS 074*	0.2	< 0.20	< 0.20	< 0.20	< 0.20	1.8

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426461	426462	426463	426464
				Sample ID	198416	897297	770734	832111
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	03/07/2012	28/06/2012	04/07/2012	04/07/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.08
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.02
Pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	0.01	0.01	0.03
PAH	ug/l	DETS 074*	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426465	426466	426467	426468
				Sample ID	798741	293706	358151	547994
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	04/07/2012	28/06/2012	28/06/2012	28/06/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.01
PAH	ug/l	DETS 074*	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426469	426470	426471	426472
				Sample ID	875454	542181	286405	221070
				Depth				
				Sample Ref				
				Sample Type				
				Sampling Date	28/06/2012	28/06/2012	27/06/2012	02/07/2012
				Sampling Time				
Test	Units	DETSxx	LOD					
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAH	ug/l	DETS 074*	0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20

Summary of Chemical Analysis

Water Samples

Our Ref: 12-65622

Client Ref: P12030

Contract Title: Haulbowline East Tip

				Lab No.	426473	426474	426475
				Sample ID	871985	989321	963090
				Depth			
				Sample Ref			
				Sample Type			
				Sampling Date	02/07/2012	03/07/2012	04/07/2012
				Sampling Time			
Test	Units	DETSxx	LOD				
Acenaphthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	ug/l	DETS 074*	0.01	0.04	< 0.01	0.02	0.02
Fluorene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Naphthalene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Phenanthrene	ug/l	DETS 074*	0.01	< 0.01	< 0.01	< 0.01	< 0.01
Pyrene	ug/l	DETS 074*	0.01	0.16	0.08	0.12	0.12
PAH	ug/l	DETS 074*	0.2	0.22	< 0.20	< 0.20	< 0.20

Sample Comments

DETS cannot be held responsible for the integrity of sample(s) received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating.

Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note "Guidance on Deviating Samples".

All samples received are listed below. However, those samples that have additional comments in relation to hold time and/or inappropriate containers are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations.

If no sampled date (soils) or date/time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters), this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

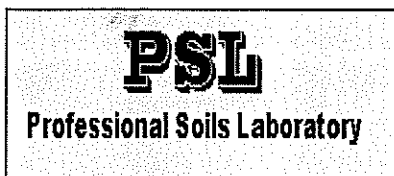
Lab No.	Sample ID	Date Sampled	Containers Received	Deviating due to holding time being exceeded for test	Deviating due to inappropriate container for test
426429	158877 WATER	03/07/2012	Glass Jar 250ml or less (250ml)		
426430	325675 WATER	03/07/2012	Glass Jar 250ml or less (250ml)		
426431	254414 WATER	03/07/2012	Glass Jar 250ml or less (250ml)		
426432	982927 WATER	26/06/2012	Glass Jar 250ml or less (250ml)		
426433	225370 WATER	26/06/2012	Glass Jar 250ml or less (250ml)		
426434	405311 WATER	04/07/2012	Glass Jar 250ml or less (250ml)		
426435	984114 WATER	05/07/2012	Glass Jar 250ml or less (250ml)		
426436	685680 WATER	05/07/2012	Glass Jar 250ml or less (250ml)		
426437	907491 WATER	26/06/2012	Glass Jar 250ml or less (250ml)		
426438	865749 WATER	27/06/2012	Glass Jar 250ml or less (250ml)		
426439	923033 WATER	03/07/2012	Glass Jar 250ml or less (250ml)		
426440	457113 WATER	05/07/2012	Glass Jar 250ml or less (250ml)		
426441	292411 WATER	26/06/2012	Glass Jar 250ml or less (250ml)		



426442	221455 WATER	26/06/2012	Glass Jar 250ml or less (250ml)
426443	438131 WATER	03/07/2012	Glass Jar 250ml or less (250ml)
426444	564641 WATER	02/07/2012	Glass Jar 250ml or less (250ml)
426445	435284 WATER	03/07/2012	Glass Jar 250ml or less (250ml)
426446	364120 WATER	02/07/2012	Glass Jar 250ml or less (250ml)
426447	987451 WATER	03/07/2012	Glass Jar 250ml or less (250ml)
426448	658920 WATER	28/06/2012	Glass Jar 250ml or less (250ml)
426449	561561 WATER	28/06/2012	Glass Jar 250ml or less (250ml)
426450	841212 WATER	27/06/2012	Glass Jar 250ml or less (250ml)
426451	534284 WATER	04/07/2012	Glass Jar 250ml or less (250ml)
426452	353699 WATER	27/06/2012	Glass Jar 250ml or less (250ml)
426453	266498 WATER	04/07/2012	Glass Jar 250ml or less (250ml)
426454	932833 WATER	26/06/2012	Glass Jar 250ml or less (250ml)
426455	261020 WATER	04/07/2012	Glass Jar 250ml or less (250ml)
426456	685990 WATER	26/06/2012	Glass Jar 250ml or less (250ml)
426457	987541 WATER	27/06/2012	Glass Jar 250ml or less (250ml)
426458	775326 WATER	02/07/2012	Glass Jar 250ml or less (250ml)
426459	966135 WATER	04/07/2012	Glass Jar 250ml or less (250ml)
426460	987654 WATER	04/07/2012	Glass Jar 250ml or less (250ml)



426461	198416 WATER	03/07/2012	Glass Jar 250ml or less (250ml)
426462	897297 WATER	28/06/2012	Glass Jar 250ml or less (250ml)
426463	770734 WATER	04/07/2012	Glass Jar 250ml or less (250ml)
426464	832111 WATER	04/07/2012	Glass Jar 250ml or less (250ml)
426465	798741 WATER	04/07/2012	Glass Jar 250ml or less (250ml)
426466	293706 WATER	28/06/2012	Glass Jar 250ml or less (250ml)
426467	358151 WATER	28/06/2012	Glass Jar 250ml or less (250ml)
426468	547994 WATER	28/06/2012	Glass Jar 250ml or less (250ml)
426469	875454 WATER	28/06/2012	Glass Jar 250ml or less (250ml)
426470	542181 WATER	28/06/2012	Glass Jar 250ml or less (250ml)
426471	286405 WATER	27/06/2012	Glass Jar 250ml or less (250ml)
426472	221070 WATER	02/07/2012	Glass Jar 250ml or less (250ml)
426473	871985 WATER	02/07/2012	Glass Jar 250ml or less (250ml)
426474	989321 WATER	03/07/2012	Glass Jar 250ml or less (250ml)
426475	963090 WATER	04/07/2012	Glass Jar 250ml or less (250ml)



LABORATORY REPORT



4043

Contract Number: PSL12/2562

Client's Reference:

Report Date: 13 August 2012

Client Name: WYG Ireland
PH McCarthy House
Nutgrove Office Park
Nutgrove Avenue
Rathfamham, Dublin 14
Ireland

For the attention of: Neil Sandes

Contract Title: Haul Bowling East Tip

Date Received: 30-Jul-12
Date Commenced: 30-Jul-12
Date Completed: 13-Aug-12


Notes: Observations and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

R Gunson
(Director)

A Watkins
(Director)





M Beastall
(Laboratory Manager)

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Page 1 of


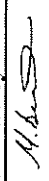
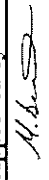
SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
BH301A		B	0.60	MADE GROUND dark brown very silty sand & gravel.
BH301A		D	0.60	MADE GROUND dark brown very silty sand & gravel.
BH301A		B	6.00	Brown very gravelly SAND.
BH301A		D	6.00	MADE GROUND dark brown very sandy gravel.
BH301A		U	7.50	Very soft grey sandy very clayey silt with shell fragments.
BH301A		U	10.20	Firm grey very silty CLAY.
BH301A		B	11.50	Grey slightly gravelly sandy silty CLAY.
BH301A		D	11.50	Grey slightly gravelly sandy silty CLAY.
BH301A		B	14.00	Grey mottled brown very sandy very clayey SILT.
BH301A		B	15.20	Dark grey gravelly very sandy silty CLAY.
BH301A		B	17.50	Brown gravelly slightly sandy silty CLAY.
BH302		D	1.00	Dark brown gravelly SAND.
BH302		B	4.00	MADE GROUND dark brown slightly silty sandy gravel with cobbles.
BH302		B	7.00	Brown sandy GRAVEL.
BH302		D	7.00	MADE GROUND brown sandy gravel of ash.
BH303		B	2.00	MADE GROUND grey slightly silty sandy gravel with cobbles.
BH303		B	8.00	Grey mottled brown slightly gravelly sandy very clayey SILT.
BH303		D	8.00	Grey slightly gravelly silty CLAY.
BH303		U	10.00	Grey very sandy clayey silt with shell fragments.

PSI Professional Soils Laboratory		Compiled by 	Date 06/08/12	Checked by 	Date 13/08/12	Approved by 	Date 13/08/12
HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562		Client Ref:	


SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
BH304		B	5.50	Dark brown very sandy slightly silty GRAVEL.
BH304		D	5.60	MADE GROUND dark brown sandy gravel.
BH304		U	10.00	Firm grey very silty CLAY.
BH304		D	11.60	Grey slightly gravelly SILT.
BH304		B	13.50	Grey slightly gravelly very sandy very clayey SILT.
BH304		B	16.50	Brown slightly gravelly silty CLAY.
BH304		D	16.60	Brown slightly clayey GRAVEL.
BH304		D	19.60	Brown slightly clayey GRAVEL.
BH305		B	5.50	Brown SAND & GRAVEL.
BH305		D	5.50	MADE GROUND dark brown sandy gravel of ash.
BH305		B	6.50	MADE GROUND grey sandy clayey silty gravel with cobbles.
BH305		D	6.50	MADE GROUND grey sandy gravel of ash.
BH305		B	9.50	Grey mottled brown slightly gravelly sandy very clayey SILT.
BH306A		B	4.00	Dark brown very gravelly SAND.
BH306A		D	4.00	MADE GROUND dark brown sandy gravel of ash.
BH306A		B	8.00	MADE GROUND dark grey sandy slightly silty gravel.
BH306D		B	16.00	Grey slightly gravelly sandy very clayey SILT.
BH306D		B	18.00	Grey sandy very silty CLAY.
BH306D		U	20.00	Very soft grey very silty CLAY.

PSL Professional Soils Laboratory		Compiled by 	Date 06/08/12	Checked by 	Date 13/08/12	Approved by 	Date 13/08/12
HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562		Client Ref:	

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
BH307		D	9.00	Grey silty CLAY.
BH307		U	12.00	Very soft grey very silty CLAY.
BH307		U	14.00	Very soft grey very silty CLAY.
BH308		D	5.50	Brown gravelly very sandy CLAY.
BH308		U	8.00	Firm grey gravelly very sandy silty CLAY.
BH308		D	8.50	Grey slightly gravelly sandy very silty CLAY.
BH308		B	9.50	Grey sandy silty CLAY.
BH308		B	11.50	Grey sandy silty CLAY.
BH308		D	11.60	Grey slightly gravelly silty CLAY.
BH308		D	15.50	Brown clayey GRAVEL.
BH308		B	19.50	Brown SAND & GRAVEL.
BH308		D	19.60	Brown sandy GRAVEL.
BH308		B	22.50	Brown very sandy slightly silty GRAVEL.
BH308		D	22.60	MADE GROUND brown sandy gravel.
BH309		B	0.80	MADE GROUND grey slightly sandy gravel with cobbles.
BH309		D	0.80	MADE GROUND grey sandy gravel.
BH309		B	5.00	MADE GROUND sandy slightly silty gravel with cobbles
BH309		U	8.50	Firm grey very silty CLAY.
BH309		D	11.50	Grey gravelly silty CLAY.






Professional Soils Laboratory

Compiled by <i>[Signature]</i>	Date 06/08/12	Checked by <i>[Signature]</i>	Date 13/08/12	Approved by <i>[Signature]</i>	Date 13/08/12
HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562	
				Client Ref:	




SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
BH309		B	15.50	Grey mottled brown slightly gravelly slightly sandy very clayey SILT.
BH309		D	17.50	Grey sandy silty CLAY.
BH309		B	21.00	Brown slightly sandy slightly silty GRAVEL with cobbles.
BH310A		B	4.00	MADE GROUND grey slightly sandy slightly silty gravel with cobbles.
BH310A		B	8.00	MADE GROUND dark grey very sandy slightly silty gravel.
BH310A		D	8.00	MADE GROUND dark brown sandy gravel of ash.
BH310A		B	11.00	Grey sandy silty CLAY.
BH310A		D	11.00	Grey slightly gravelly silty CLAY.
BH310B		U	13.00	Very soft grey mottled brown sandy very clayey SILT.
BH310B		D	14.60	Grey slightly gravelly sandy silty CLAY.
BH311		B	1.60	Brown SAND & GRAVEL.
BH311		D	1.60	MADE GROUND dark brown very sandy gravel.
BH312B		B	2.00	Brown very gravelly SAND.
BH312B		D	2.00	MADE GROUND dark brown very sandy gravel.
BH312B		B	5.50	Dark grey very sandy SILT.
BH312B		D	6.00	Dark grey sandy silty CLAY.
BH312B		U	6.00	Grey very sandy clayey SILT with shell fragments.
BH312B		B	7.50	Grey slightly gravelly very sandy clayey SILT.
BH312B		U	10.00	Very soft grey slightly sandy silty CLAY.

PSL Professional Soils Laboratory		HAUL BOWLINE EAST TIP.	
Compiled by 	Date 06/08/12	Checked by 	Date 13/08/12
		Approved by 	Date 13/08/12
		Contract No: PSL12/2562	
		Client Ref:	

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Depth m	Description of Sample
BH312B		D	11.50	Grey slightly sandy silty CLAY.
BH312B		B	15.50	Brown sandy slightly silty GRAVEL with cobbles.
BH313		D	9.50	Grey silty CLAY.
BH313		D	15.50	Grey slightly gravelly slightly sandy silty CLAY.
BH314		B	4.20	Brown very gravelly slightly clayey SAND.
BH314		D	4.20	MADE GROUND dark brown sandy silty gravel.
BH314		B	2.00	MADE GROUND dark brown mottled grey sandy slightly silty gravel with cobbles.
BH315		B	4.00	Dark grey very gravelly slightly clayey SAND.
BH315		D	4.00	MADE GROUND grey very sandy gravel.
BH316		D	7.50	Grey slightly sandy silty CLAY.
BH316		D	14.60	Brown gravelly sandy CLAY.
BH316		U	17.00	Firm grey sandy very silty CLAY.
BH316		B	21.50	Brown sandy clayey GRAVEL of COBBLES.
BH316		D	21.60	Brown gravelly very sandy silty CLAY.

PSL Professional Soils Laboratory		Compiled by 	Date 06/08/12	Checked by 	Date 13/08/12	Approved by 	Date 13/08/12
HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562		Client Ref:	

SUMMARY OF SOIL CLASSIFICATION TESTS


(B.S. 1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m ³ Clause 7.2	Dry Density Mg/m ³ Clause 7.2	Particle Density Mg/m ³ Clause 8	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5	Plasticity Index % Clause 6	% Passing .425mm	Remarks
BH301A		B	0.60	13	2.62	2.32						
BH301A		D	0.60	14								
BH301A		B	6.00	11	2.16	1.95						
BH301A		D	6.00	13								
BH301A		B	11.50	54	1.73	1.12		49	25	24	91	Intermediate plasticity CL
BH301A		D	11.50	43				25	15	10	80	Low plasticity CL
BH301A		B	15.20	17	2.19	1.86						
BH301A		B	17.50	17	2.21	1.89						
BH302		D	1.00	12					NP			
BH302		B	7.00	3.2								
BH302		D	7.00	3.0	2.39	2.32						
BH303		D	8.00	38								
BH304		B	5.50	6.3	1.95	1.83						
BH304		D	5.60	8.2					NP			
BH304		D	11.60	29								
BH304		B	16.50	13	2.24	1.98						
BH304		D	16.60	5.9					NP			
BH304		D	19.60	9.0					NP			
BH305		B	5.50	5.1								



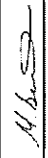
SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

Density testing carried out on remoulded sample using 2.5kg effort at NMC.

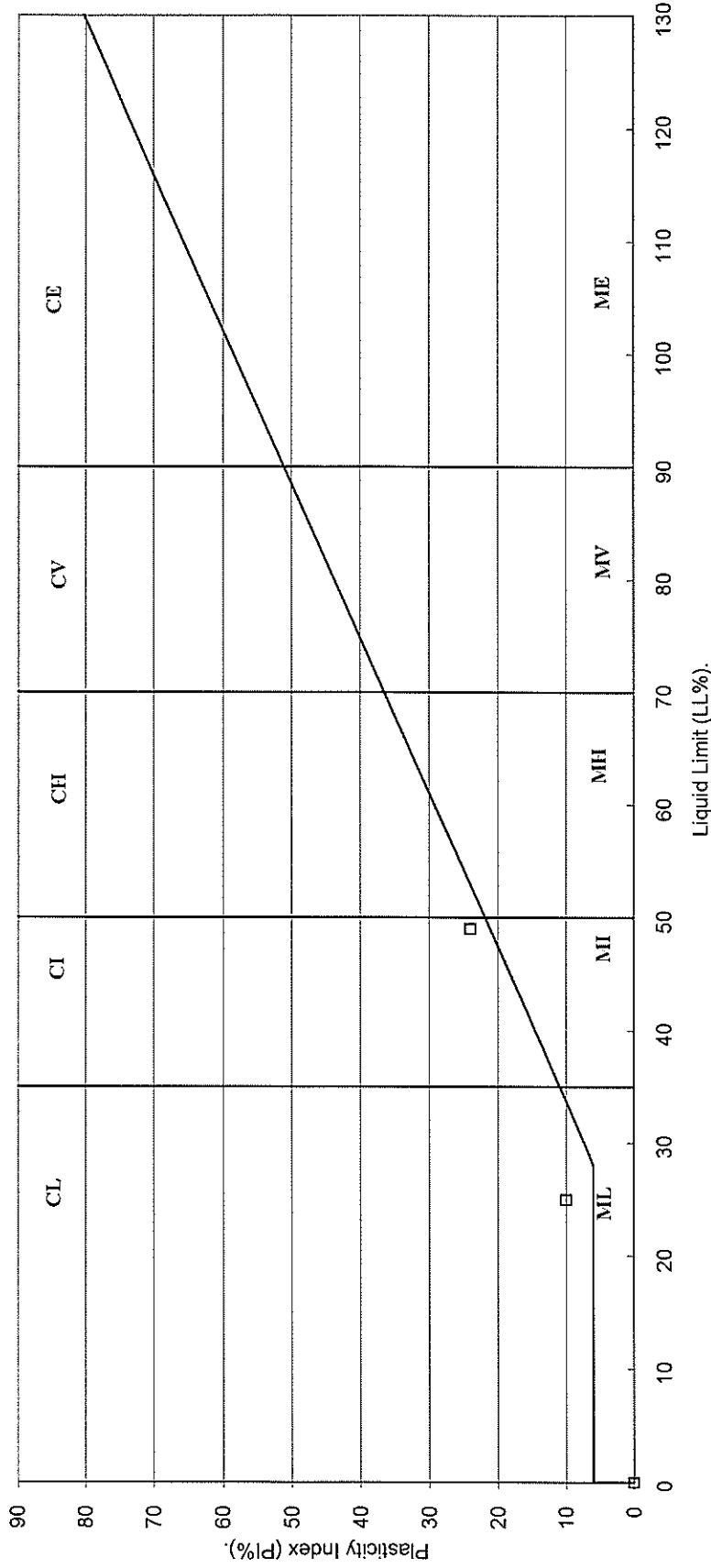


Professional Soils Laboratory

Compiled by		Date	06/08/12
Checked by		Date	13/08/12
Approved by		Date	13/08/12
HAUL BOWLINE EAST TIP.		Contract No:	PSL12/2562
		Client Ref:	

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



Professional Soils Laboratory

Compiled by	Date	Checked by	Date	Approved by	Date
	06/08/12		13/08/12		13/08/12
HAUL BOWLINE EAST TIP.			Contract No: PSL12/2562		
			Client Ref:		

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

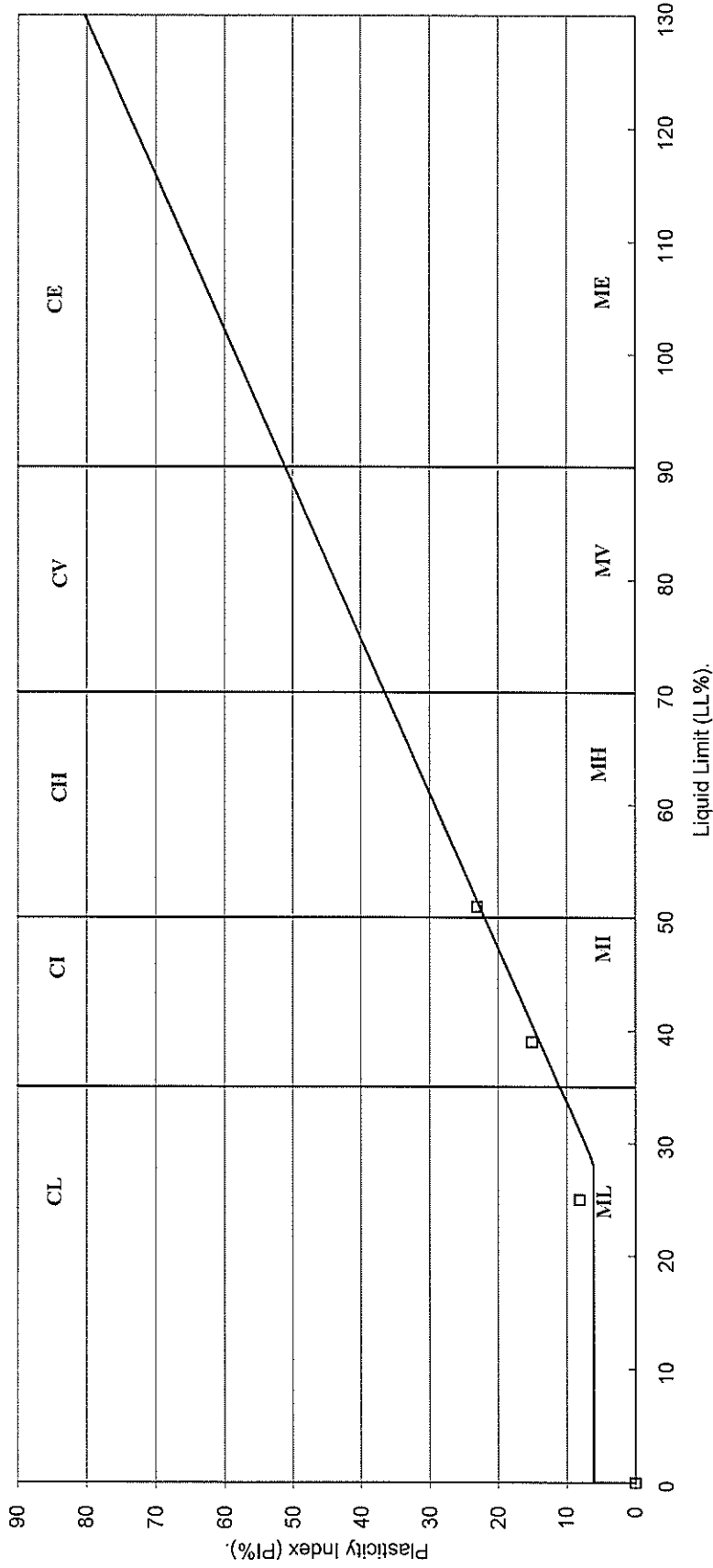
Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m ³ Clause 7.2	Dry Density Mg/m ³ Clause 7.2	Particle Density Mg/m ³ Clause 8.	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.	Plasticity Index % Clause 6.	% Passing .425mm	Remarks
BH305		D	5.50	4.3	2.27	2.17						
BH305		B	6.50	10								
BH305		D	6.50	11	2.26	2.04						
BH306A		B	4.00	7.7	2.09	1.94						
BH306A		D	4.00	10								
BH306D		B	18.00	35	1.91	1.41						
BH307		D	9.00	48			51	28	23	100		High plasticity CH.
BH308		D	5.50	16			25	17	8	85		Low plasticity CL.
BH308		D	8.50	34			39	24	15	91		Intermediate plasticity CI.
BH308		B	9.50	41	1.81	1.28						
BH308		B	11.50	45	1.78	1.22						
BH308		D	11.60	43								
BH308		D	15.50	11								
BH308		B	19.50	5.6	2.04	1.93						
BH308		D	19.60	7.3								
BH308		B	22.50	5.6	1.96	1.85						
BH308		D	22.60	6.6								
BH309		B	0.80	6.7								
BH309		B	0.80	9.4	2.19	2.00						

SYMBOLS: NP : Non Plastic * : Liquid Limit and Plastic Limit Wet Sieved. Density testing carried out on remoulded sample using 2.5kg effort at NMC.

PSL Professional Soils Laboratory		HAUL BOWLINE EAST TIP.	
Compiled by 	Date 06/08/12	Checked by 	Date 13/08/12
		Approved by 	Date 13/08/12
		Contract No: PSL12/2562	
		Client Ref:	

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



Compiled by	Date	Checked by	Date	Approved by	Date
	06/08/12		13/08/12		13/08/12
HAUL BOWLINE EAST TIP.				Contract No:	PSL12/2562
				Client Ref:	

SUMMARY OF SOIL CLASSIFICATION TESTS


(B.S. 1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m ³ Clause 7.2	Dry Density Mg/m ³ Clause 7.2	Particle Density Mg/m ³ Clause 8.	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.	Plasticity Index % Clause 6.	% Passing .425mm	Remarks
BH309		D	11.50	42				50	27	23	85	High plasticity CH.
BH309		D	17.50	34				39	23	16	100	Intermediate plasticity Cl.
BH310A		B	8.00	4.1	2.28	2.19						
BH310A		D	8.00	5.4								
BH310A		B	11.00	49	1.74	1.16						
BH310A		D	11.00	38				48	25	23	91	Intermediate plasticity Cl.
BH310A		D	14.60	35				42	23	19	90	Intermediate plasticity Cl.
BH311		B	1.60	5.5	2.00	1.89						
BH311		D	1.60	15								
BH312B		B	2.00	14	2.20	1.93						
BH312B		D	2.00	12								
BH312B		B	5.50	28	2.05	1.60						
BH312B		D	6.00	39				46	29	17	100	Intermediate plasticity Cl.
BH312B		D	11.50	36				44	25	19	100	Intermediate plasticity Cl.
BH312B		B	15.50	11	2.02	1.82						
BH313		D	9.50	40				52	26	26	100	High plasticity CH.
BH313		D	15.50	36				44	25	19	97	Intermediate plasticity Cl.
BH314		B	4.20	21								
BH314		D	4.20	12	2.06	1.84						




SYMBOLS : NP : Non Plastic

* : Liquid Limit and Plastic Limit Wet Sieved.

Density testing carried out on remoulded sample using 2.5kg effort at NMC.

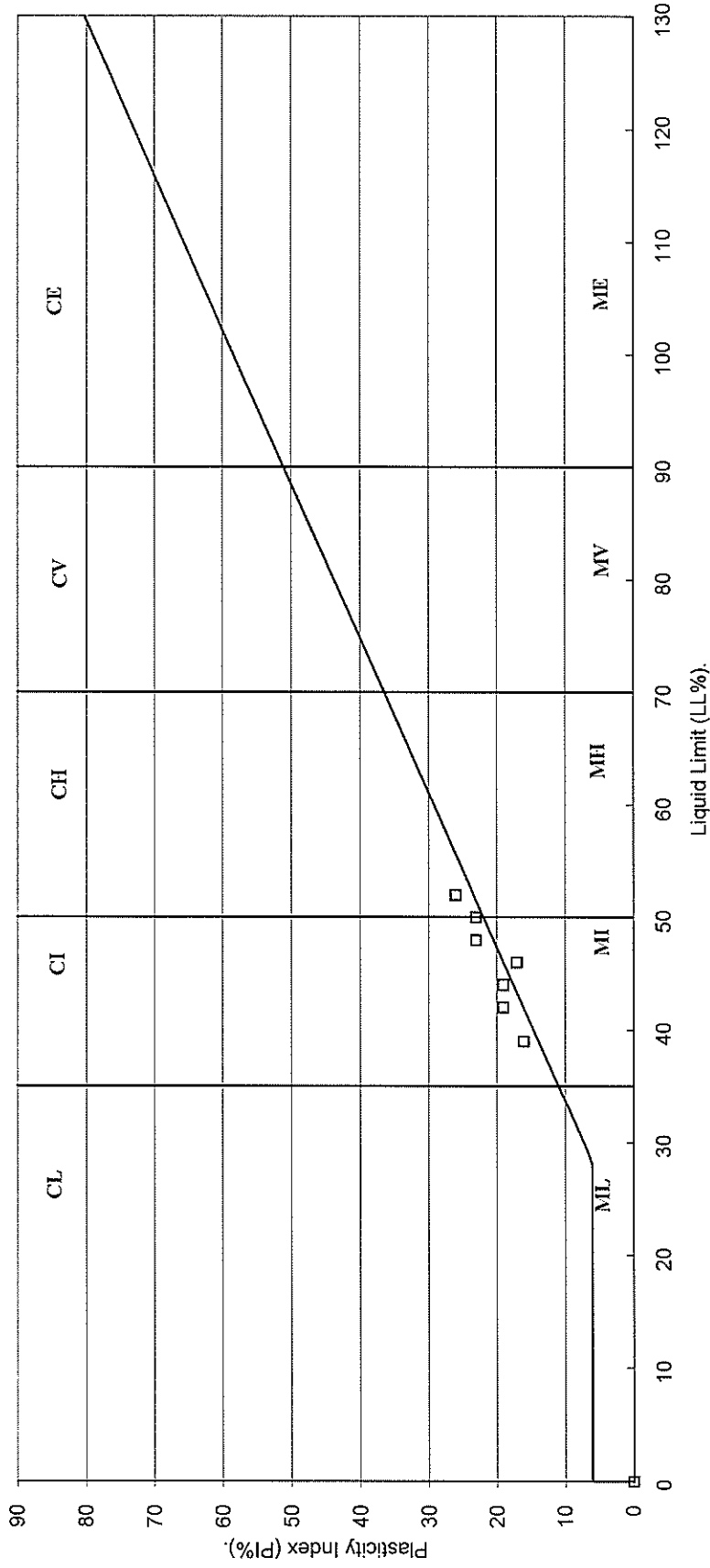


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Compiled by		Date	06/08/12
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Approved by		Date	13/08/12
HAUL BOWLINE EAST TIP.			
Contract No:		PSL12/2562	
Client Ref:			

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)



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Compiled by		Date	06/08/12
Checked by		Date	13/08/12
Approved by		Date	13/08/12
HAUL BOWLINE EAST TIP.		Contract No:	PSL12/2562
		Client Ref:	

SUMMARY OF SOIL CLASSIFICATION TESTS

(B.S. 1377 : PART 2 : 1990)

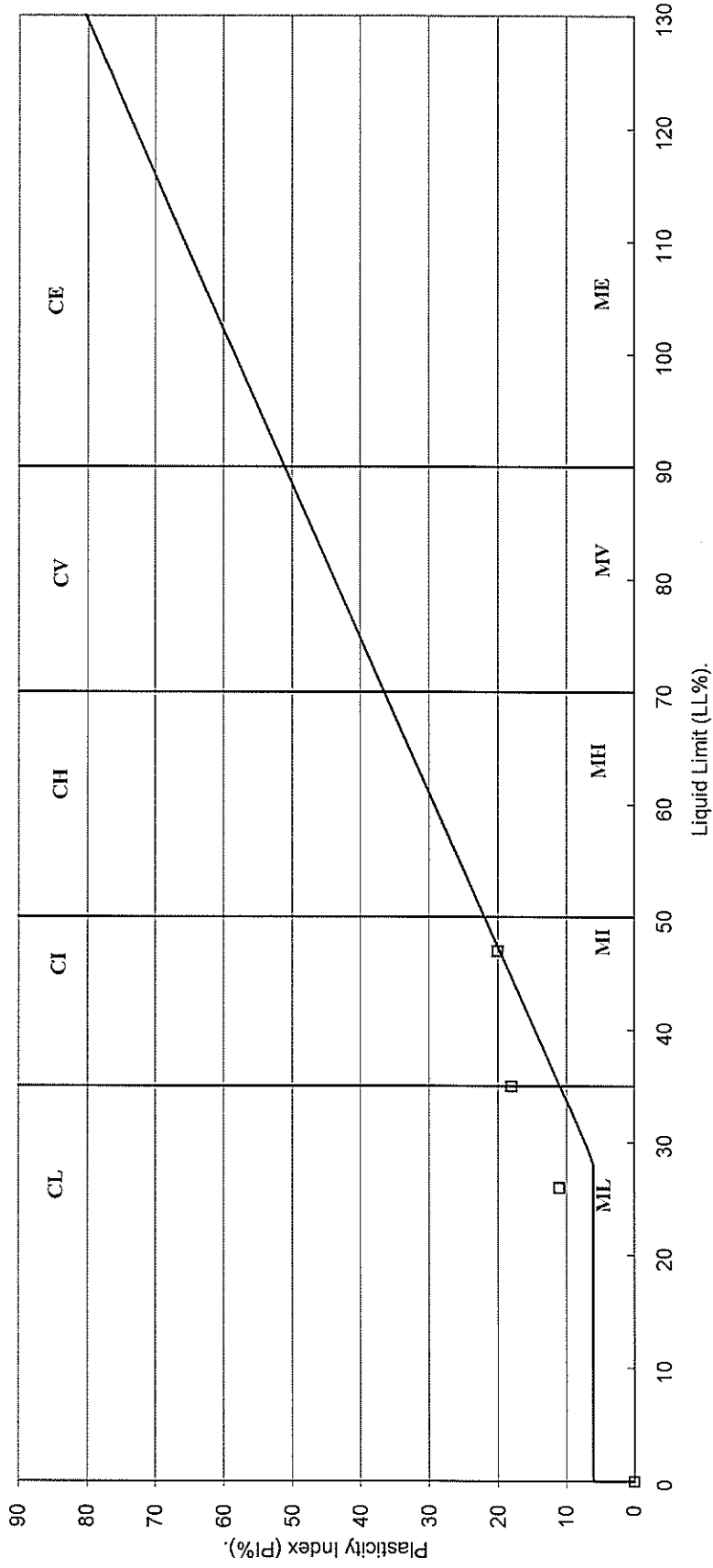
Hole Number	Sample Number	Sample Type	Depth m	Moisture Content % Clause 3.2	Bulk Density Mg/m ³ Clause 7.2	Dry Density Mg/m ³ Clause 7.2	Particle Density Mg/m ³ Clause 8.	Liquid Limit % Clause 4.3/4.4	Plastic Limit % Clause 5.	Plasticity Index % Clause 6.	% Passing .425mm	Remarks
BH315		B	4.00	14	2.26	1.99						
BH315		D	4.00	15								
BH316		D	7.50	38				47	27	20	100	Intermediate plasticity Cl.
BH316		D	14.60	15				35	17	18	84	Intermediate plasticity Cl.
BH316		B	21.50	11	2.00	1.80						
BH316		D	21.60	15				26	15	11	83	Low plasticity CL.

SYMBOLS: NP : Non Plastic * : Liquid Limit and Plastic Limit Wet Sieved. Density testing carried out on remoulded sample using 2.5kg effort at NMC.

PSL Professional Soils Laboratory		HAUL BOWLINE EAST TIP.	
Compiled by 	Date 06/08/12	Checked by 	Date 13/08/12
		Approved by 	Date 13/08/12
		Contract No: PSL12/2562	Client Ref:


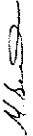
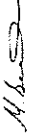
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(B.S.5930 : 1999)





Professional Soils Laboratory

Compiled by		Date	06/08/12	Checked by		Date	13/08/12
Approved by		Date	13/08/12	Contract No:	PSL12/2562		
Client Ref:				HAUL BOWLINE EAST TIP.			

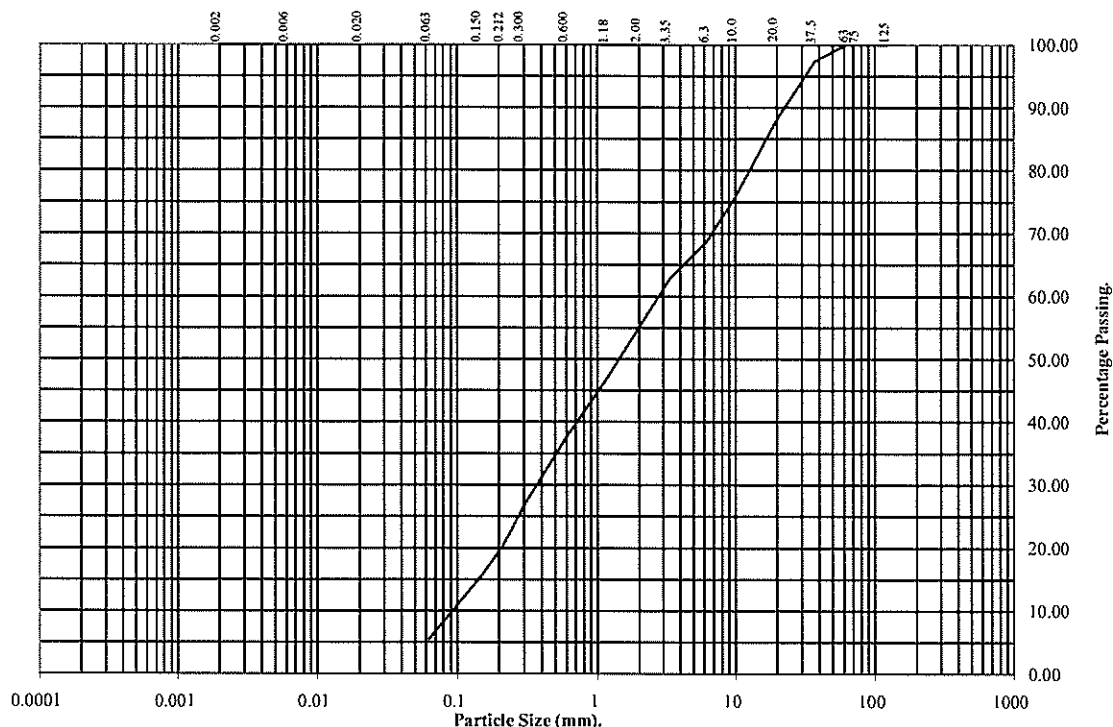
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH301A** Depth (m): **0.60**

Sample Number: Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	97
20	88
10	76
6.3	69
3.35	63
2	55
1.18	47
0.6	38
0.3	27
0.212	20
0.15	15
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	45
Sand	50
Silt / Clay	5

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>W.S.</i>	13/08/12	<i>W.S.</i>	13/08/12

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HAUL BOWLINE EAST TIP.

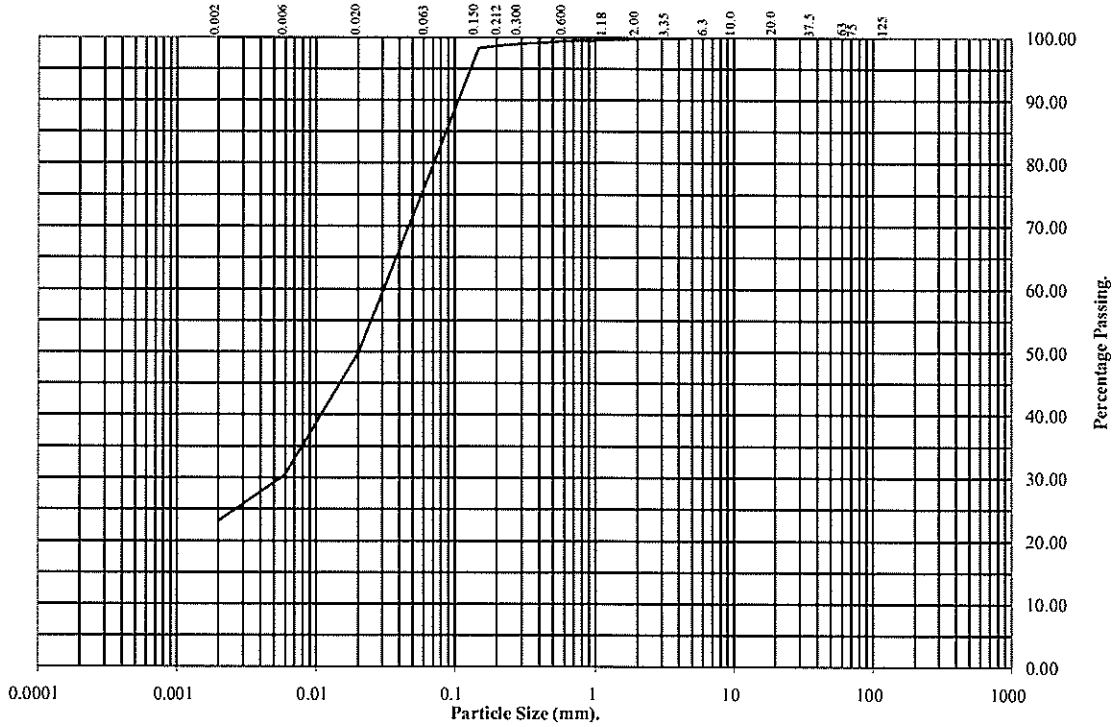
Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH301A** Depth (m): **14.00**
 Sample Number: Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	99
0.3	99
0.212	99
0.15	98
0.063	77

Particle Diameter	Percentage Passing
0.02	50
0.006	30
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	23
Silt	54
Clay	23

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

	HAUL BOWLINE EAST TIP.	Contract No.: PSL12/2562
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Particle Size Distribution Test

BS1377 : Part 2 : 1990

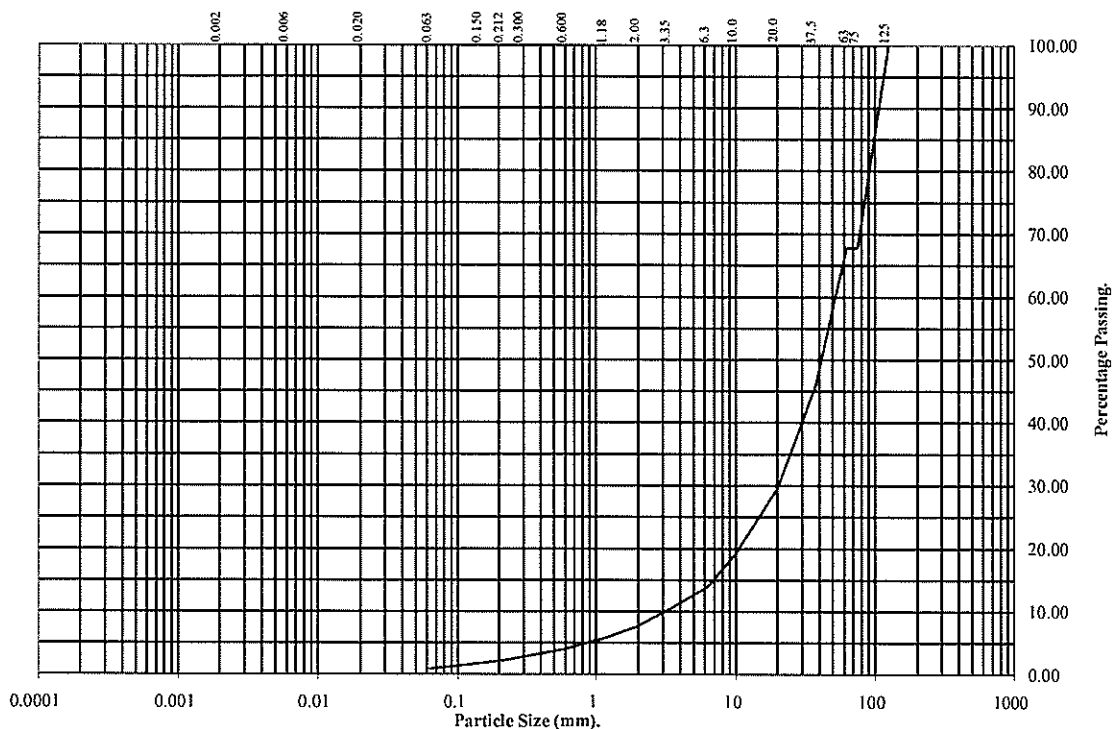
Wet Sieve, Clause 9.2

Hole Number: BH302

Depth (m): 4.00

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	68
63	68
37.5	46
20	29
10	19
6.3	14
3.35	10
2	8
1.18	6
0.6	4
0.3	3
0.212	2
0.15	2
0.063	1

Soil Fraction	Total Percentage
Cobbles	32
Gravel	60
Sand	7
Silt / Clay	1

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

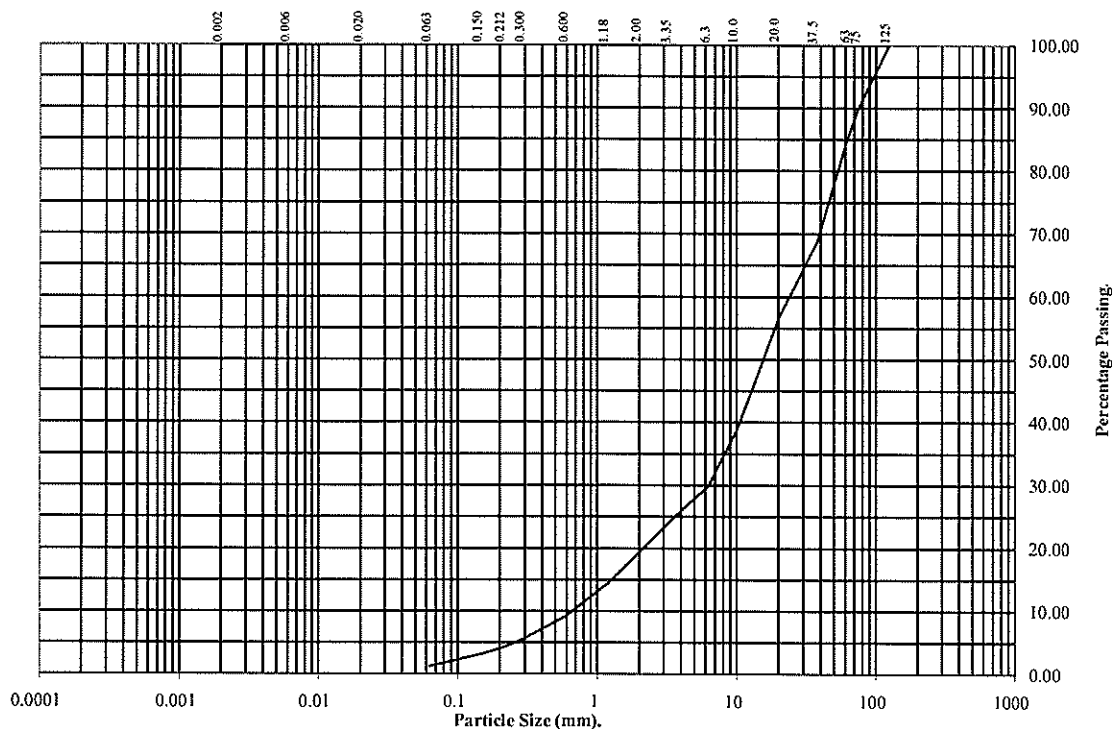
Wet Sieve, Clause 9.2

Hole Number: BH303

Depth (m): 2.00

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	90
63	85
37.5	68
20	56
10	39
6.3	30
3.35	24
2	19
1.18	14
0.6	9
0.3	6
0.212	4
0.15	3
0.063	1

Soil Fraction	Total Percentage
Cobbles	15
Gravel	66
Sand	18
Silt / Clay	1

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

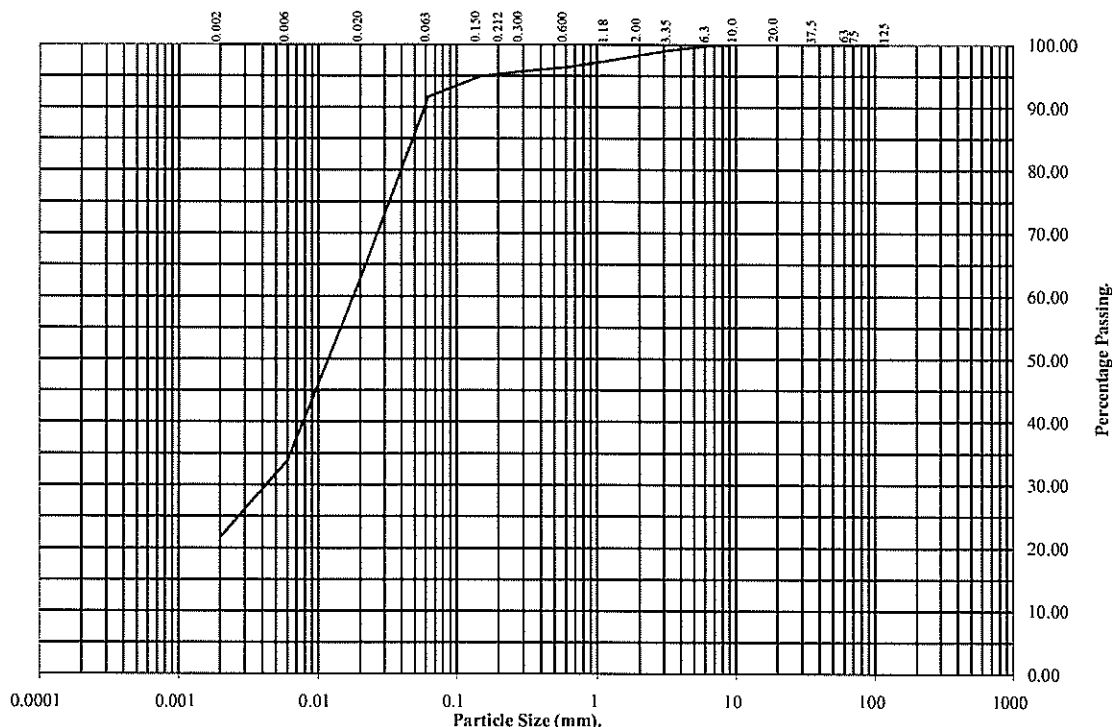
Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH303

Depth (m): 8.00

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	98
1.18	97
0.6	96
0.3	96
0.212	95
0.15	95
0.063	92

Particle Diameter	Percentage Passing
0.02	63
0.006	34
0.002	21

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	6
Silt	71
Clay	21

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

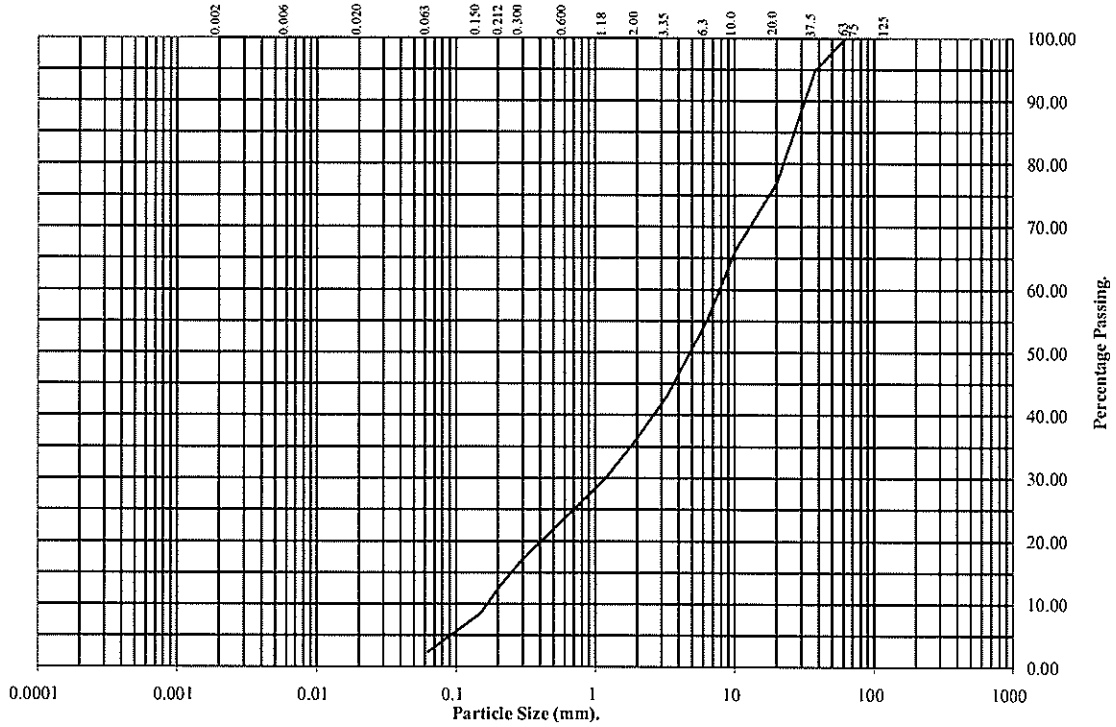
Wet Sieve, Clause 9.2

Hole Number: BH304

Depth (m): 5.50

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	95
20	77
10	66
6.3	55
3.35	43
2	36
1.18	30
0.6	24
0.3	17
0.212	13
0.15	8
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	64
Sand	34
Silt / Clay	2

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

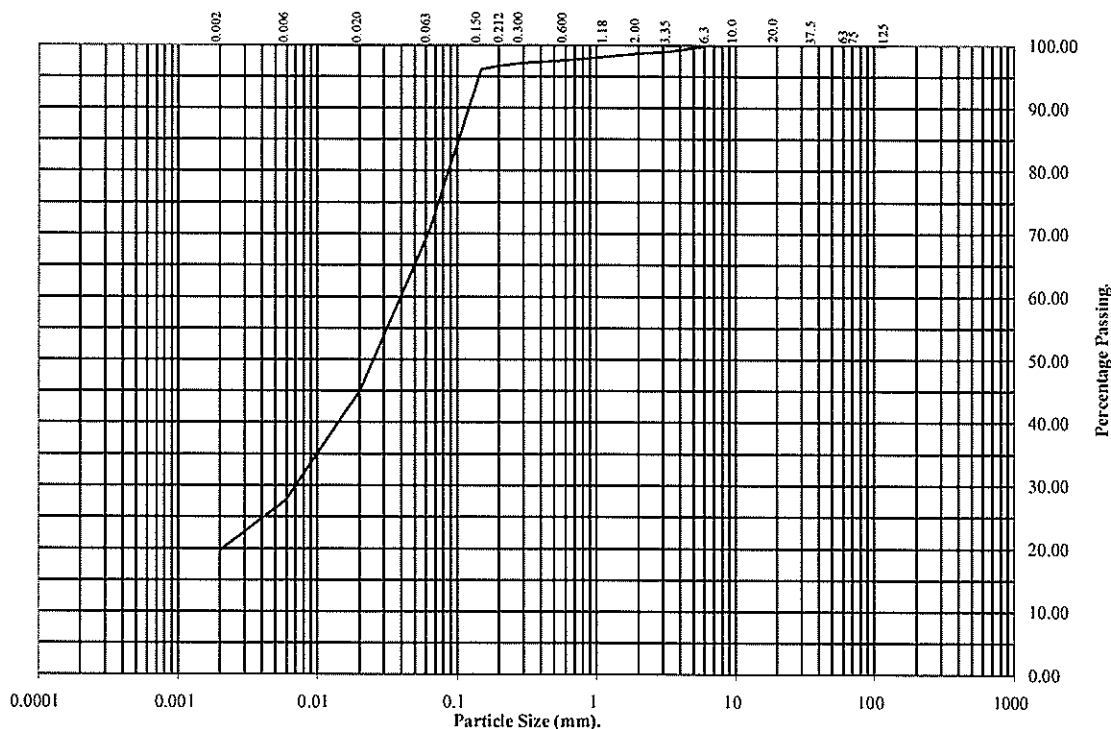
Wet Sieve, Clause 9.2

Hole Number: BH304

Depth (m): 13.50

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	99
1.18	98
0.6	98
0.3	97
0.212	97
0.15	96
0.063	70

Particle Diameter	Percentage Passing
0.02	45
0.006	28
0.002	20

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	29
Silt	50
Clay	20

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

	HAUL BOWLINE EAST TIP.	Contract No.: PSL12/2562
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Particle Size Distribution Test

BS1377 : Part 2 : 1990

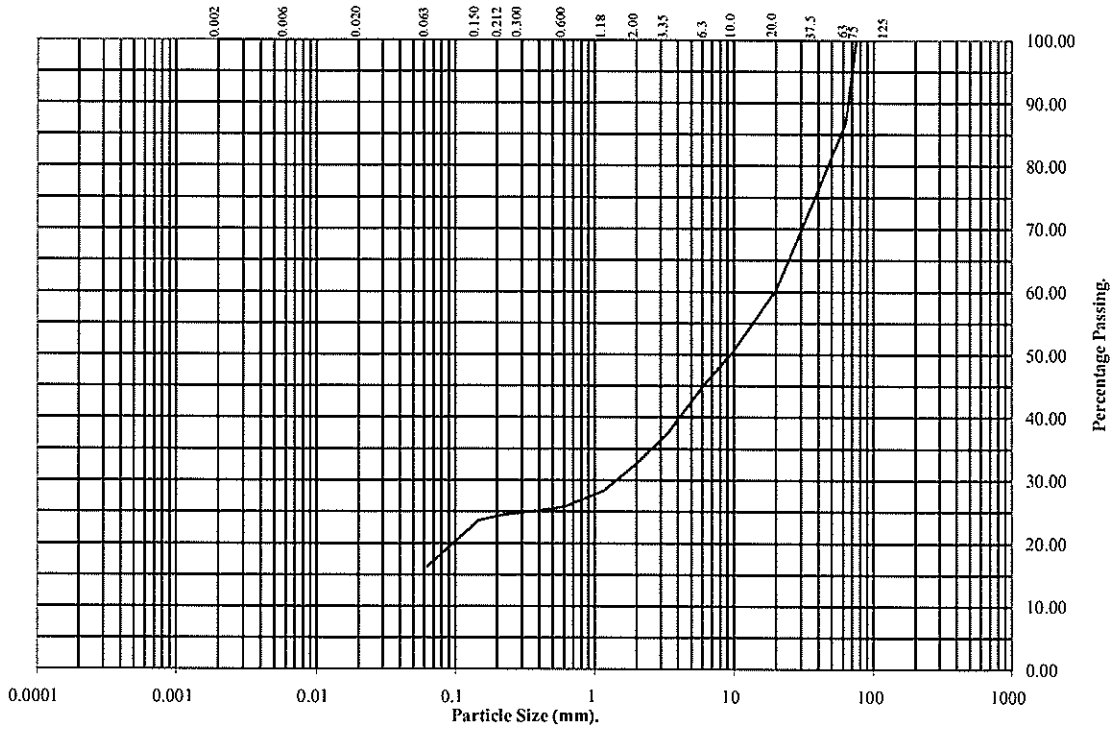
Wet Sieve, Clause 9.2

Hole Number: **BH305**

Depth (m): **6.50**

Sample Number:

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	87
37.5	75
20	60
10	51
6.3	45
3.35	37
2	33
1.18	28
0.6	26
0.3	25
0.212	24
0.15	24
0.063	16

Soil Fraction	Total Percentage
Cobbles	13
Gravel	54
Sand	17
Silt / Clay	16

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

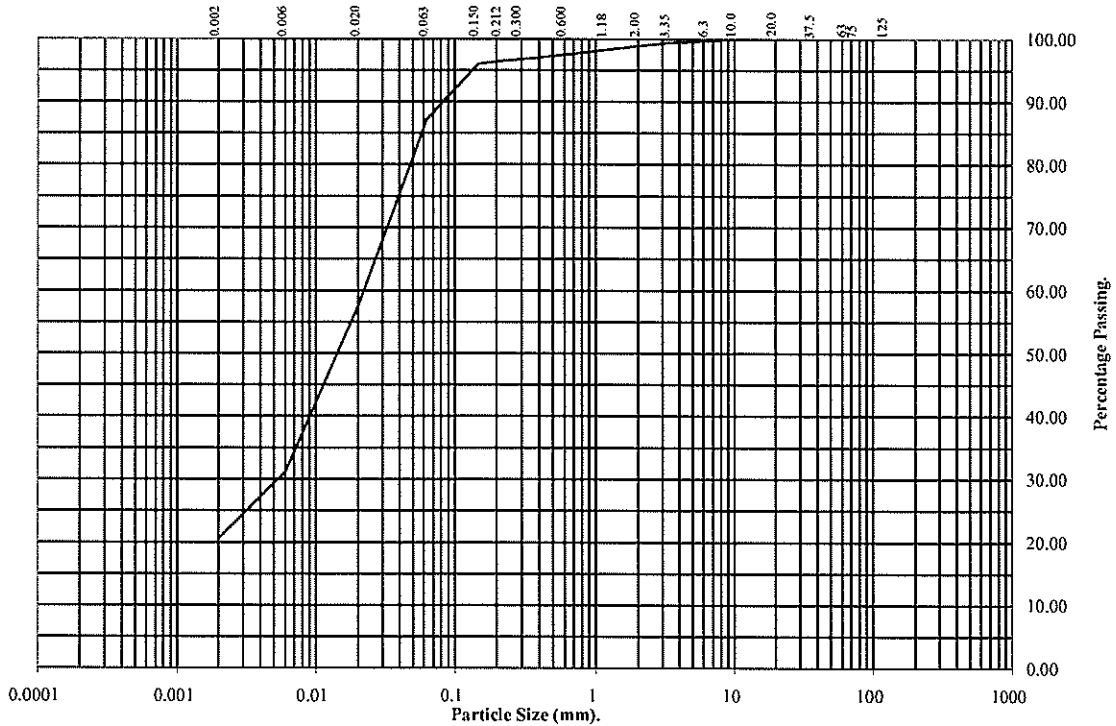
Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH305** Depth (m): **9.50**
 Sample Number: Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	99
1.18	98
0.6	97
0.3	97
0.212	96
0.15	96
0.063	87

Particle Diameter	Percentage Passing
0.02	57
0.006	31
0.002	20

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	12
Silt	67
Clay	20

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

	HAUL BOWLINE EAST TIP.	Contract No.: PSL12/2562
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Particle Size Distribution Test

BS1377 : Part 2 : 1990

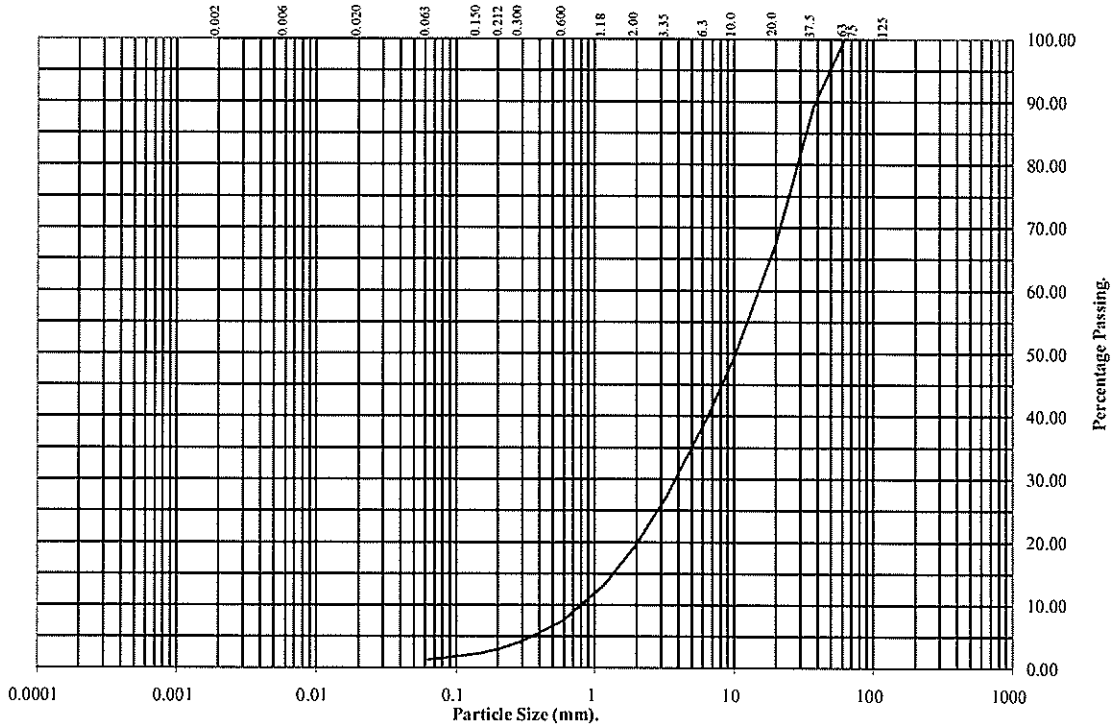
Wet Sieve, Clause 9.2

Hole Number: BH306A

Depth (m): 8.00

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	89
20	67
10	49
6.3	39
3.35	27
2	20
1.18	13
0.6	7
0.3	4
0.212	3
0.15	2
0.063	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	80
Sand	19
Silt / Clay	1

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

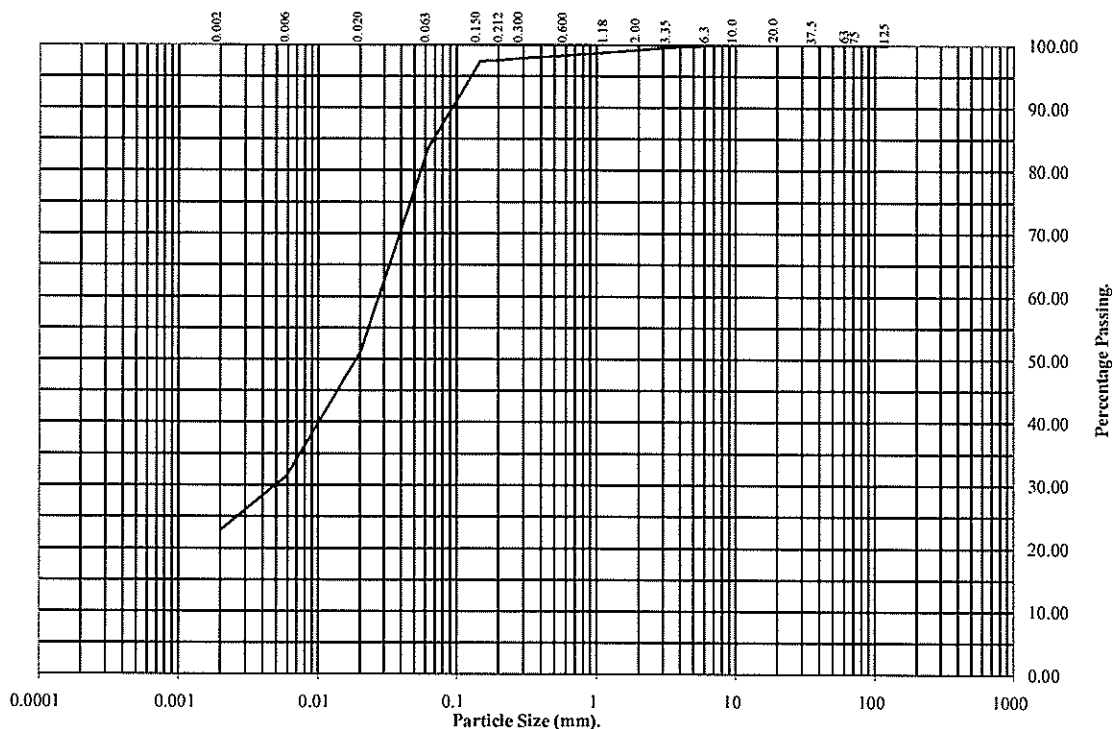
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH306A** Depth (m): **16.00**

Sample Number: Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	99
0.6	98
0.3	98
0.212	98
0.15	97
0.063	83

Particle Diameter	Percentage Passing
0.02	51
0.006	31
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	16
Silt	60
Clay	23

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

	HAUL BOWLINE EAST TIP.	Contract No.: PSL12/2562
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Particle Size Distribution Test

BS1377 : Part 2 : 1990

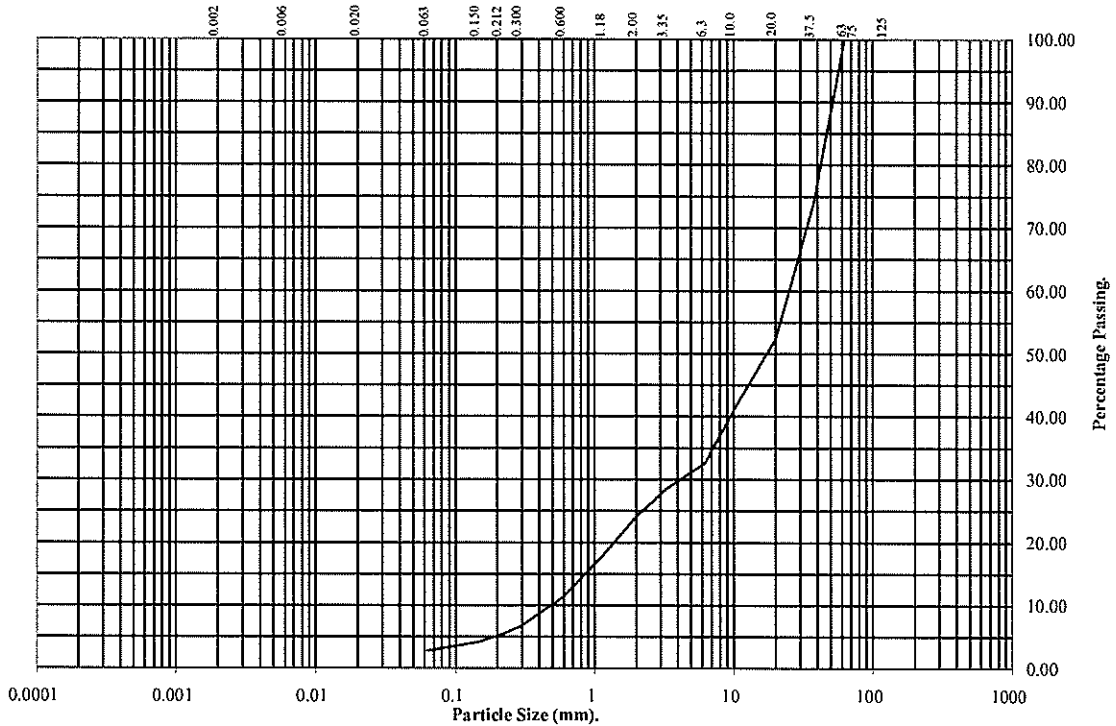
Wet Sieve, Clause 9.2

Hole Number: **BH308**

Depth (m): **22.50**

Sample Number:

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	74
20	52
10	41
6.3	33
3.35	28
2	24
1.18	18
0.6	11
0.3	7
0.212	5
0.15	4
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	76
Sand	21
Silt / Clay	3

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

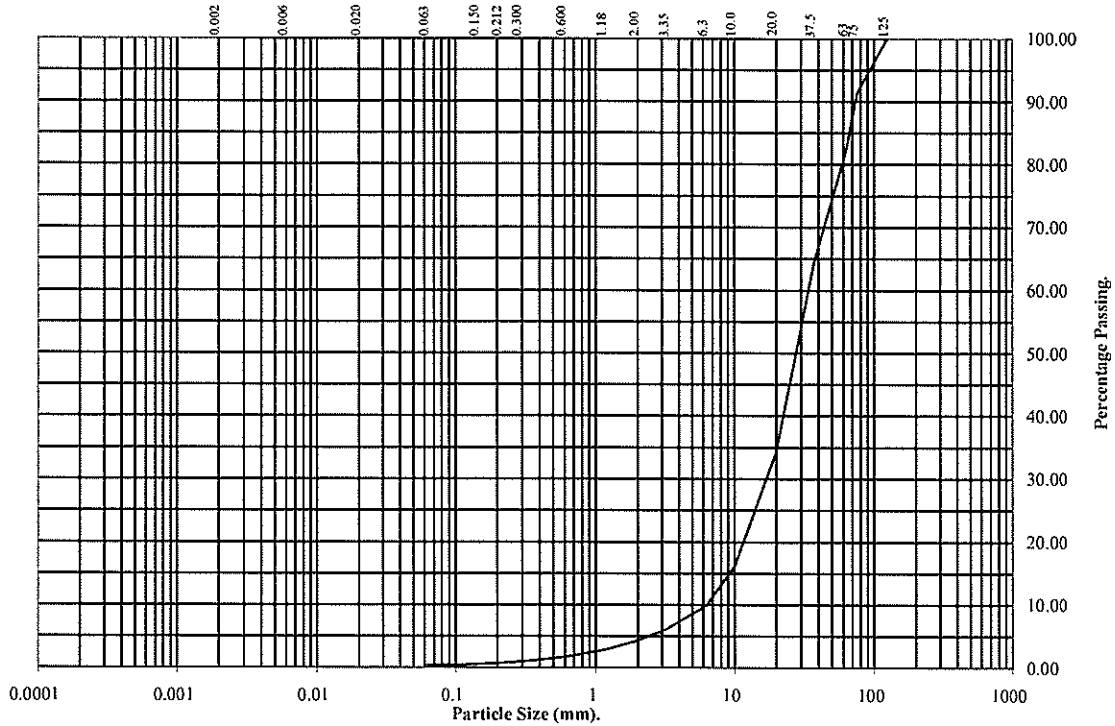
Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH309** Depth (m): **22.50**
 Sample Number: Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	91
63	82
37.5	65
20	34
10	16
6.3	10
3.35	6
2	4
1.18	3
0.6	2
0.3	1
0.212	1
0.15	1
0.063	0

Soil Fraction	Total Percentage
Cobbles	18
Gravel	78
Sand	4
Silt / Clay	0

Remarks:
 See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

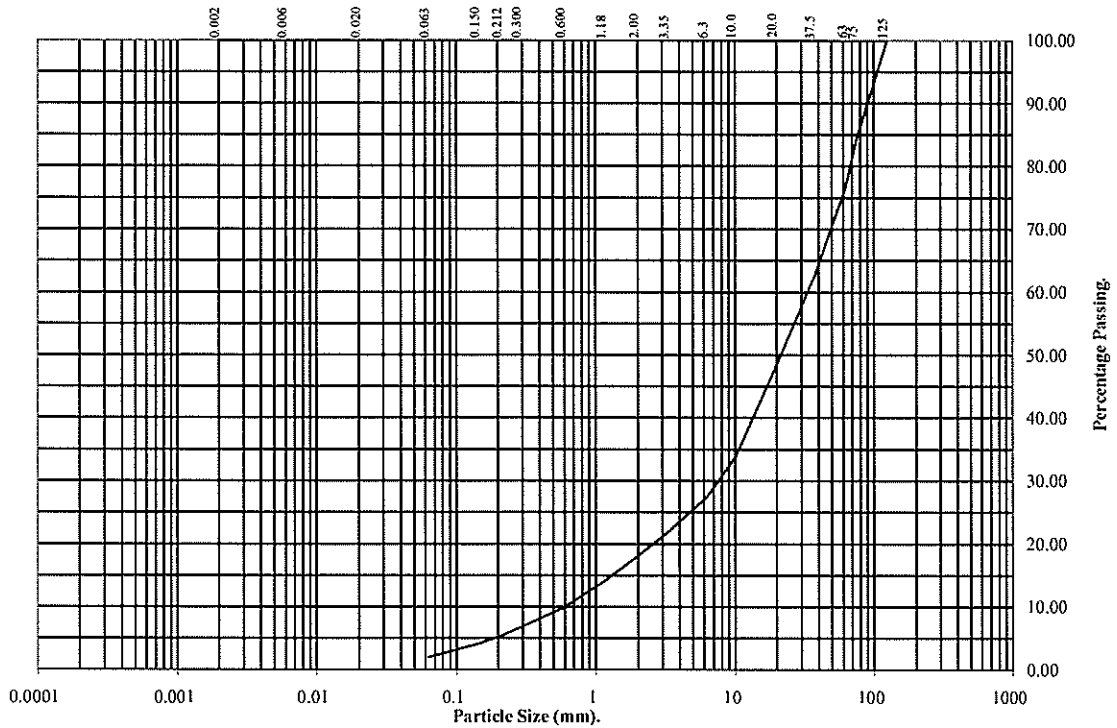
Wet Sieve, Clause 9.2

Hole Number: BH309

Depth (m): 5.00

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	84
63	77
37.5	63
20	48
10	34
6.3	27
3.35	22
2	18
1.18	14
0.6	10
0.3	7
0.212	5
0.15	4
0.063	2

Soil Fraction	Total Percentage
Cobbles	23
Gravel	59
Sand	16
Silt / Clay	2

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

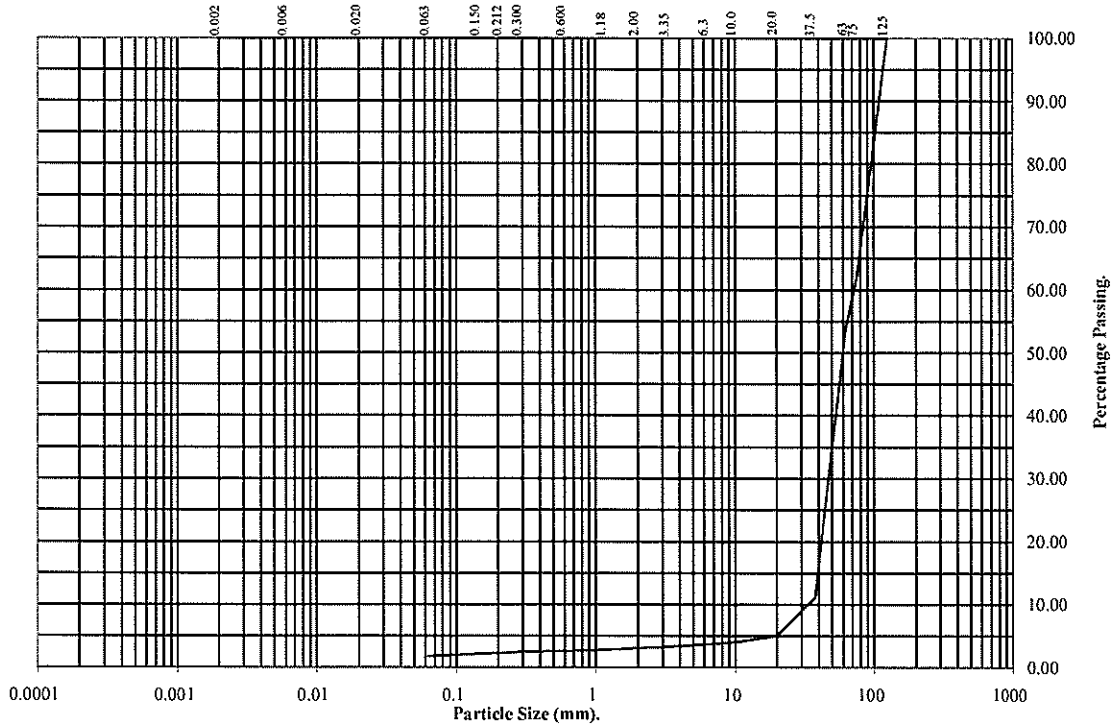
Wet Sieve, Clause 9.2

Hole Number: BH309

Depth (m): 21.00

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	62
63	54
37.5	11
20	5
10	4
6.3	4
3.35	3
2	3
1.18	3
0.6	3
0.3	2
0.212	2
0.15	2
0.063	2

Soil Fraction	Total Percentage
Cobbles	46
Gravel	51
Sand	1
Silt / Clay	2

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

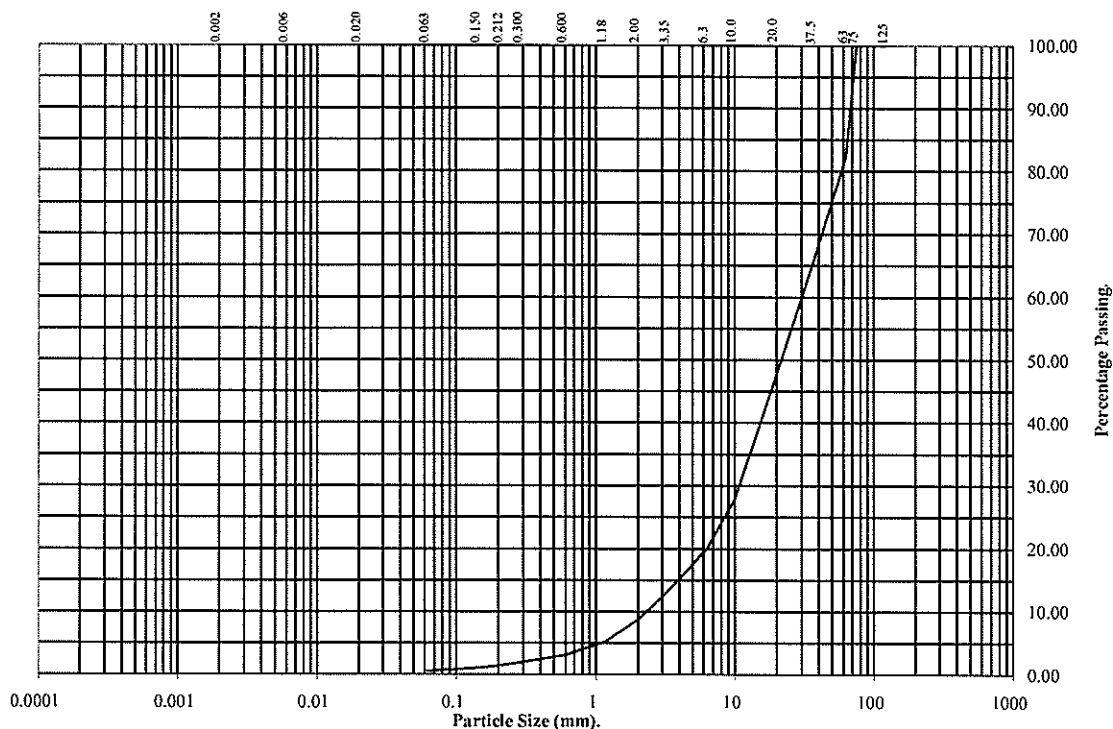
Wet Sieve, Clause 9.2

Hole Number: **BH310A**

Depth (m): **4.00**

Sample Number:

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	82
37.5	66
20	48
10	28
6.3	20
3.35	13
2	9
1.18	5
0.6	3
0.3	2
0.212	1
0.15	1
0.063	1

Soil Fraction	Total Percentage
Cobbles	18
Gravel	73
Sand	8
Silt / Clay	1

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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Contract No.:
PSL12/2562

Particle Size Distribution Test

BS1377 : Part 2 : 1990

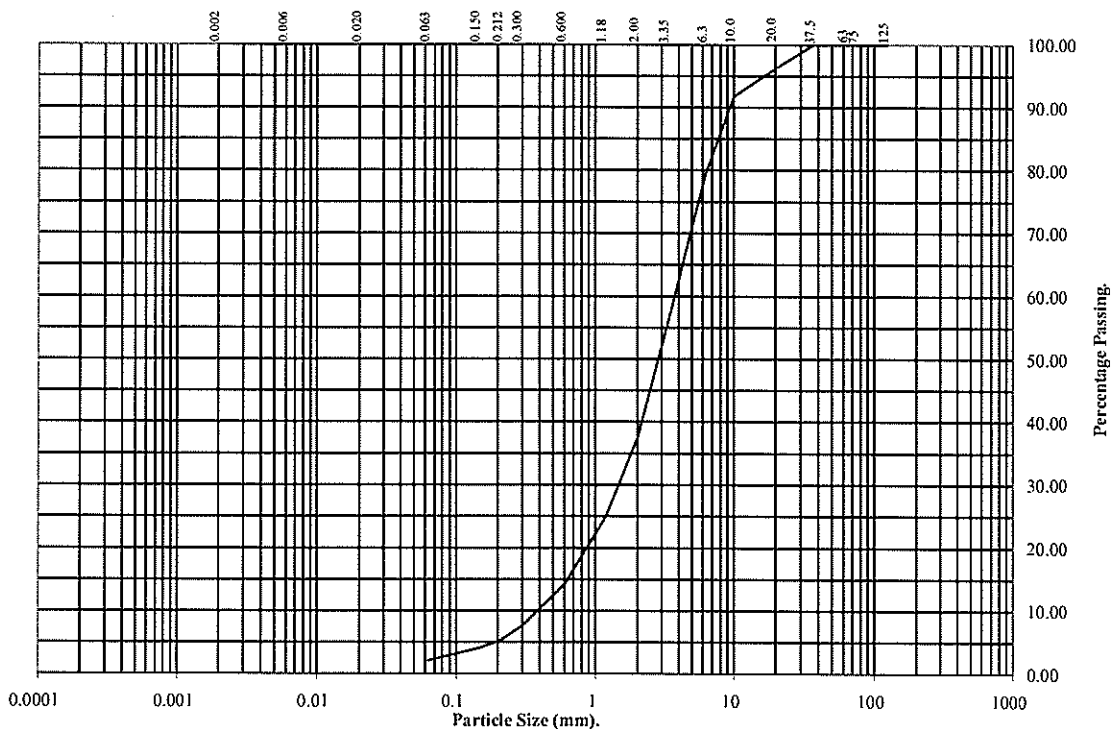
Wet Sieve, Clause 9.2

Hole Number: **BH310A**

Depth (m): **8.00**

Sample Number:

Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	96
10	92
6.3	79
3.35	56
2	37
1.18	25
0.6	14
0.3	7
0.212	5
0.15	4
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	63
Sand	35
Silt / Clay	2

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

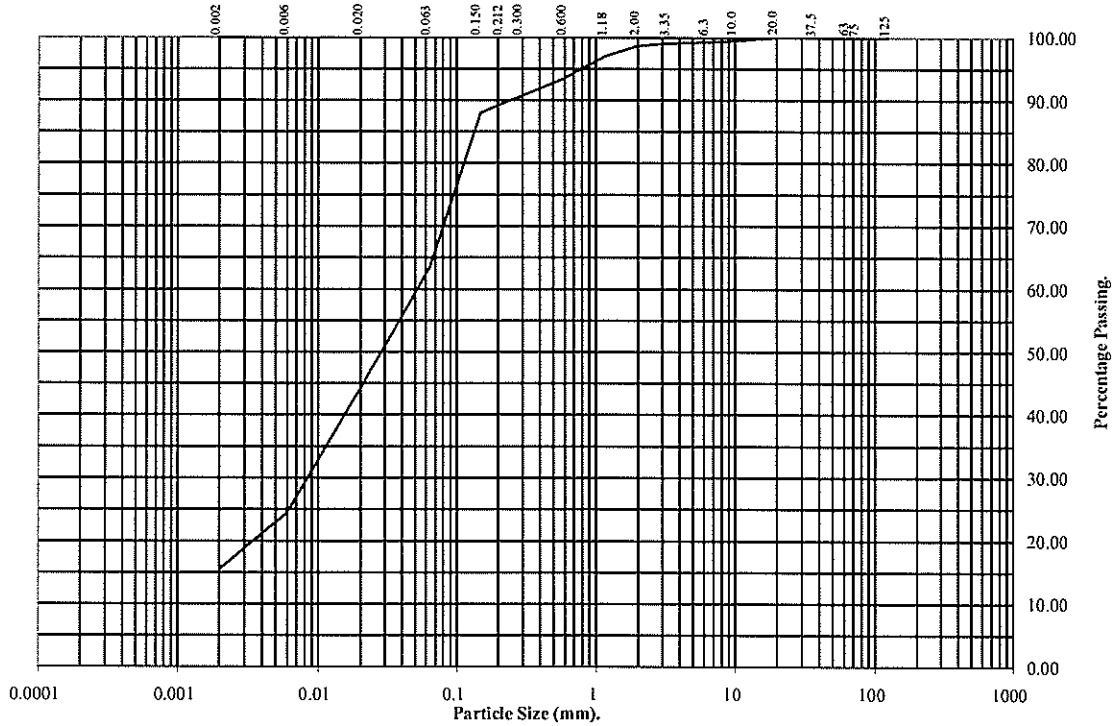
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH312B** Depth (m): **7.50**

Sample Number: Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	99
3.35	99
2	99
1.18	97
0.6	93
0.3	91
0.212	89
0.15	88
0.063	63

Particle Diameter	Percentage Passing
0.02	44
0.006	24
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	36
Silt	48
Clay	15

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

 Professional Soils Laboratory	HAUL BOWLINE EAST TIP.	Contract No.: PSL12/2562
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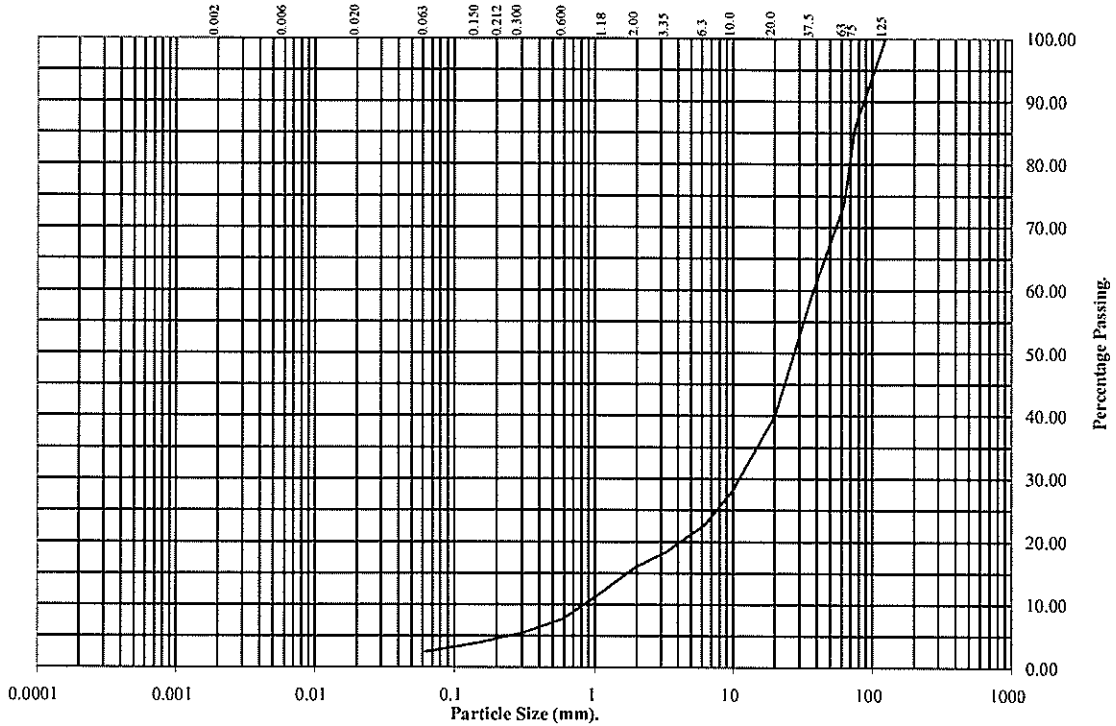
Particle Size Distribution Test

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH312B** Depth (m): **15.50**

Sample Number: Sample Type: **B**



BS Test Sieve	Percentage Passing
125	100
75	86
63	74
37.5	60
20	40
10	28
6.3	23
3.35	18
2	16
1.18	12
0.6	8
0.3	5
0.212	5
0.15	4
0.063	2

Soil Fraction	Total Percentage
Cobbles	26
Gravel	58
Sand	14
Silt / Clay	2

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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Contract No.:
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Particle Size Distribution Test

BS1377 : Part 2 : 1990

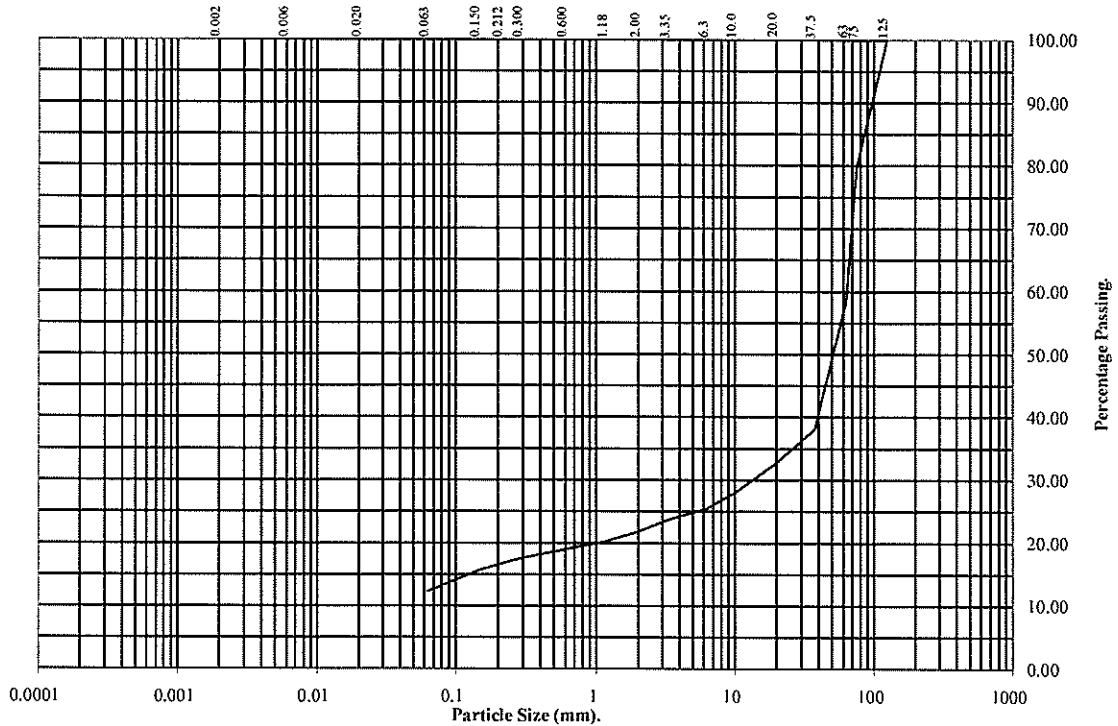
Wet Sieve, Clause 9.2

Hole Number: BH316

Depth (m): 21.50

Sample Number:

Sample Type: B



BS Test Sieve	Percentage Passing
125	100
75	80
63	58
37.5	38
20	33
10	28
6.3	25
3.35	24
2	22
1.18	20
0.6	19
0.3	18
0.212	17
0.15	16
0.063	12

Soil Fraction	Total Percentage
Cobbles	42
Gravel	36
Sand	10
Silt / Clay	12

Remarks:
See summary of soil descriptions.

Checked By	Date	Approved By	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

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HAUL BOWLINE EAST TIP.

Contract No.:
PSL12/2562

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

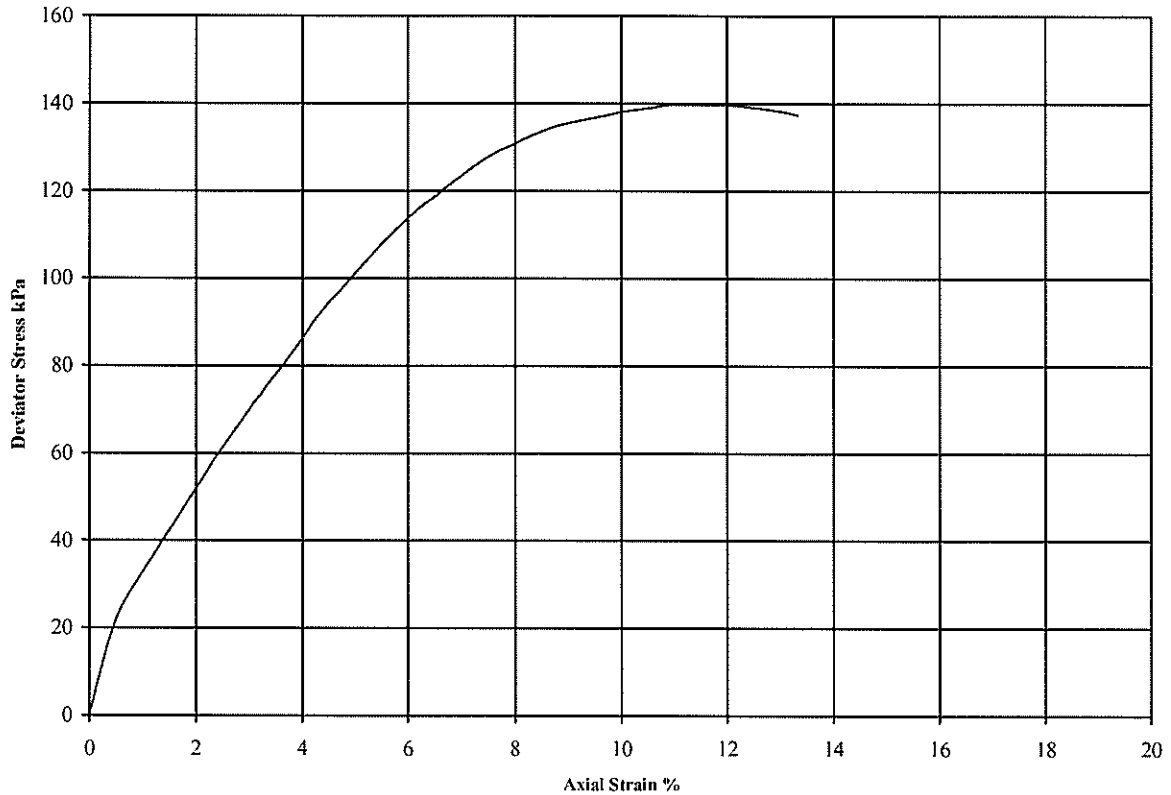
B.S. 1377 : Part 7 : Clause 8 : 1990

Hole Number: BH301A

Depth (m): 10.20

Sample Number:

Sample Type: U



Diameter (mm):		102.0		Height (mm):		210.0		Test:		100 mm Single Stage. Undisturbed		
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Remarks Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness, Correction applied 0.35 kPa See summary of soil descriptions.			
A	32	1.81	1.37	θ ₃	(θ ₁ -θ ₃) _f	1/2(θ ₁ -θ ₃) _f	11.9	Plastic				
									Checked	Date	Approved	Date
									✓	13/08/12	✓	13/08/12
PSL Professional Soils Laboratory				HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562				

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

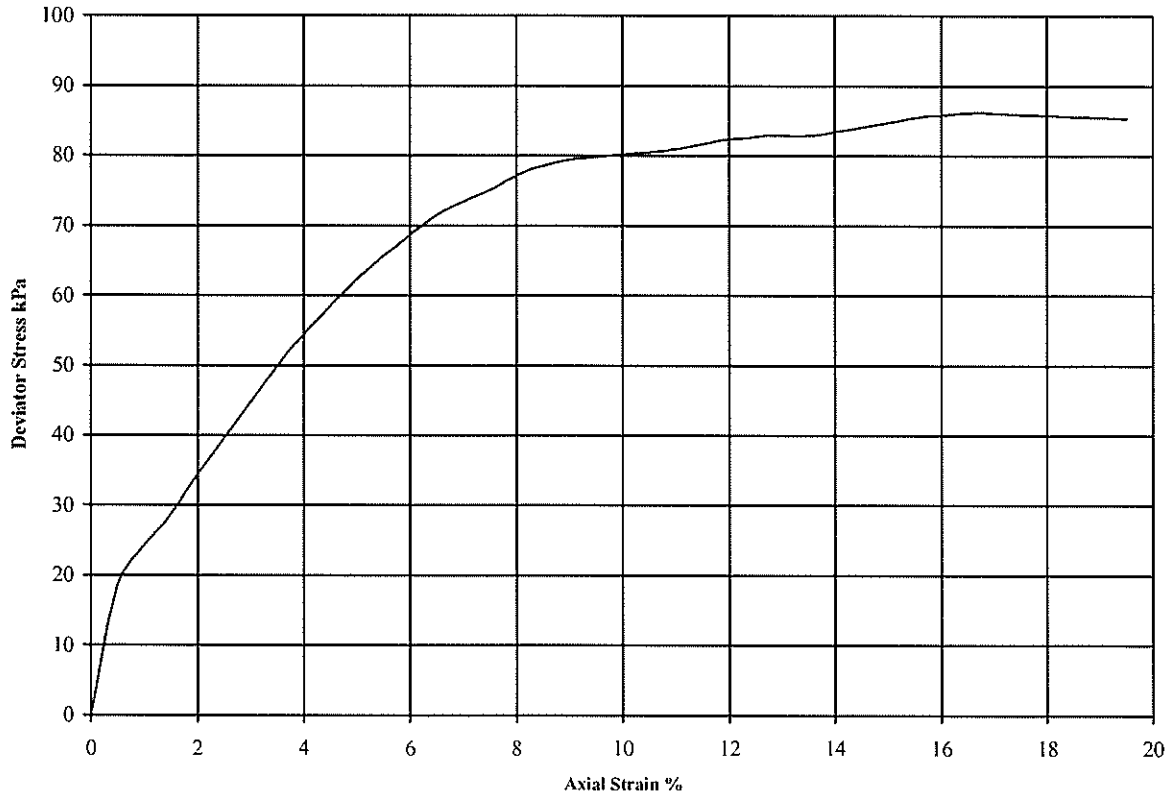
B.S. 1377 : Part 7 : Clause 8 : 1990

Hole Number: BH304

Depth (m): 10.00

Sample Number:

Sample Type: U



Diameter (mm):		102.0		Height (mm):		210.0		Test:		100 mm Single Stage. Undisturbed		
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Remarks Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness, Correction applied 0.34 kPa See summary of soil descriptions.			
A	36	1.80	1.32	200	86	43	16.7	Plastic				
									Checked	Date	Approved	Date
										13/08/12		13/08/12
PSL Professional Soils Laboratory				HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562				

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

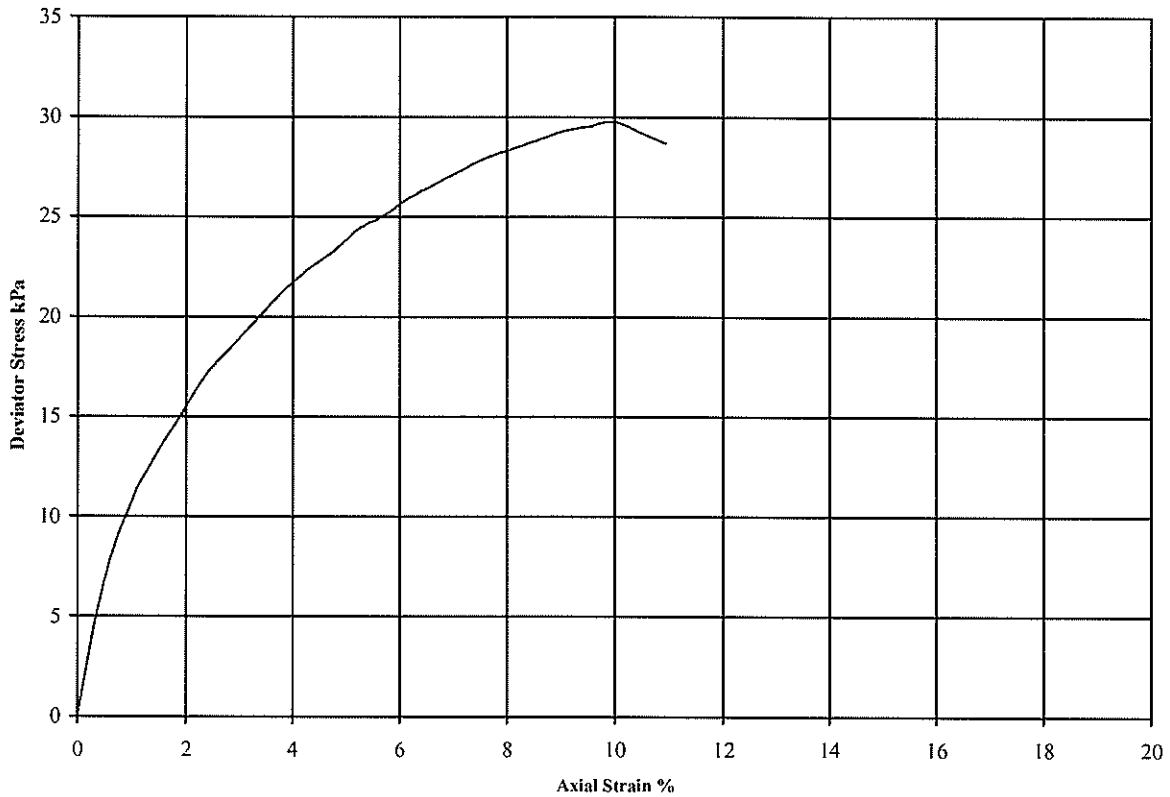
B.S. 1377 : Part7 : Clause 8 : 1990

Hole Number: BH306D

Depth (m): 20.00

Sample Number:

Sample Type: U



Diameter (mm):		102.0		Height (mm):		210.0		Test:		100 mm Single Stage. Undisturbed		
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Remarks			
A	40	1.93	1.37	400	30	15	10.0	Plastic	Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness, Correction applied 0.35 kPa See summary of soil descriptions.			
									Checked	Date	Approved	Date
									6/22/12	13/08/12	6/22/12	13/08/12
PSL Professional Soils Laboratory				HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562				

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

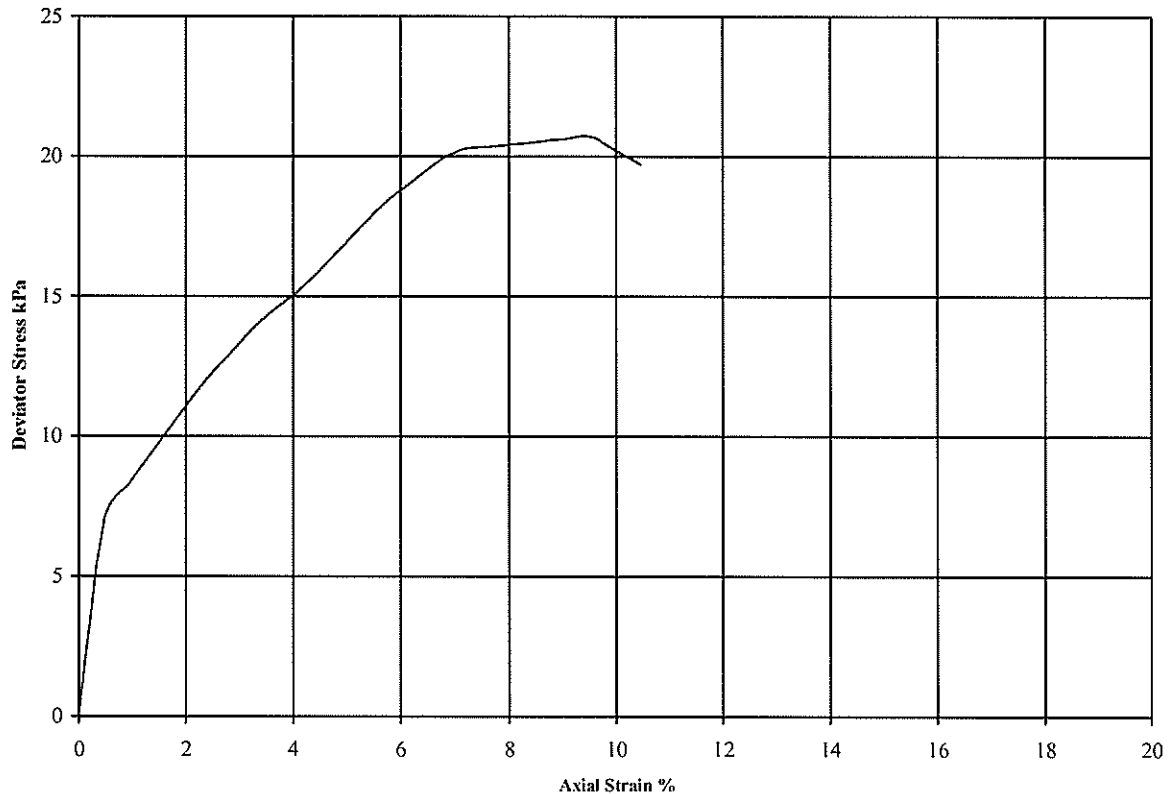
B.S. 1377 : Part 7 : Clause 8 : 1990

Hole Number: BH307

Depth (m): 20.00

Sample Number:

Sample Type: U



Diameter (mm):		102.0		Height (mm):		210.0		Test:		100 mm Single Stage. Undisturbed		
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Remarks Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness, Correction applied 0.35 kPa See summary of soil descriptions.			
A	36	1.94	1.42	θ ₃ 240	(θ ₁ -θ ₃) _r 21	1/2(θ ₁ -θ ₃) _r 10	9.5	Plastic				
									Checked	Date	Approved	Date
									<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12
PSL Professional Soils Laboratory				HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562				

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

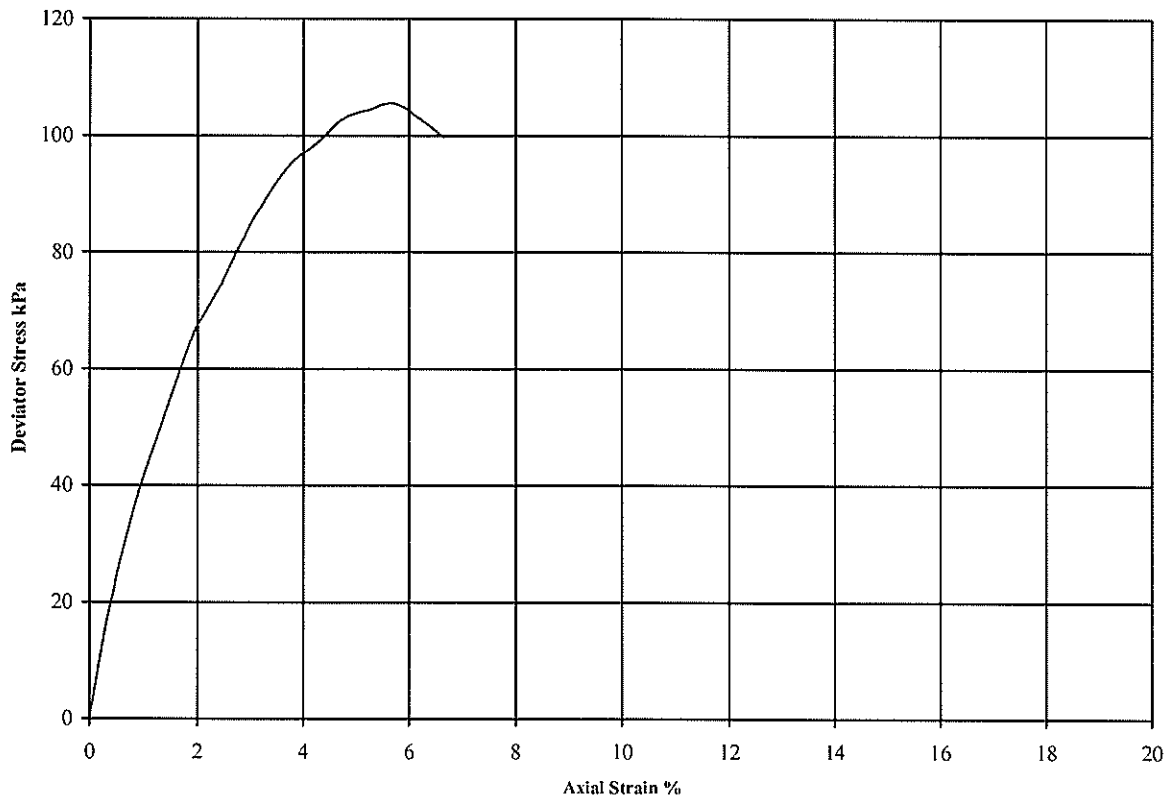
B.S. 1377 : Part 7 : Clause 8 : 1990

Hole Number: BH308

Depth (m): 8.00

Sample Number:

Sample Type: U



Diameter (mm):		102.0	Height (mm):		210.0	Test:	100 mm Single Stage. Undisturbed				
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Remarks		
A	33	1.86	1.40	160	106	53	5.7	Brittle	Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness, Correction applied 0.36 kPa See summary of soil descriptions.		
							Checked	Date	Approved	Date	
								13/08/12		13/08/12	
PSL Professional Soils Laboratory				HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562			

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

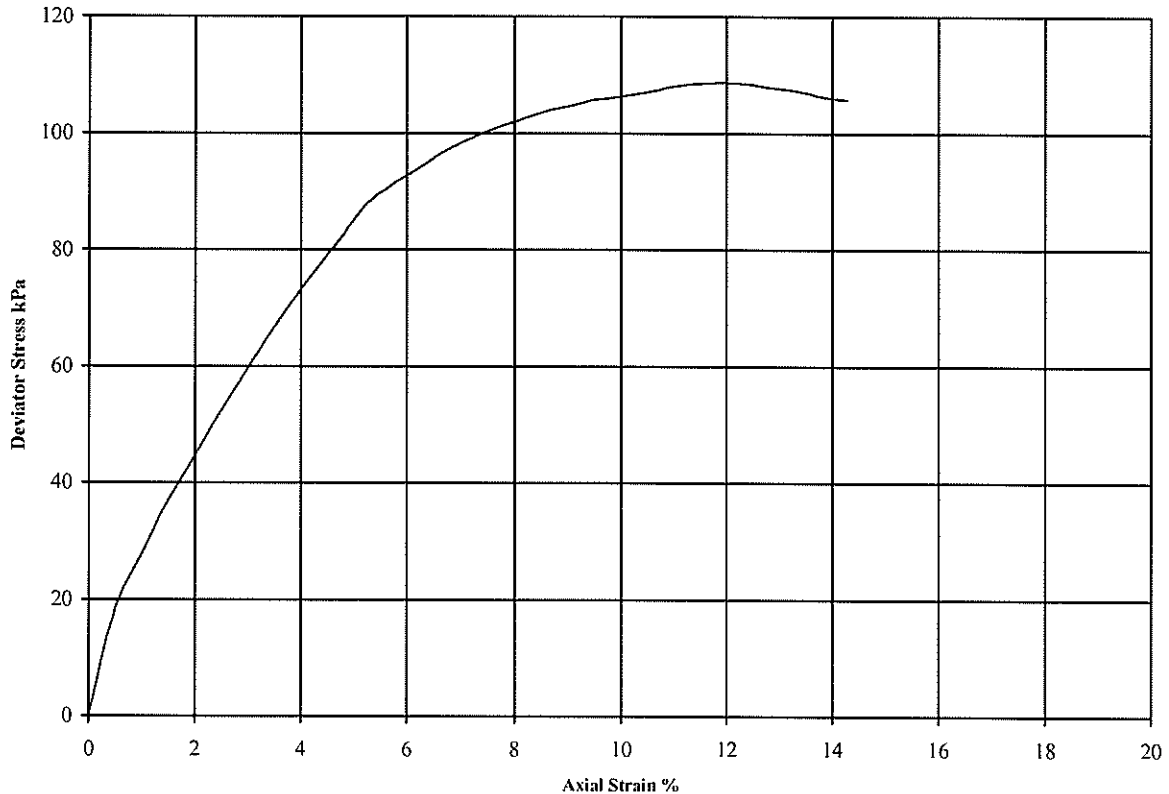
B.S. 1377 : Part 7 : Clause 8 : 1990


Hole Number: BH309

Depth (m): 8.50

Sample Number:

Sample Type: U



Diameter (mm):		102.0	Height (mm):		210.0	Test:		100 mm Single Stage. Undisturbed									
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Remarks								
A	33	1.83	1.38	170	109	54	11.9	Plastic	Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness, Correction applied 0.35 kPa See summary of soil descriptions.								
									<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Checked</td> <td>Date</td> <td>Approved</td> <td>Date</td> </tr> <tr> <td><i>[Signature]</i></td> <td>13/08/12</td> <td><i>[Signature]</i></td> <td>13/08/12</td> </tr> </table>	Checked	Date	Approved	Date	<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12
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<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12														
				HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562									

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

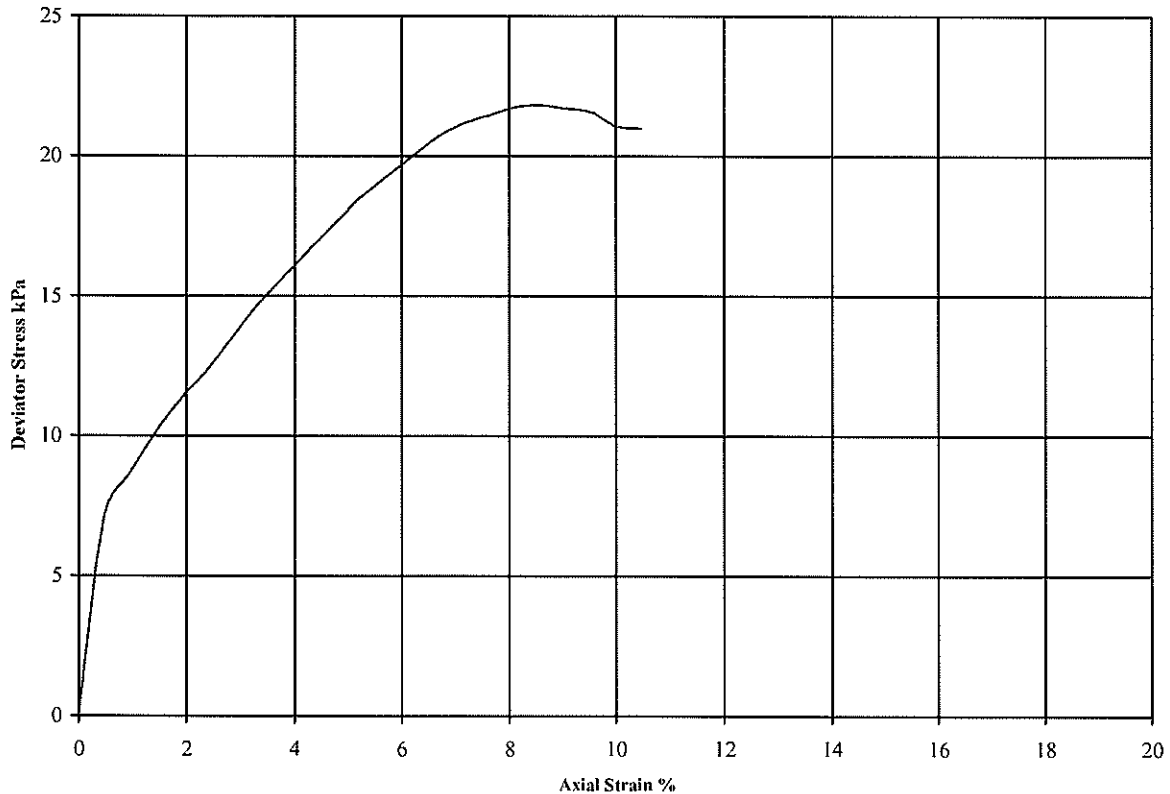
B.S. 1377 : Part 7 : Clause 8 : 1990

Hole Number: BH312B

Depth (m): 10.00

Sample Number:

Sample Type: U



Diameter (mm):		102.0		Height (mm):		210.0		Test:		100 mm Single Stage. Undisturbed		
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Remarks			
A	37	1.98	1.44	200	$(\theta_1 - \theta_3)_r$	$\frac{1}{2}(\theta_1 - \theta_3)_r$	8.6	Plastic	Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness, Correction applied 0.36 kPa See summary of soil descriptions.			
									Checked	Date	Approved	Date
									<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12
PSL Professional Soils Laboratory				HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562				

Undrained Shear Strength in Triaxial Compression

without measurement of Pore Pressure

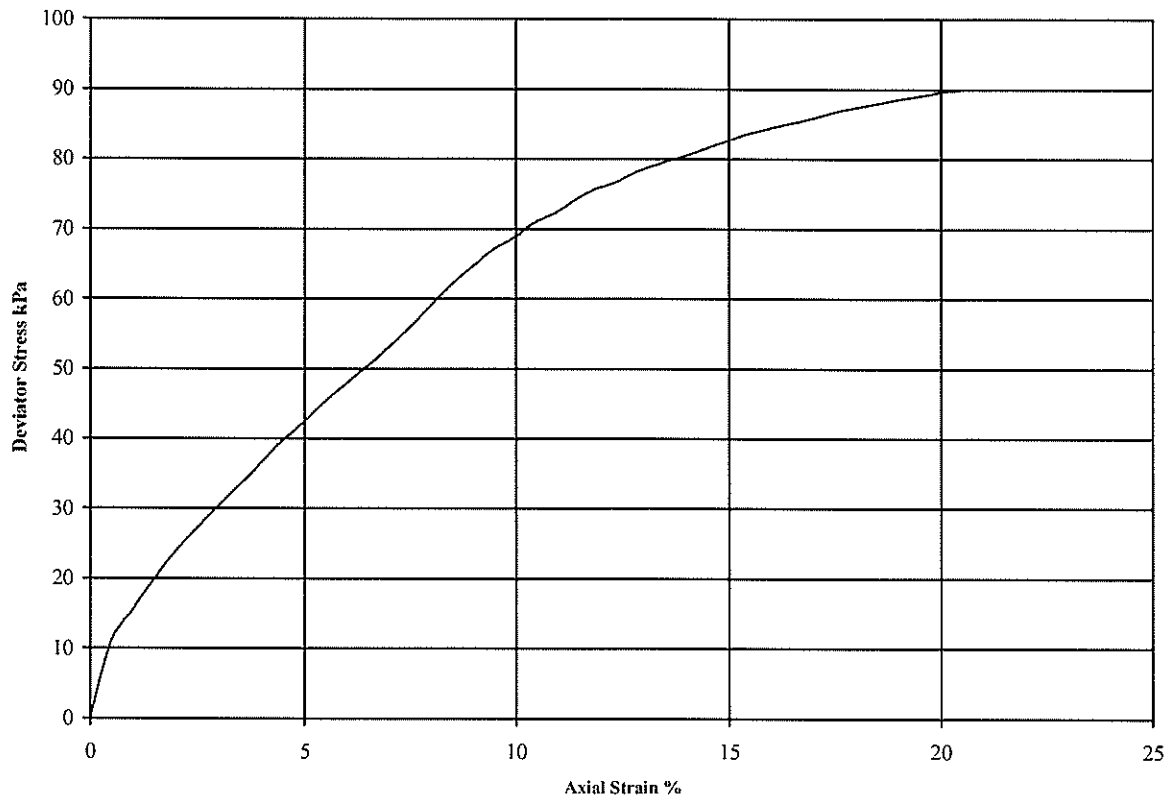
B.S. 1377 : Part 7 : Clause 8 : 1990


Hole Number: BH316

Depth (m): 17.00

Sample Number:

Sample Type: U



Diameter (mm):		102.0	Height (mm):		210.0	Test:		100 mm Single Stage. Undisturbed									
Specimen	Moisture Content (%)	Bulk Density (Mg/m ³)	Dry Density (Mg/m ³)	Cell Pressure (kPa)	Corr. Max. Deviator Stress (kPa)	Shear Strength Cu (kPa)	Failure Strain (%)	Mode of Failure	Remarks								
A	33	1.99	1.50	340	90	45	20.5	Plastic	Sample taken from top of tube Rate of strain = 1.9 %/min Latex Membrane used 0.2 mm thickness, Correction applied 0.33 kPa See summary of soil descriptions.								
									<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>Checked</th> <th>Date</th> <th>Approved</th> <th>Date</th> </tr> <tr> <td><i>[Signature]</i></td> <td>13/08/12</td> <td><i>[Signature]</i></td> <td>13/08/12</td> </tr> </table>	Checked	Date	Approved	Date	<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12
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<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12														
				HAUL BOWLINE EAST TIP.				Contract No: PSL12/2562									

SUMMARY OF LABORATORY HAND VANE TESTS

Hole Number	Sample Number	Sample Type	Depth m	Moisture Content %	Shear Strength kPa	Description
BH301A		B	15.20	17	8	Dark grey very gravelly CLAY.
BH301A		B	17.50	17	6	Brown gravelly slightly sandy silty CLAY.
BH304		B	17.50		4	Brown gravelly sandy silty CLAY.
BH304		B	18.50		8	Brown gravelly sandy silty CLAY.
BH308		U	4.00	17	23	Grey brown gravelly very sandy silty CLAY.
BH308		B	5.50		18	Brown gravelly sandy CLAY.
BH316		B	21.50	11	28	Brown gravelly slightly sandy CLAY.



Professional Soils Laboratory

Compiled by	<i>[Signature]</i>	Date	10/08/12	Checked by	<i>M.S.S</i>	Date	13/08/12	Approved by	<i>M.S.S</i>	Date	13/08/12
HAUL BOWLINE EAST TIP.						Contract No: PSL12/2562		Client Ref:			

One Dimensional Consolidation Properties

BS 1377: Part 5: 1990

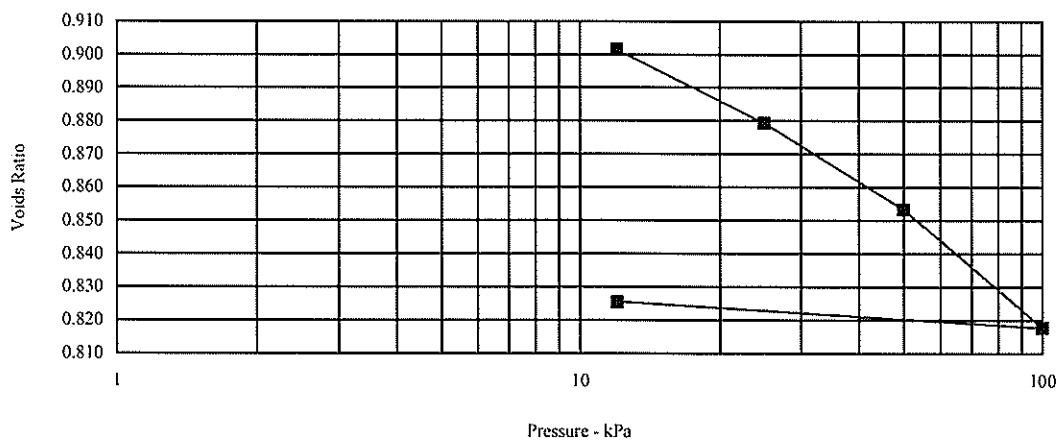
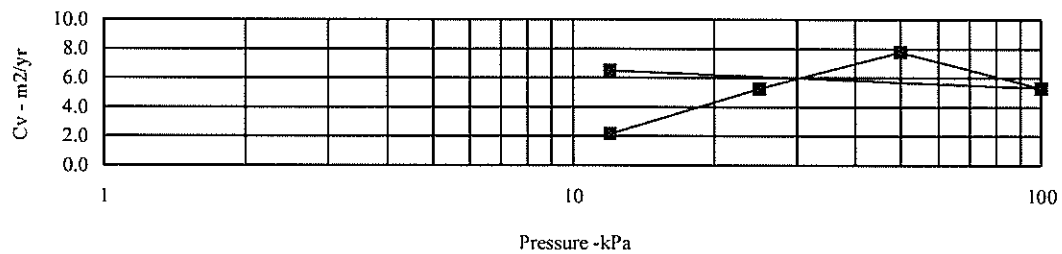
Hole Number: BH301A

Depth (m): 7.50

Sample Number:

Sample Type: U

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	38	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	1.84	0	- 12	3.461	2.165	Method used to	t90
Dry Density (Mg/m3):	1.34	12	- 25	0.897	5.275	determine CV:	
Void Ratio:	0.9838	25	- 50	0.552	7.795	Nominal temperature	
Degree of saturation:	102.3	50	- 100	0.384	5.316	during test 'C:	20
Height (mm):	19.96	100	- 12	0.048	6.506	Remarks:	
Diameter (mm)	75.2	See summary of soils description.					
Particle Density (Mg/m3):	2.65						
Assumed							



Checked by	Date	Approved by	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

	HAULBOWLINE EAST TIP	Contract No.
		PSL12/2562
		Page of

One Dimensional Consolidation Properties

BS 1377: Part 5: 1990

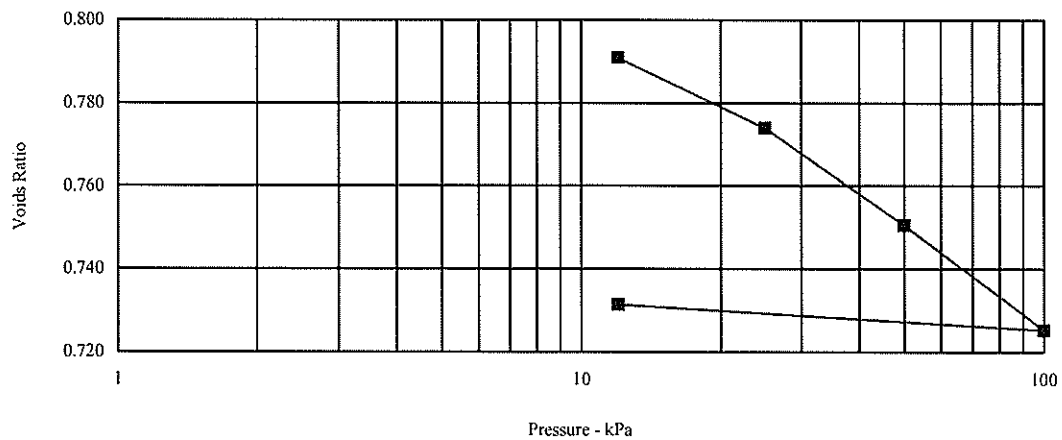
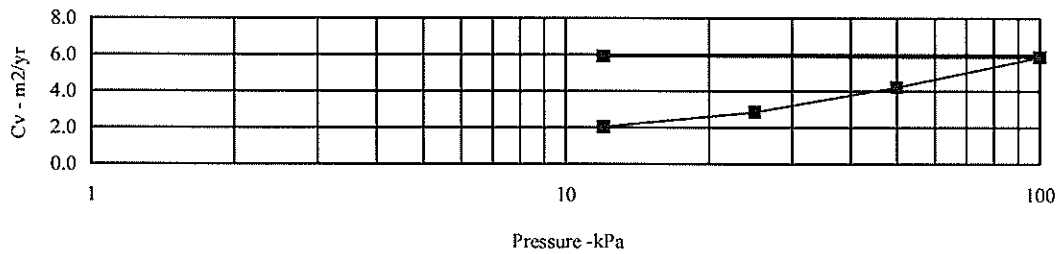
Hole Number: BH303

Depth (m): 10.00

Sample Number:

Sample Type: U

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
Moisture Content (%):	31	kPa		m2/MN	m2/yr	within tube:	Top
Bulk Density (Mg/m3):	1.89	0	- 12	2.353	2.033	Method used to	
Dry Density (Mg/m3):	1.44	12	- 25	0.729	2.874	determine CV:	t90
Voids Ratio:	0.8429	25	- 50	0.527	4.230	Nominal temperature	
Degree of saturation:	98.5	50	- 100	0.289	5.876	during test ' C:	20
Height (mm):	19.87	100	- 12	0.040	5.909	Remarks:	
Diameter (mm)	75.21	See summary of soils description.					
Particle Density (Mg/m3):	2.65						
Assumed							



Checked by	Date	Approved by	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

	HAULBOWLINE EAST TIP	Contract No.
		PSL12/2562
		Page of

One Dimensional Consolidation Properties

BS 1377: Part 5: 1990

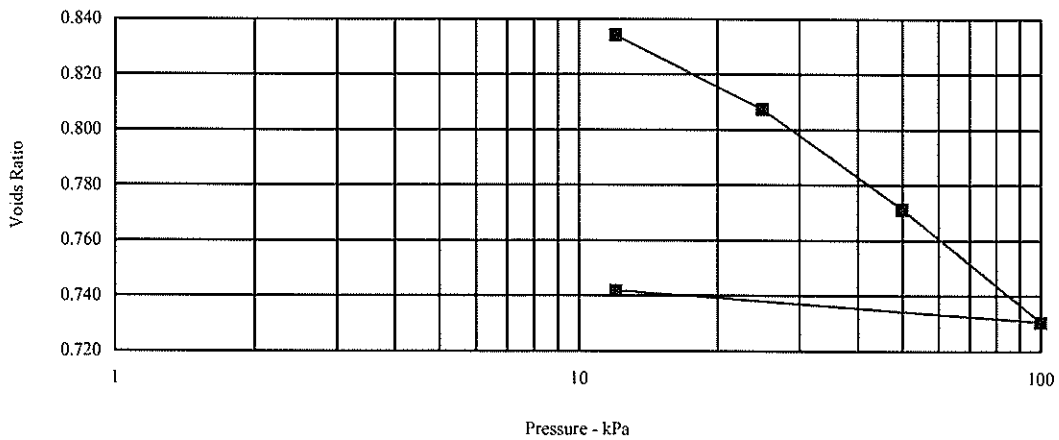
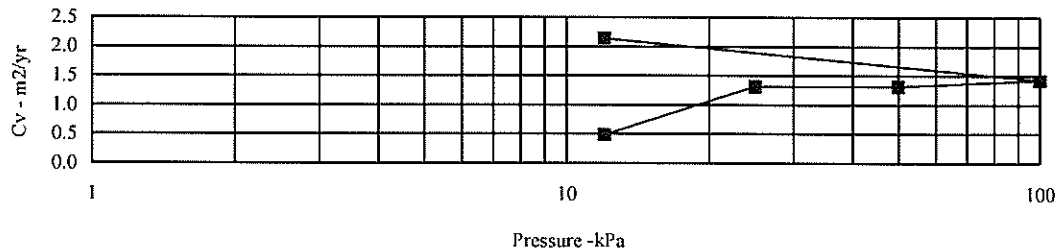
Hole Number: BH307

Depth (m): 14.00

Sample Number:

Sample Type: U

Initial Conditions		Pressure Range			Mv	Cv	Specimen location	
		kPa			m2/MN	m2/yr	within tube:	Top
Moisture Content (%):	35	0	-	12	3.580	0.486	Method used to	
Bulk Density (Mg/m3):	1.87	12	-	25	1.121	1.318	determine CV:	t90
Dry Density (Mg/m3):	1.38	25	-	50	0.802	1.317	Nominal temperature	
Void Ratio:	0.9165	50	-	100	0.459	1.423	during test ' C:	20
Degree of saturation:	101.8	100	-	12	0.075	2.142	Remarks:	
Height (mm):	19.93	See summary of soils description.						
Diameter (mm)	75.21							
Particle Density (Mg/m3):	2.65							
Assumed								



Checked by	Date	Approved by	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12

	HAULBOWLINE EAST TIP	Contract No.
		PSL12/2562
		Page of

One Dimensional Consolidation Properties

BS 1377: Part 5: 1990

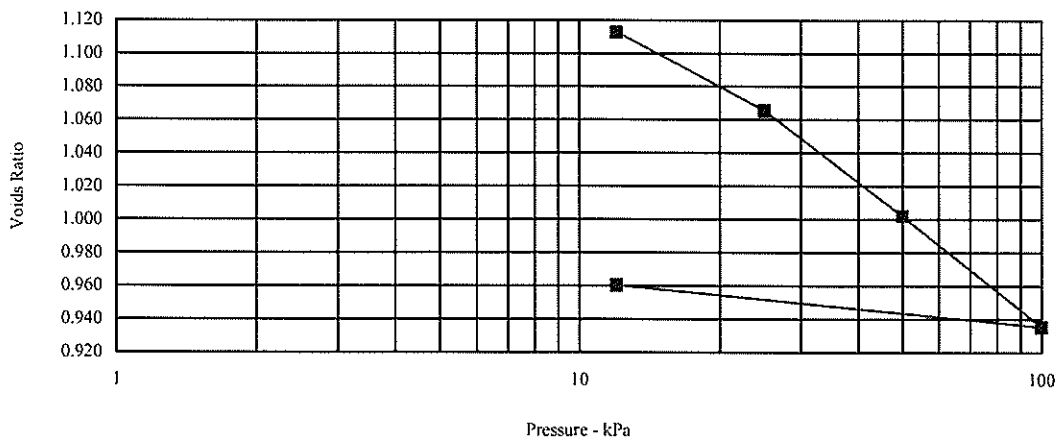
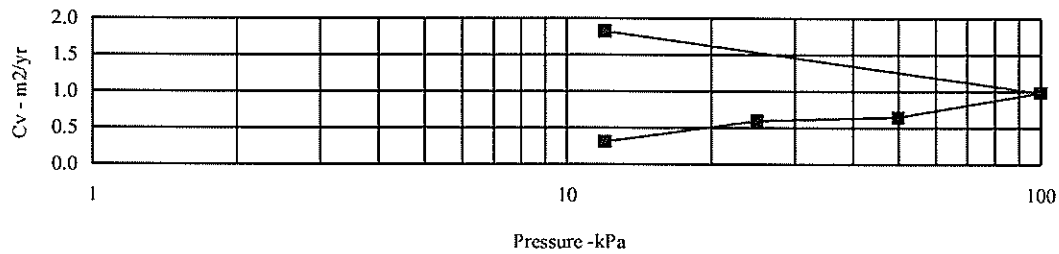
Hole Number: BH310B

Depth (m): 13.00

Sample Number:

Sample Type: U

Initial Conditions		Pressure Range		Mv	Cv	Specimen location	
		kPa		m2/MN	m2/yr	within tube:	Top
Moisture Content (%):	47	0	- 12	4.871	0.311	Method used to	
Bulk Density (Mg/m3):	1.74	12	- 25	1.722	0.599	determine CV:	t90
Dry Density (Mg/m3):	1.18	25	- 50	1.229	0.648	Nominal temperature	
Voids Ratio:	1.2440	50	- 100	0.666	0.987	during test ' C:	20
Degree of saturation:	100.8	100	- 12	0.146	1.825	Remarks:	
Height (mm):	19.88	See summary of soils description.					
Diameter (mm)	75.19						
Particle Density (Mg/m3):	2.65						
Assumed							



Checked by	Date	Approved by	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12



HAULBOWLINE EAST TIP

Contract No.

PSL12/2562

Page of

One Dimensional Consolidation Properties

BS 1377: Part 5: 1990

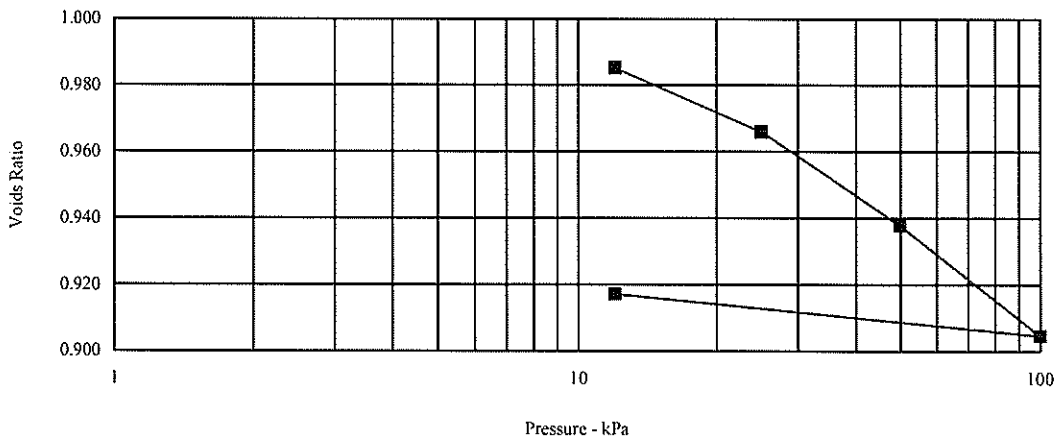
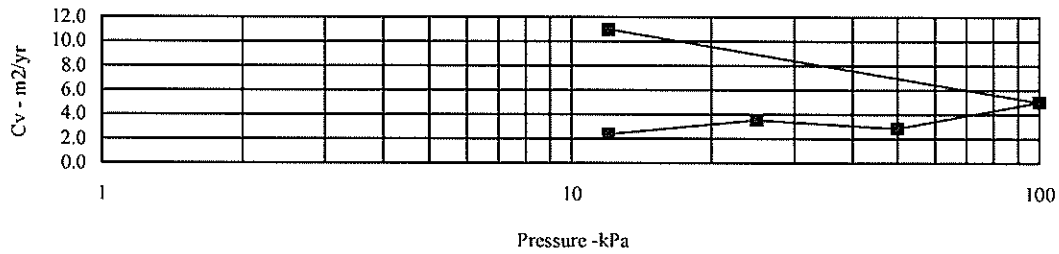
Hole Number: BH312B

Depth (m): 6.00

Sample Number:

Sample Type: U

Initial Conditions		Pressure Range			Mv	Cv	Specimen location	
		kPa			m2/MN	m2/yr	within tube:	Top
Moisture Content (%):	40	0	-	12	1.843	2.373	Method used to	
Bulk Density (Mg/m3):	1.83	12	-	25	0.747	3.530	determine CV:	t90
Dry Density (Mg/m3):	1.31	25	-	50	0.573	2.849	Nominal temperature	
Void Ratio:	1.0301	50	-	100	0.342	5.033	during test ' C:	20
Degree of saturation:	102.5	100	-	12	0.074	10.999	Remarks:	
Height (mm):	19.9	See summary of soils description.						
Diameter (mm)	75.2							
Particle Density (Mg/m3):	2.65							
Assumed								



Checked by	Date	Approved by	Date
<i>[Signature]</i>	13/08/12	<i>[Signature]</i>	13/08/12



HAULBOWLINE EAST TIP

Contract No.

PSL12/2562

Page of

Unconfined Compressive Strength, UCS

Job Name	<table border="1"><tr><td>Haulbowline</td></tr></table>	Haulbowline
Haulbowline		
Job Number	<table border="1"><tr><td>P12030</td></tr></table>	P12030
P12030		
Borehole:	<table border="1"><tr><td>RC306C</td></tr></table>	RC306C
RC306C		
Depth:	<table border="1"><tr><td>35.37 m</td></tr></table>	35.37 m
35.37 m		
Rock Type	<table border="1"><tr><td>Boulder, Lst</td></tr></table>	Boulder, Lst
Boulder, Lst		
Bulk Density	2.64 Mg/m ³	
Load at Failure, P	267.3 kN	
Stress at Failure	58.97 MPa	



Failure mode

NOTES:

Operator	AD
Checked	CK

APPENDIX E

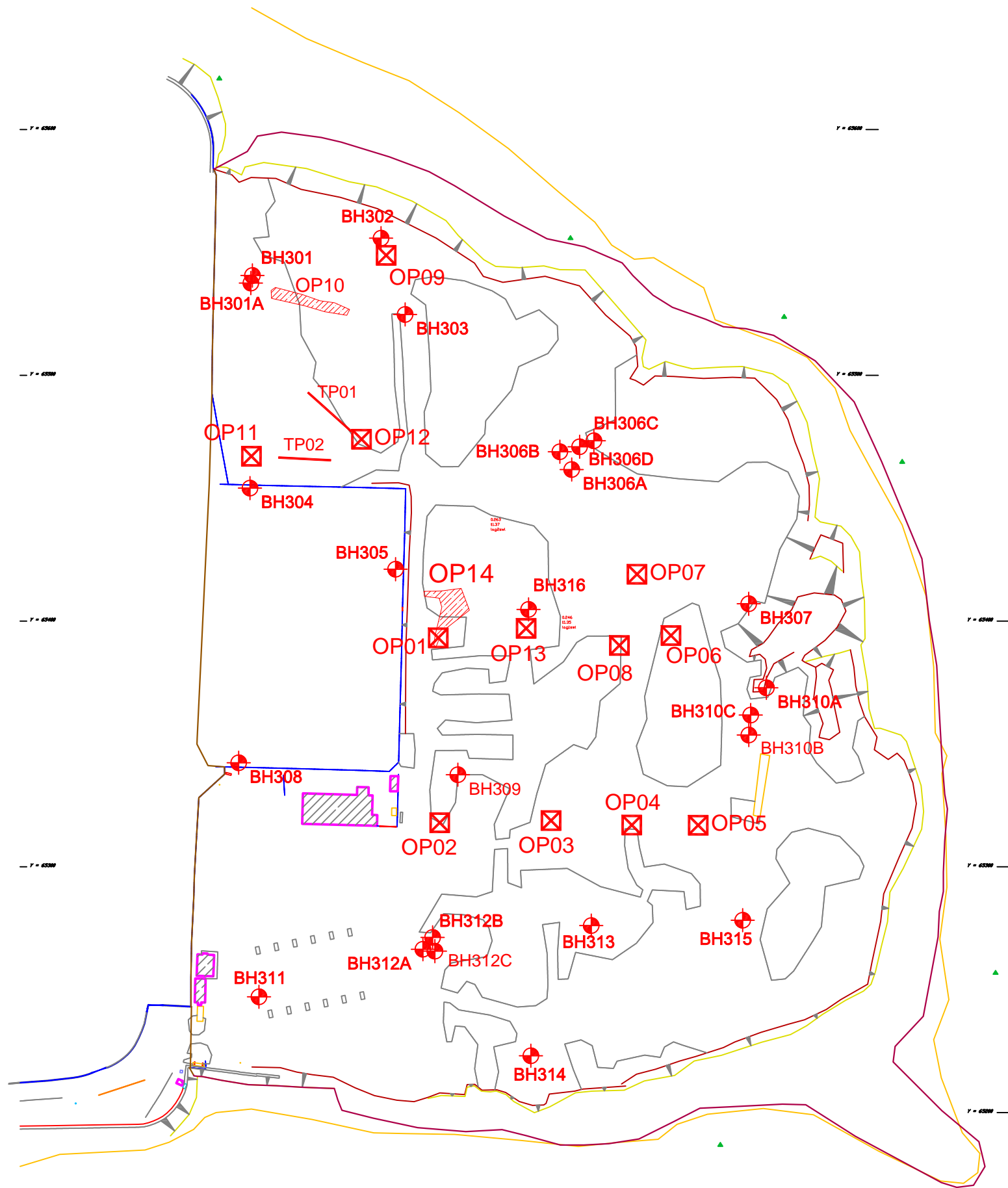
EXPLORATION LOCATION LAYOUT & PLANS

Exploration Location Plans

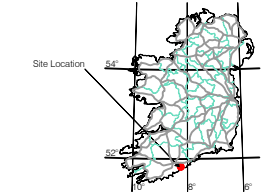
P12030-SI-01

Location	Easting	Northing	Elevation, mOD	Depth, m bgl	dd/mm/yyyy
BH117R	179563.5	65306.31	3.323	24.40	12/06/2012
BH125R	179726.8	65401.99	3.697	36.00	08/06/2012
BH301	179568.5	65540.62	3.106	3.50	11/05/2012
BH301A	179569.5	65541.62	3.10	17.80	15/05/2012
BH302	179620.9	65555.8	3.905	20.80	17/05/2012
BH303	179630.7	65524.79	3.097	10.50	08/05/2012
BH304	179567.5	65454.11	3.466	20.00	25/05/2012
BH305	179626.8	65421.11	3.214	10.00	24/05/2012
BH306A	179698.5	65461.7	1.18	9.80	01/05/2012
BH306B	179693.7	65468.86	1.067	7.05	25/04/2012
BH306C	179707.5	65473.36	1.433	49.20	14/05/2012
BH306D	179698.5	65461.7	1.18	20.50	30/05/2012
BH307	179770.6	65407.04	3.657	15.00	21/05/2012
BH308	179562.9	65342.51	3.506	25.00	25/05/2012
BH309	179650.4	65340.16	2.629	25.00	31/05/2012
BH310A	179777.7	65372.77	4.586	9.60	26/04/2012
BH310B	179770.7	65353.8	5.034	24.50	04/05/2012
BH310C	179771.3	65361.87	5.198	47.60	21/05/2012
BH311	179571.2	65247.07	3.345	5.30	22/05/2012
BH312A	179637.9	65266.46	2.874	6.20	25/04/2012
BH312B	179641.9	65271.26	2.756	19.10	01/05/2012
BH312C	179642.8	65265.68	3.349	32.50	10/05/2012
BH313	179706.4	65276.05	2.614	25.30	16/05/2012
BH314	179681.9	65223.12	3.856	6.00	27/04/2012
BH315	179768.1	65278.24	3.600	6.40	18/05/2012
BH316	179681.1	65404.77	1.272	24.70	06/06/2012

Location	Easting	Northing	Elevation, mOD	Depth, m bgl	dd/mm/yyyy
OP01	179644.0	65393.0	3.194	2.80	29/05/2012
OP02	179645.0	65318.0	3.164	2.70	29/05/2012
OP03	179690.0	65319.0	2.985	3.20	29/05/2012
OP04	179723.0	65317.0	2.601	2.30	29/05/2012
OP05	179750.0	65317.0	2.161	3.30	29/05/2012
OP06	179739.0	65394.0	2.355	2.20	29/05/2012
OP07	179725.0	65419.0	2.541	3.90	29/05/2012
OP08	179718.0	65390.0	3.143	2.20	29/05/2012
OP09	179623.0	65549.0	3.209	3.60	29/05/2012
OP10	179644.5	65409.36	2.84	3.00	31/05/2012
OP11	179568.0	65467.0	2.689	3.30	31/05/2012
OP12	179613.0	65474.0	2.715	3.30	29/05/2012
OP13	179680.0	65397.0	3.097	3.50	30/05/2012
OP14	179642.4	65390.18	3.189	3.00	07/06/2012
TP01	179591.1	65493.01	3.11	3.50	05/06/2012
TP02	179600.4	65465.47	3.222	2.90	05/06/2012



Priority Geotechnical Site



KEY
 BH000
 DENOTES LOCATION OF BOREHOLE

—
 DENOTES LOCATION OF TRIAL TRENCH

□
 OP00
 DENOTES LOCATION OF OPEN PIT

JOB NAME:
 HAULBOWLINE- EAST TIP

Sheet Title:
 EXPLORATORY LOCATION PLAN

JOB NUMBER:
 P12030

DRAWING NUMBER:
 P12030-SI-01

DRAWN BY:
 Gary Curtin

DATE:
 28/09/2012

SCALE: 1:2,000 ON A3	APPROVED: GH
-------------------------	-----------------

REVISION:
 F02



APPENDIX F

AGREED METHOD STATEMENTS AND PROCEDURES

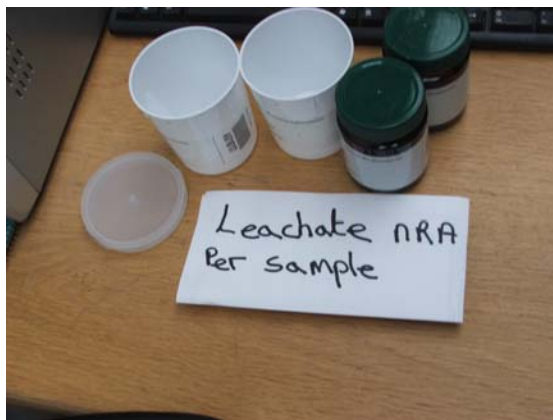
METHOD STATEMENT FOR THE CONTROL OF ARISINGS DURING ROTARY DRILLING OPERATIONS IN OVERBURDEN MATERIAL.

During Drilling operations there may be an initial 3 to 4m where water will not be present. This material if not appropriately catered for will rise vertically from the hole under pressure. In order to minimise this risk a "diversion cap" will be utilised during drilling operations to force all arisings horizontally from the casings rather than vertically. This cap is connected to the top of the casing string and is sealed at the top only allowing the drilling rods to pass through. On the outer wall of this cap on the horizontal side there is a 4" open steel pipe connected at 90 degrees through which the arisings exit the borehole in a horizontal direction.

ENVIRONMENTAL SAMPLING PROCEDURES

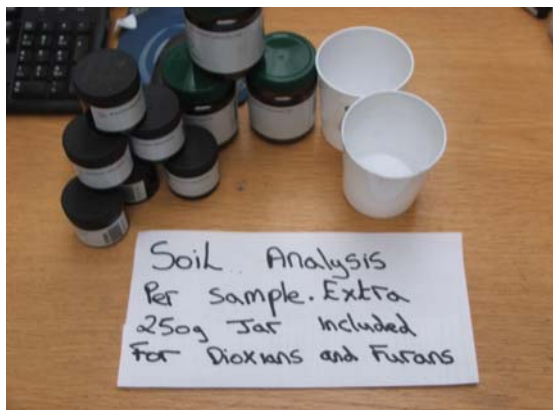
Environmental sampling was undertaken in accordance with the Association of Geotechnical and Geo-environmental Specialists (AGS), guide to environmental sampling (2010) of solids and liquids. The procedure was such to provide consistency in the approach to sampling and employing the current best industry practice for environmental sampling.

The clean and suitable sample containers were sensibly filled to the top expelling as much air as is practicable before replacing the snap top or screw top (with PTFE liner) lid securely. The sample various sets are presented below.



2 x plastic tubs

2 x 250g glass jars



2 x plastic tubs

2 x 250g glass jars (green top)

6 x 50g glass jars (black top)



1 x 500ml plastic bottle

1 x 1 litre plastic bottle

2 x plastic NaOH (white top)

1 X plastic H₂SO₄ (black top)

4 X vials

1 X 1 litre glass bottle

METHOD STATEMENT FOR GROUNDWATER SAMPLING OF COMPLETED ON-SITE BOREHOLE INSTALLATIONS	
Site:	East Tip, Haulbowline Island, Cork
Job Number:	IE718
Client:	Cork County Council/White Young Green
Date:	4 th June 2012
Document Version:	1.0
Prepared by:	Orla O' Connell B.A. (Mod), MSc. (Hydrogeology)
Checked by:	Aisling Whelan BSc. PDip (Hydrogeology) Jerome Keohane BSc, MSc, C.Geol. M.I.E.I

1 OBJECTIVE

This Method Statement details the procedure for obtaining groundwater samples at Haulbowline Island, East Tip. This statement details how samples will be obtained from the following:

- Groundwater installations (32No.).

2 CONTRACT SPECIFICATION

The contract requirement pertaining to groundwater and surface water sampling are set out in the following sections of the contract documents:

- Section 7.4 - Groundwater Samples;
- Section 7.9 – Quality Control.

3 VARIATIONS TO CONTRACT SPECIFICATIONS/REQUIREMENTS

In consultation and agreement with the Client's Representative on-site, the following variations to the above specification will be undertaken:

- For new shallow boreholes installed into excavations in the slag layer, a minimum purge volume of 1,500litres will be removed prior to sampling.

4 CONSIDERATIONS AND CONSTRAINTS

On the basis of the contract specification, the following considerations/constraints have been identified with regard to sampling the completed borehole installations:

- 2No. samples from each borehole to be taken within a 2-hour period before and after low and high tide;
- Number of samples per day will depend on the tidal times and purging volume required.

5 PERSONNEL

Aisling Whelan BSc. P.Dip (Hydrogeology)

Orla O'Connell B.A (Mod) MSc. (Hydrogeology)

6 EQUIPMENT

1. Water level meter (Dipmeter);
2. Dedicated 10mm polyethylene tubing and HDPE foot valve in each borehole;
3. 1 x Clean water container (20 litre);
4. 1 x Dirty water container (10-20 litres with minimum 30mm opening);
5. Honda Water Pump (WX10) and associated 25mm ID tubing (see *Appendix A* for pump specification);
6. Hanna HI9828 multi-parameter probe (pH, Electrical Conductivity, Dissolved Oxygen, Eh); (*Appendix B*) with flow through cell;
7. Decon 90 cleaning/decontaminating fluid;
8. Field data sheet (*Appendix C*).

7 GENERAL APPROACH

The timing of the groundwater sampling will depend on the low/high times. All boreholes will be purged (minimum 3No. well volumes) on the same day as sampling or on the day prior to sampling, depending on the specific times of the low and high tides. In every case, 1No. additional well volume will be removed immediately prior to sampling.

Groundwater sampling will be confined to Mondays to Thursdays to coincide with laboratory collection times and to ensure that no samples are stored on-site over any given weekend.

The samples will be taken as close as possible to low and high tide times (2-hour window prior to, and following, low and high tide conditions).

The multi-parameter probe will be calibrated prior to each sampling event.

8 PREVENTION OF CONTAMINATION

The following measures will be taken to prevent groundwater contamination or cross contamination as part of the sampling exercise on-site:

- Installation of dedicated tubing in each borehole.
- Collection of purged water from each borehole in a dedicated “dirty water” container for disposal at a suitable distance from the borehole and other boreholes in the vicinity.
- Single use of disposable nitrile gloves during purging and sampling of each borehole i.e. change of gloves between boreholes and between purging and sampling of each borehole.
- The Honda Water Pump will be decontaminated using Decon 90 prior to purging and sampling of each borehole.
- Decontaminate water level meter using Decon 90 prior to use at each borehole.

9 GROUNDWATER PURGING

All boreholes will be purged a minimum of three times the well volume prior to sampling to enable representative groundwater samples to be obtained. The minimum purge volume for each borehole will be calculated as follows:

- Measure static water level in borehole using a dip meter.
- Obtain total depth of borehole from the borehole record.

- Measure inner diameter of borehole.
- Calculate the volume of the water column will be calculated using the volume of a cylinder formula $\pi r^2 h$, where r is the radius of the standpipe and h is the height of the water column.

In addition to the removal of minimum 3No. borehole volumes, the discharge water will be monitored continuously for unstable hydrochemical parameters (pH, Electrical Conductivity, Eh, Dissolved Oxygen) until these parameters have stabilised.

For new shallow boreholes installed into excavations in the slag layer, a minimum purge volume of 1,500litres will be removed prior to sampling.

10 PROCEDURE

1. Calibrate multi-parameter probe.
2. Record general site information and conditions (see field datasheet).
3. Record time and tidal conditions.
4. Record static water level and remove levellogger, if present.
5. Calculated purge volume (as set out in *Section 9*).
6. Decontaminate the suction tube of the Honda Water Pump by pumping through clean water containing Decon 90.
7. Attach dedicated borehole tubing to inlet hose of Honda pump.
8. Insert discharge tube from Honda pump into dirty water container.
9. Prime the pump using clean water.
10. Re-measure static water level and time.
11. Start pump and record start time.
12. Monitor the following during purging:
 - a. General observations on colour, odour, sediment etc.;
 - b. Unstable hydrochemical parameters;
 - c. Volume purged;

d. Pumping water level.

13. When borehole is adequately purged (based on volume and unstable hydrochemical parameters), detach dedicated tubing from Honda inlet tubing and switch off pump immediately.
14. Take manual sample from borehole using dedicated tubing only.

11 SAMPLE CONTAINERS

The containers for the groundwater samples, shown in *Appendix D*, are as follows:

- 1 x 1litre plastic;
- 2 x 500ml plastic;
- 1 x 250ml plastic with NaOH;
- 1 x 250ml plastic with H₂SO₄;
- 4 x 40ml vials;
- 1 x 1litre glass.

According to ALcontrol laboratories, there is no on-site requirement for sample filters. This will be undertaken in the laboratory.

Water samples will be sent to ALcontrol Laboratories for analysis. All water samples will be collected in laboratory supplied sampling containers and stored in chilled coolboxes prior to collection from site by lab personnel.

Sample holding times for all analysis parameters are set out in *Appendix D*.

12 SAMPLE STORAGE & COLLECTION

Water samples will be sent to Alcontrol Laboratories for analysis. All water samples will be collected in laboratory supplied sampling containers and stored in chilled coolboxes prior to collection from site by lab personnel.

Sample collection times will depend on tidal conditions and sampling times. Samples will be collected from the site on the morning following the sampling event, at the latest.

Sample storage and collection will be undertaken in accordance with the ALcontrol Laboratories procedures/guidelines set out in *Appendix D*.

13 QUALITY CONTROL

The following measures, including requirements set out in Section 7.9 of the contract documents, will be implemented to ensure adequate quality control on-site as part of the groundwater sampling procedure:

- Take 1No. duplicate sample per 25 samples;
- Take 1No. trip blank per 1No. sampling events.
- Assign a 6-digit sample identification code to all samples.
- Laboratory to generate a quality file including trip blank analysis, duplicate data, calibration data and performance control charts covering the period during which the analysis is performed.

APPENDIX A

HONDA WATER PUMP (WX10) SPECIFICATION

Energy Water Pumps **WX10**

WX10

Drainage, irrigation and general water transfer, the WX10 works just about wherever you need to work.



£430.00

[Find a dealer](#)

group	open frame
Max output (litres/min)	140
Inlet/outlet diameter (mm)	25
Total head (metres)	36
Suction head (metres)	8
Pressure (bars)	3.5
Dry Weight (kg)	6.1
Engine	GX25
Fuel tank capacity (litre)	0.55
Starter	recoil
Length (mm)	325
Width (mm)	220
Height (mm)	300

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APPENDIX B

HANNA HI9828 SPECIFICATION

1.6 SPECIFICATIONS

TEMPERATURE

Range	-5.00 to 55.00 °C; 23.00 to 131.00 °F; 268.15 to 328.15 K
Resolution	0.01 °C; 0.01 °F; 0.01 K
Accuracy	± 0.15 °C; ± 0.27 °F; ± 0.15 K
Calibration	Automatic at 1 custom point

pH

Range	0.00 to 14.00 pH; ± 600.0 mV
Resolution	0.01 pH; 0.1 mV
Accuracy	± 0.02 pH; ± 0.5 mV
Calibration	Automatic 1, 2 or 3 points with 5 memorized standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01) or 1 custom buffer

ORP

Range	± 2000.0 mV
Resolution	0.1 mV
Accuracy	± 1.0 mV
Calibration	Automatic at 1 custom point

DISSOLVED OXYGEN

Range	0.0 to 500.0 % 0.00 to 50.00 mg/L
Resolution	0.1 % 0.01 mg/L
Accuracy	0.0 to 300.0 %: ± 1.5 % of reading or ± 1.0% whichever is greater; 300.0 to 500.0 %: ± 3% of reading 0.00 to 30.00 mg/L: ± 1.5 % of reading or 0.10 mg/L whichever is greater; 30.00 mg/L to 50.00 mg/L: ± 3% of reading
Calibration	Automatic 1 or 2 points at 0, 100 % or 1 custom point

CONDUCTIVITY

Range	0.000 to 200.000 mS/cm (actual EC up to 400 mS/cm)
Resolution	
<i>Manual</i>	1 μ S/cm; 0.001 mS/cm; 0.01 mS/cm; 0.1 mS/cm; 1 mS/cm
<i>Automatic</i>	1 μ S/cm from 0 to 9999 μ S/cm 0.01 mS/cm from 10.00 to 99.99 mS/cm 0.1 mS/cm from 100.0 to 400.0 mS/cm
<i>Automatic mS/cm</i>	0.001 mS/cm from 0.000 to 9.999 mS/cm 0.01 mS/cm from 10.00 to 99.99 mS/cm 0.1 mS/cm from 100.0 to 400.0 mS/cm
Accuracy	± 1 % of reading or ± 1 μ S/cm whichever is greater
Calibration	Automatic at 1 point with 6 memorized standards (84 μ S/cm, 1413 μ S/cm, 5.00 mS/cm, 12.88 mS/cm, 80.0 mS/cm, 111.8 mS/cm) or custom point

RESISTIVITY

Range	0 to 999999 Ω ·cm; (depending on measurement setup) 0 to 1000.0 k Ω ·cm; 0 to 1.0000 M Ω ·cm
Resolution	Depending on resistivity reading
Calibration	Based on conductivity or salinity calibration

TDS

Range	0 to 400000 mg/L or ppm; (the maximum value depends on the TDS factor)
Resolution	
<i>Manual</i>	1 mg/L (ppm); 0.001 g/L (ppt); 0.01 g/L (ppt); 0.1 g/L (ppt); 1 g/L (ppt)
<i>Automatic</i>	1 mg/L (ppm) from 0 to 9999 mg/L (ppm) 0.01 g/L (ppt) from 10.00 to 99.99 g/L (ppt) 0.1 g/L (ppt) from 100.0 to 400.0 g/L (ppt)
<i>Automatic g/L (ppt)</i>	0.001 g/L (ppt) from 0.000 to 9.999 g/L (ppt) 0.01 g/L (ppt) from 10.00 to 99.99 g/L (ppt) 0.1 g/L (ppt) from 100.0 to 400.0 g/L (ppt)
Accuracy	± 1 % of reading or ± 1 mg/L (ppm) whichever is greater
Calibration	Based on conductivity or salinity calibration

SALINITY

Range	0.00 to 70.00 PSU (extended Practical Salinity Scale)
Resolution	0.01 PSU
Accuracy	$\pm 2\%$ of reading or ± 0.01 PSU whichever is greater
Calibration	1 custom point

SEAWATER SPECIFIC GRAVITY

Range	0.0 to 50.0 σ_t , σ_0 , σ_{15}
Resolution	0.1 σ_t , σ_0 , σ_{15}
Accuracy	± 1 σ_t , σ_0 , σ_{15}
Calibration	Based on conductivity or salinity calibration

ATMOSPHERIC PRESSURE

Range	450 to 850 mmHg; 17.72 to 33.46 inHg; 600.0 to 1133.2 mbar; 8.702 to 16.436 psi; 0.5921 to 1.1184 atm; 60.00 to 113.32 kPa
Resolution	0.1 mmHg; 0.01 inHg; 0.1 mbar 0.001 psi; 0.0001 atm; 0.01 kPa
Accuracy	± 3 mmHg within ± 15 °C from the temperature during calibration
Calibration	Automatic at 1 custom point

GENERAL CHARACTERISTICS

Temperature Compensation	automatic from -5 to 55 °C (23 to 131 °F)
Logging Memory	Up to 60,000 samples with 13 measurements each*
Logging Interval	From 1 second to 3 hours
PC Interface	USB (with HI 92000 software)
Waterproof Protection	Meter IP67, Probe IP68
Environment	0 to 50 °C (32 to 122 °F); RH 100 %
Power Supply	4 x 1.5 V alkaline C cells (approximately 150 hours of continuous use, without backlight) or 4 x 1.2 V rechargeable C cells (approximately 70 hours of continuous use, without backlight)
Dimensions	
Meter	221 x 115 x 55 mm (8.7 x 4.5 x 2.2")
Probe	L = 270 (10.6"), dia = 46 mm (1.8")
Weight	
Meter	750 g (26.5 oz.)
Probe	750 g (26.5 oz.)

* Without remarks. When using remarks the maximum number of samples decreases but in practical cases it will never be less than 50,000.

APPENDIX C

GROUNDWATER SAMPLING FIELD DATASHEET

Groundwater Sampling from Completed Borehole Installation - Field Datasheet

General Information

Type:
 Location:
 Grid Reference:
 Borehole Diameter:
 Referene Point:
 Reduced Level of Reference Point:

Initial Conditions

Sampling Point:
 Type:
 Location:
 Grid Reference:
 Well Diameter:
 Referene Point
 Reduced Level of Reference Point:
 Initial Water Level mb datum:
 Base of Well mb datum:
 Tidal Conditions:
 Well Volume:
 3 Well Volumes:
 Purging Device:
 Pump Depth:
 Weather:
 Instruments Calibrated:

Purging Record

Date	Time	Flow Rate (l/s)	Volume Purged	pH	T°C	Eh	DO mg/l	DO %	EC µs/cm	Remarks

Sampling Record

Volume purged before sampling:
 Sample ID (plus dupliques if any)
 Water Level after Purging:
 Decontamination Method:
 Sampling Method
 Sampling Time
 Tidal Conditions:
 Sample containers:

Notes

APPENDIX D

LABORATORY INFORMATION ON SAMPLE STORAGE, COLLECTION AND HOLDING TIMES



Water Analysis
Ref Sample

Standard Operating Procedure	SOP.5.8.J
	Page 1 of 5
	Issue number: 17
	Copy No: INTRANET
	Issued by: Vicky Muir
	Issue date: 23-Apr-12
	Approved by: Iain Swinton
	Owner: Vicky Muir
ALCONTROL LABORATORIES	
Holding Times	

Scope

The times given in this document are **maximum** times and the laboratory makes every effort to analyse samples as soon as possible after being logged in. This is particularly important in the case of samples that are known, or suspected, to be unstable. It is also important to note that the samples should be held in appropriate containers, under the correct conditions and preserved appropriately where preservation is required.

Water Samples should be stored at between 1 and 8 °C (MCerts Performance Standard for Organisations Undertaking Sampling and Chemical Testing of Water).

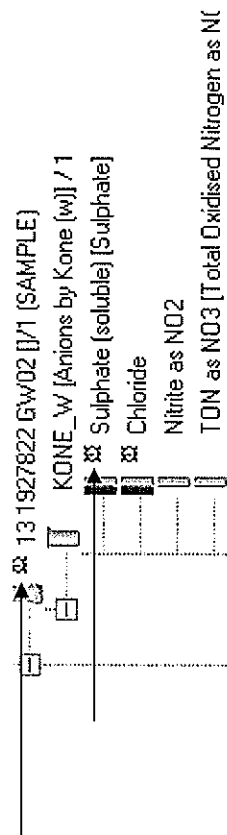
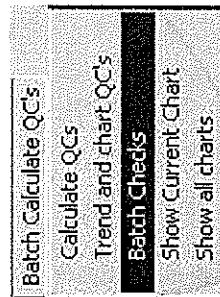
Internally Proven Holding Times are assessed using QF.5.8.1

The 'Holding Times' are measured from the date of receipt of the sample until work on the sample is started.

If a sample undergoing accredited analysis is out of holding time then it should be reported as a deviating sample according to SOP.4.9.D.

During batch calculation/authorisation the Batch Checks routine will carry out a check of the Consents, Dependent Options and Holding Times of the samples. A holding time clock will be shown next to analysis and component that have exceeded or may be close to exceeding their maximum holding time defined below. These analyses will require checking and deviating as per SOP.4.9.D if found to have exceeded their holding time.

To ensure integrity of samples is maintained any samples that have not been analysed by the end of a shift and require preservation by refrigeration should be moved to appropriate refrigerated storage



Standard Operating Procedure	SOP.5.8.J
	Page 2 of 5
	Issue number: 17
	Copy No: INTRANET
	Issued by: Vicky Muir
	Issue date: 23-Apr-12
	Approved by: Iain Swinton
	Owner: Vicky Muir

ALCONTROL LABORATORIES

Holding Times

Accredited Waters Test Method Parameter	Relevant Test Method(s)	Preservative	Max Holding time	Reference	Labware end point
BOD	TM045	Refrigerate	40 Hours	Internally Proven	Day 1 result entered
Ammoniacal Nitrogen (refrigeration only)	TM099	Refrigerate	4 Days	Internally Proven	Result entered by analyst
Dissolved Oxygen (probe)	TM046	Refrigerate	6 Days	Internally Proven	Result entered by analyst
Cyanide, Total, Free and Thiocyanate	TM227, TM279	NaOH	7 days	ISO EN5667-3	Result entered by analyst
Sulphide	TM101	ZnAc	7 days	ISO EN5667-3/USEPA	Result entered by analyst
Total Dissolved Solids	TM021	Refrigerate	7 days	USEPA	liquid added to the dish
Total Dissolved Solids	TM123	Refrigerate	7 days	USEPA	Status changed to ready for QC Checking
Dissolved & Total Organic Carbon (DOC/TOC)	TM090	Refrigerate	7 days	ISO EN5667-3	Batch Status to sent to instrument
Triazines and Urons	TM185	Refrigerate	7 days	USEPA	Batch Status to sent to instrument
PCBs	TM198	Refrigerate	7 days/40 after ext	ISO EN5667-3	Batch status to prepared
Acid Herbicides	TM186	Refrigerate	7 ext./40 after ext.	USEPA	Batch Status to sent to instrument
EPH/Min Oil (C10 – 40)	TM172	Refrigerate	15 days	Internally Proven	Batch status to prepared
PAHs	TM178	Refrigerate	12 Days	Internally Proven	Batch status to prepared
Low Level TOC	TM295	H3PO4	13 Days	Internally Proven	Batch Status to sent to instrument
Dissolved Oxygen (titration)	TM187	Alsterberg reagent	10 Days	Internally Proven	Batch Status to sent to instrument
COD	TM107	H2SO4/Refrigerate	14 Days	Internally Proven	Batch Status to sent to instrument
pH	TM256	Refrigerate	14 days	Internally Proven	Status changed to ready for

Standard Operating Procedure	SOP.5.8.J
	Page 3 of 5
	Issue number: 17
	Copy No: INTRANET
	Issued by: Vicky Muir
	Issue date: 23-Apr-12
	Approved by: Iain Swinton
	Owner: Vicky Muir

ALCONTROL LABORATORIES

Holding Times

Accredited Waters Test Method Parameter	Relevant Test Method(s)	Preservative	Max Holding time	Reference	Labware end point
Phosphate	TM184, TM226	H2SO4/Refrigerate	14 days	Internally Proven	QC Checking
Volatile Fatty Acids	TM201	Refrigerate	14 days	EPA doc: 201-15464A	Result entered by analyst Batch Status to sent to instrument
Total Suspended Solids	TM022	Refrigerate	18 days	Internally Proven	After filtering sample
Acidity / Alkalinity	TM043	Refrigerate	20 Days	Internally Proven	Status to ready for QC Checking
TON as N	TM184	Refrigerate	20 days	Internally Proven	Result entered by analyst
Nitrate/TON	TM226/TM281	Refrigerate	20 days	Internally Proven	Result entered by analyst
Nitrite	TM184	NaOH	20 Days	Internally Proven	Result entered by analyst
Volatile Organic Compounds	TM208, TM245, TM265	Refrigerate	Between 8 and 21 days)	Internally Proven	Batch Status to prepared
Phenols (HPLC)	TM259	H2SO4	21 days	ISO EN5667-3	Result entered by analyst
Chromium VI	TM241	Refrigerate	22 Days	Internally Proven	Result entered by analyst
Aluminium, Boron, Calcium, Sodium, Potassium & Magnesium	TM152, TM228, TM270, TM311, TM309	HNO3	28 Days	ISO EN5667-3/USEPA	Result entered by analyst
Aluminium, Boron, Calcium, Sodium, Potassium & Magnesium	TM191	HNO3	28 Days	ISO EN5667-3/USEPA	Batch Status to sent to instrument
Bromide, Chloride & Sulphate, Fluoride	TM104, TM184, TM226	Refrigerate	28 Days	ISO EN5667-3/USEPA	Result entered by analyst
Hardness	TM228, TM311	HNO3	28 days	ISO EN5667-3	Result entered by analyst
Iron (II)	TM125	HCl	28 days	ISO EN5667-3/USEPA	Status to ready for QC Checking
Mercury	TM183	Acidification recommended	28 Days	ISO EN5667-3/USEPA	Batch Status to sent to instrument
Mercury	TM270	Acidification	28 Days	ISO EN5667-3	Result entered by analyst

Standard Operating Procedure	SOP.5.8.J
	Page 4 of 5
	Issue number: 17
	Copy No: INTRANET
	Issued by: Vicky Muir
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ALCONTROL LABORATORIES

Holding Times

Accredited Waters Test Method Parameter	Relevant Test Method(s)	Preservative	Max Holding time	Reference	Labware end point
		recommended		3/USEPA	
TPH / Min Oil by IR	TM235	Refrigerate	28 Days	ISO EN5667-3/USEPA	Batch Status to sent to instrument
Sulphur	TM228	Refrigerate	28 Days	As per Soils no /reference available	Result entered by analyst
Ammonia	TM099	H2SO4	40 Days	USEPA	Result entered by analyst
Nitrogen Kjeldahl or Total	TM212	Refrigerate	28 Days	ISO EN5667-3/USEPA	Result entered by analyst
Ammoniacal Nitrogen (acid preserved)	TM099	H2SO4	40 days	Internally Proven	Result entered by analyst
Electrical Conductivity	TM120	Refrigerate	40 Days	Internally Proven	Status to ready for QC Checking
Metals	TM152, TM228, TM270	HNO3	6 months (182 days)	USEPA	Result entered by analyst
Metals	TM191	HNO3	6 months (182 days)	USEPA	Batch Status to sent to instrument

Accredited Soils Test Method Parameter	Relevant Test Method(s)	Max Holding time	Reference	Labware end point
pH	TM133	28 days	Internally proven	Status to ready for QC Checking
Sulphide	TM180, TM221	7 days	USEPA	Result entered by analyst
Phenols (HPLC)	TM062	14 days	PHENOLS BY GC SW-846 Method 8040, Revision 1 (July 1992).	When Extracted
Volatile Organic Compounds including GRO/BTEX/MTBE	TM116, TM089	7 days	USEPA	Batch Status to prepared
EPH / Min. Oil (C10 - C40) & TPH including CWG	TM061, TM154	14 days	USEPA: SW-846 Method 8015B (Revision 2, December 1996)	Batch status to prepared
Cyanide, Total, Free and Thiocyanate	TM153	14 days	USEPA	When Extracted

Standard Operating Procedure	SOP.5.8.J
	Page 5 of 5
	Issue number: 17
	Copy No: INTRANET
	Issued by: Vicky Muir
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ALCONTROL LABORATORIES

Holding Times

Accredited Soils Test Method Parameter	Relevant Test Method(s)	Max Holding time	Reference	Labware end point
PAHs	TM218	14 days	ISO 18512/USEPA	Batch status to prepared
Anions	TM243, TM019	28 days	ISO 18512/USEPA	When Extracted
Boron	TM222	28 days	As for Soil	Batch status to prepared
Carbon, Organic	TM132	28 days	USEPA	Batch Status to sent to instrument
Sulphur	TM136, TM068	28 days	Internally Proven	Result entered by analyst
Fluoride (water soluble)	TM242	28 days	ISO 18512	When Extracted
Mercury	TM181	28 days	ISO 18512/USEPA	Batch status to prepared
PCBs	TM168, TM070	28 Days	USEPA	Batch status to prepared
Sulphate, total or acid soluble	TM221	28 days	USEPA	Batch status to prepared
Chromium VI	TM151	30 days/ 7 aft ext	ISO 18512/USEPA	When Extracted
Metals	TM181	6 months/182 days	ISO 18512/USEPA	Batch status to prepared

KEY	Na2S2O3 = Sodium Thiosulphate	NaOH = Sodium Hydroxide	ZnAc= Zinc Acetate
H2SO4 = Sulphuric Acid			
HNO3 = Nitric Acid	MeOH = Methanol	HDPE = High Density Polyethylene	

Gas Test Method Parameter	Relevant Test Method(s)	Container (Labware)	Max Holding time	Reference	Labware end point
Bulk Gas	TM053	Tedlar bag Gresham tube	3 days TBC	USEPA TBC	Result entered by analyst TBC
MEG	TM121	MEG_TUBE	TBC	TBC	TBC

Product Test Method Parameter	Relevant Test Method(s)	Container (Labware)	Max Holding time	Reference	Labware end point
Whole Oil	TM059	GL_VIA	60 days		Result entered by analyst

Note: unaccredited analyses have a default holding time of 6 months or 182 days

UNCONTROLLED COPY WHEN PRINTED



ALcontrol Laboratories

Sampling, Holding Times, and Storage Temperatures August 2009

There are a number of issues which can be created if correct sampling protocols are not followed, and these information sheets are designed to assist engineers and other sampling personnel to maintain the integrity of the soil and water samples which are then sent to our laboratories for analysis. The two standards relating to the holding times/preservation of soils and waters are: EN ISO 18512 for soils, and EN ISO 5667 for waters, and our recommendations are based upon the requirements of these standards.

Limits of Detection

Please note that the sample containers specified will provide sufficient sample to reach our standard limits of detection. If less sample is supplied, then detection limits may be compromised, or the requested suite of testing may not be possible. If lower limits of detection are required, please contact the laboratory.

Collections and Deliveries

You can now order collections and container deliveries over the web, using our @mis portal, which is accessed from our website, www.alcontrol.com. You will need a login and password, so please contact your coordinator who will issue these to you, along with a simple instruction sheet to follow.

We have now set up a Logistics Service Desk (manned from 08.00 a.m. to 09.00 p.m.), so if you have any problems, or wish to chase up the progress of your delivery/collection (all vehicles are tracked by GPS), please ring 0845 124 1715.

Our logistics company will use a refrigerated trunk vehicle to transport your samples back to Hawarden from their depots in Milton Keynes or Manchester.

The cutoff time for same day collection is 1.00 p.m., and next day delivery is 3.00 p.m.

Toobox Talk 1

Volatile Organics – soils & waters

What?

Volatile organic compounds include the gasoline range organics (GRO), chlorinated solvents such as dry cleaning fluids (e.g. carbon tetrachloride), volatile fatty acids (VFAs), alcohols, tetraethyl and methyl lead (TEL/TML), and other compounds such as acetone or dissolve gases. By definition, these compounds have low boiling points and will quickly evaporate under ambient conditions.

Why?

- Sub-samples for volatile organics (VOC and GRO) must be taken on site to prevent losses during transportation and storage.
- The correct bottles are 40 ml vials with a PTFE septum for waters, and 60g jars for soils.

Do

- ✓ Do ensure there is absolutely no headspace in either type of sample vessel. Pack the soil down, and scrape across the top before putting the lid on, and with waters, invert the vial to ensure no bubbles are present.
- ✓ Do take samples in duplicate – the laboratory cannot repeat a sample, as a headspace is created for analysis – so a duplicate provides a backup.
- ✓ Do keep the samples cold – always have a coolbox and frozen icepacks with you on site.
- ✓ Always use glass bottles – plastic containers can leach out organic contaminants.
- ✓ Please supply a separate tub of soil for moisture content, if only VOCs analysis is required, as results are reported on a dry weight basis.

Don't

- ✗ Don't stockpile samples on site – send back to the laboratory every day.
- ✗ Don't over agitate borehole waters when sampling – volatiles can be lost.
- ✗ Don't take samples in an area where airborne fumes or dust may contaminate the sample.



Toolbox Talk 2

Soil Sampling (except VOCs – see 1)

What?

Soils require testing for a wide range of parameters, both organic and inorganic. These include asbestos, heavy metals, anions such as chloride and sulphate, pH, cyanide, and organic compounds such as petroleum hydrocarbons (TPH), phenols, pesticides, PCBs, and coal or petroleum derived polyaromatic hydrocarbons.

Why?

A site investigation is now a pre-requisite before any further development can occur. The EA are particularly concerned regarding the potential mobility of contaminants, and 'significant possibility of significant harm', or SPOSH.

Do

- ✓ Do use a 250 ml glass jar and a 450 ml plastic tub if a mix of inorganic and organic tests are required.
- ✓ Do use an additional 450 ml tub if 10:1 leaching tests is required.
- ✓ Or use an additional 1 kg tub if the two batch CEN leaching test is required.
- ✓ Do use just a 250 ml glass jar if only organic testing is required.
- ✓ Do keep samples cold with frozen icepacks in the cool boxes.
- ✓ Do check all lids are tightened securely to prevent spillages

N.B. Please note that when more than one sample container is filled, it is the responsibility of the site personnel to ensure the sample is homogeneous across all containers – they will not be mixed together in the laboratory.

Don't

- ✗ Don't use chemical preservation of soils, as the complex matrices found in soils can cause more problems if acids and alkalis are added.
- ✗ Don't include large chunks of material (bricks, cobbles, etc.) unless you want these including, as the laboratory do not usually remove these, and a representative subsample will be crushed and analysed as part of the whole sample.
- ✗ Don't stockpile samples on site, as holding times may be compromised.



ALE 210 – 250 g



ALE 214 – 450 g, ALE 296 – 1 kg

Toolbox Talk 3

On-site Tests - waters

What?

There are a number of parameters which should be analysed on site, as soon as a water sample is taken. These include:

- Dissolved oxygen
- pH
- Temperature
- Chlorine
- Redox potential

Why?

- Water samples can change in composition quite significantly once removed, depending upon initial pH, concentration of dissolved species, presence of sediment, bacterial content, etc.
- We can provide two reagents to be added to the bottle for the preservation of dissolved oxygen, if required, but measurement on-site is preferable.

Do

- ✓ Keep sample handling to a minimum to prevent aeration.
- ✓ Ensure monitoring equipment is correctly calibrated.
- ✓ Ensure monitoring equipment is fully rinsed/cleaned between samples

Don't

- ✗ Don't leave samples standing around before analysis – changes can occur in the first few minutes in some cases.



Toolbox Talk 4

Time Critical Analyses – waters

What?

These are parameters which are time sensitive, but cannot be taken in preserved bottles, and include:

BOD	Alkalinity/acidity
COD	Free ammonia as NH ₃
Nitrate and nitrite	Hexavalent chromium
Conductivity	Total suspended solids

Analysis should commence as soon as possible – preferably within 24 - 48 hours.

Why?

- Changes can occur fairly rapidly, depending upon pH, concentration of dissolved species, presence of sediment, bacterial content, etc.
- If the dissolved salt content is high, precipitation may occur, or if sediment is present, some of this may dissolve.

Do

- ✓ Do take samples for BOD in a separate bottle (250 ml), and ensure **no headspace** is present.
- ✓ Do take samples for Free ammonia in a separate bottle (250 ml), and ensure **no headspace** is present.
- ✓ Do use 1 litre plastic bottles for the other analyses.
- ✓ Do keep samples cold – so always keep a coolbox and frozen icepacks with you on site.

Don't

- ✗ Don't stockpile samples on site.
- ✗ Don't add non-filtered samples to preserved bottles, as any sediment will react with the preservative and cause falsely high values.



ALE 208 – 500 ml ALE 221 – 1000 ml

Toolbox Talk 5

Analytes with Preservatives – waters

What?

Some parameters can be preserved (fixed), using a range of chemicals, and these include:

Sulphide	– preserved with zinc acetate
Cyanide	– preserved with sodium hydroxide
Ammoniacal nitrogen	– preserved with sulphuric acid
Phenols	– preserved with sodium hydroxide
Metals	– preserved with nitric acid
Ferrous iron (Fe ⁺⁺)	– preserved with hydrochloric acid

Why?

The chemicals fix the samples and prevent (or slow down) any degradation, extending the holding time of the samples to at least 7 days. Metals will be stable for 30 days.

Do

- ✓ Ensure samples for metals or ferrous iron **must** be filtered through a 0.45 micron filter prior to filling the preserved bottle, or any sediment present in the water may dissolve in the preservative and produce falsely high values.
- ✓ Do check the caps are tightly screwed on, both before and after filling, to avoid loss of preservative or sample.
- ✓ Do wear gloves at all times to prevent contact with the skin.
- ✓ Do completely fill the bottles, but do not overfill, or preservative will be lost.

Don't

- ✗ Don't empty out or rinse out the bottles prior to filling – a known amount of preservative has already been added to the bottles.



ALE 204 – nitric acid for metals

ALE 244 – sulphuric acid for ammoniacal nitrogen

ALE 245 – sodium hydroxide for cyanides and/or phenols

ALE 246 – zinc acetate for sulphides

Toolbox Talk 6

Semi- or non-volatile organics – waters

What?

A very large range of organic compounds including fuels/oils of all types (TPH), pesticides, herbicides, PCBs, coal and petroleum derived polyaromatic hydrocarbons (PAHs), pharmaceutical and chemical feedstocks, and residues from other industrial processes.

Why?

This group includes many of the priority pollutant compounds, and a detailed breakdown is often required by the EA or local authorities, particularly if there is any risk of pollution of controlled waters.

Do

- ✓ Water samples **must** always be taken in glass bottles, as plasticisers or phthalates can leach from plastic bottles.
- ✓ Samples should be kept cool and in the dark, so coolboxes and ice packs are essential. Maintaining samples at 5 +/- 3°C is important, and stability is recommended as 7 days, although once extracted, samples are stable for much longer.
- ✓ Take sufficient sample - a minimum of 500 ml water is needed, and 1 litre is preferable. If very low LoDs are required, more sample may be needed.
- ✓ Ensure sampling equipment is adequately rinsed – if a floating product is present, then either detergent or solvent rinsing will be needed to remove this.

Don't

- ✗ Don't use organic lubricants on old/rusty well heads.
- ✗ Do not filter, as organics can be lost on the filters.



ALE 227 – 500 ml

ALE 220 – 1000 ml

Toolbox Talk 7

Temperature Considerations

What?

The Environment Agency, Local Authorities and UKAS are now placing much greater emphasis on maintaining samples in cool storage conditions, particularly for transportation. The new MCERTS document for waters quotes a temperature of 5 +/- 3°C, and when this comes into effect (June 2010), more evidence will be required to support this.

Why?

Although this is important for soils and waters, the latter in particular, are dynamic systems, with constant changes occurring between the compounds present in solution. Maintaining a cool temperature will slow down these reactions, and also inhibit the action (and reproduction) of micro-organisms present within the samples. The micro flora and fauna can often be more of an issue with soil samples, where the viable population is often very high.

Do

- ✓ Use at least three ice packs per coolbox.
- ✓ Ice packs must be frozen at your offices or on site, preferably in a freezer, not the icebox of a fridge – we do not send them out ready frozen.
- ✓ Pack coolboxes so there is no headspace – use bubble wrap, plastic bags, newspaper, or whatever is available.
- ✓ If possible, chill samples in a fridge before packing in the coolboxes – it can be difficult to bring samples down if they were above 15°C when taken.
- ✓ If samples are brought directly to the laboratory, rather than transported overnight, they may not have time to chill, and a higher temperature may be recorded on receipt.
- ✓ Max/min thermometers can be provided in the coolboxes on request.

Don't

- ✗ Don't freeze samples, particularly if the bottles are full – glass bottles will break due to the expansion of the sample.



Toolbox Talk 8

Quality Control on Site

What?

There are a number of steps which engineers/project managers should be aware of in relation to improving the certainty of the data from each site. Quality Control (QC) is a most important issue for on-site sampling.

Why?

- There is uncertainty associated with sampling protocols, subsampling, homogeneity issues, and laboratory methodologies. Any attempt to minimise these is to be encouraged.

Do

- ✓ Where possible, carry out replicate sampling – this is the surest way to improve the certainty of data, although there is a cost implication.
- ✓ Send a percentage of samples to a second laboratory – this will provide a check on the analytical methodology – ensure the labs use similar methods.
- ✓ When sampling from trial pits, take several scoops from around a depth horizon, and composite these on a plastic sheet. This will be more representative of the depth.
- ✓ Request trip blanks from the laboratory – these are empty sample bottles filled by the lab, sent out with a batch of sample bottles, then analysed on return.
- ✓ Prepare field blanks – these are sample bottles filled on site using de-ionised water or similar.
- ✓ Equipment/rinsate blanks – these are taken after washing out equipment when a floating product is present – pumping and collecting de-ionised water acts as a check for cross contamination.
- ✓ Ensure all Chain of Custody forms are signed and dated.
- ✓ Do isolate heavily contaminated samples when packing cool boxes.

Don't

- ✗ It is better not to fill one bottle, then fill the second bottle, when taking duplicate water samples, as any changes in composition will not be reflected equally between the bottles. Fill each bottle with 100 ml at a time, alternating between bottles.
- ✗ If possible, do not work on the dirtiest area of a site first – start with the cleanest areas and then move onto the hotspots/most contaminated areas.

Toolbox Talk 9 General hints on good practice

Do

Do change your gloves between each sampling point, to help avoid cross contamination.

Do label samples clearly, and label the jar/tub, not just the lid.

Always use an indelible marker.

Do complete the Chain of Custody form on site – see separate sheet for assistance on completion.

Don't

Don't use a sample tested on site for sending to the laboratory.

METHOD STATEMENT FOR PERMEABILITY (FALLING HEAD) TESTS IN MONITORING BOREHOLES DURING DRILLING

Site:	East Tip, Haulbowline Island, Cork
Job Number:	IE718
Client:	Cork County Council/White Young Green
Date:	22 nd May 2012
Document Version:	1.0
Prepared by:	Aisling Whelan BSc. PDip (Hydrogeology)
Checked by:	Orla O'Connell B.A. (Mod), MSc (Hydrogeology) Jerome Keohane BSc, MSc, C.Geol. M.I.E.I

1 OBJECTIVE

This Method Statement details the how permeability (falling head) tests will be undertaken on new monitoring boreholes (18 No.) during drilling.

2 CONTRACT SPECIFICATIONS/REQUIREMENTS

"In-situ permeability tests shall be carried out in boreholes in accordance with BS5930:1999. A 1m depth of a gravel zone is to be formed in a borehole prior to carrying out the test and the casing shall be withdrawn to 0.1m below the top of the gravel zone and where practicable a rising head test is to be carried out at each specified depth"

3 VARIATIONS TO CONTRACT SPECIFICATIONS/REQUIREMENTS

In consultation and agreement with the Client's Representative on-site, the following variations to the above specifications have been undertaken:

- Falling head tests;
- No installation of gravel zone;
- Withdrawal of casing depending on specific ground conditions encountered.

4 PERSONNEL

Aisling Whelan BSc. PDip (Hydrogeology)

Orla O'Connell B.A (Mod) MSc. (Hydrogeology)

5 EQUIPMENT

- Water level meter (Dipper);
- Weighted measuring tape;
- 2 No. Automatic Pressure Transducer Dataloggers - Solinst Levelloggers (Levellogger Gold Model 3001, LTF100/M30);
- Suspension cord;
- 1 x 300 gallon water bowser (filled with clean water);
- Water container (~10litre);
- Stop watch;
- Field data sheet (*Appendix A*).

6 PROCEDURE

1. Record general site information and conditions (see field datasheet).
2. Record time and tidal conditions.
3. Record the following:
 - a. Depth to static water level (in metres below top of casing as reference point) and time of measurement;
 - b. Total depth of borehole (m below top of casing);
 - c. Casing diameter (mm ID);
 - d. Height of casing (m above ground level);
 - e. Depth interval of material tested (m below ground level)
 - f. Description of material in test interval.
4. Set 2No. data loggers to record at intervals of 0.5 seconds.
5. Install a levellogger into the borehole using a suspension cord to pre-set depth in accordance with "Method Statement for Data Logger Management".
6. Install a second levellogger at the top of the borehole or at suitable location in vicinity of borehole to record barometric pressure.
7. Measure discharge rate from water bowser pipe.
8. Fill borehole as close to the top of casing as possible with clean water from the water bowser.
9. Record the time of commencement and completion of filling.

10. Record the water level below the casing at end of filling. The start time of the test (time zero) will commence upon completion of filling.
11. Measure groundwater levels manually (m below top of casing) at intervals (where possible) set out in the field data sheet.
12. Undertake permeability test for a period of 60 minutes or until water levels have returned to equilibrium.
13. Record total depth of borehole again at the end of the test period.

7 TEST DURATION

The length of each test will be determined based on assessment of the rate of fall of groundwater levels after 60 minutes.

Where water levels can be observed to be falling significantly after 60 minutes, the test duration will be extended.

Due to time constraints during drilling, it may not be possible to allow water levels to recover to equilibrium for all tests.

8 MANAGEMENT OF TEST DATA

Levellogger data (water level data and barometric data) will be downloaded as soon as possible after completion of the test.

Levellogger data will be downloaded, compensated and corrected/calibrated as described in the "Method Statement for Data Logger Management" document.

9 PRESENTATION OF TEST DATA

Permeability (falling head) test data will be presented as follows:

No.	Data File	Format
1.	Raw (uncompensated) levellogger data (water level logger)	Excel file
2.	Raw (uncompensated) levellogger data (barometric data)	Excel file
3.	Compensated levellogger data (showing compensated/corrected water level above data logger and water level below reference point with graph)	Excel file
4.	Field datasheet including manual groundwater dip readings and general	Excel file

APPENDIX A

PERMEABILITY (FALLING HEAD) TEST FIELD DATASHEET

In-situ Permeability (Falling Head) Test Field Datasheet

Site name:	
Date and Time:	
Borehole ID:	
Weather/Site conditions:	
Tidal conditions/Time:	
Static water level (m below top of casing):	
Initial water level (m below top of casing):	
Casing diameter (mm ID):	
Height of casing (m above ground level):	
Depth of casing (m below top of casing):	
Depth of hole (m below top of casing):	
Depth interval of material tested:	
Description of material in test interval:	

Time (minutes)	Water level (m below top of casing)	Other Notes/Observations
0.0		
0.5		
1.0		
1.5		
2.0		
2.5		
3.0		
3.5		
4.0		
4.5		
5		
6		
7		
8		
9		
10		
12		
14		
16		
18		
20		
25		
30		
35		
40		
45		
50		
55		
60		

METHOD STATEMENT	
MANAGEMENT OF CONTINUOUS WATER LEVEL DATA RECORDING	
Site:	East Tip, Haulbowline Island, Cork
Job Number:	IE718
Client:	Cork County Council, White Young Green
Date:	22 nd May 2012
Document Version:	2.0
Prepared by:	Aisling Whelan BSc. PDip (Hydrogeology)
Checked by:	Orla O' Connell B.A. (Mod), MSc (Hydrogeology) Jerome Keohane BSc, MSc, C.Geol. M.I.E.I

1 OBJECTIVE

This Method Statement details the management of continuous water level data recording for the duration of the site investigation works at the East Tip, Haulbowline Island, Cork. This statement details how continuous water level recording will be undertaken for the following:

1. Existing boreholes (11 No.);
2. New boreholes to be installed during the site investigation works (21 No.);
3. Excavation (1 No.);
4. Permeability tests (21 No.).

2 CONTRACT SPECIFICATION

The contract requirement pertaining to the management of continuous water level data recording is set out below:

“Section 1.4 Scope of Investigation – D Water Level

Monitor the water level using data loggers for period of two to six weeks continuously in monitoring wells located in different geological/waste depth horizons together with different location distances from the shoreline. An allowance of up to 20 data loggers should be made available with a logger for barometric compensation if required.”

3 PERSONNEL

Aisling Whelan BSc. P.Dip (Hydrogeology)

Orla O'Connell B.A (Mod) MSc.

4 EQUIPMENT

- 20 No. Automatic Pressure Transducer Data loggers - Solinst Levelloggers (Levellogger Gold Model 3001, LTF100/M30 - see Data Sheet provided in *Appendix A*);
- 1 No. Barometric Pressure Transducer - Solinst Barologger (Barologger Gold Model 3001 - see Data Sheet provided in *Appendix A*);
- Solinst Levellogger Software (Version 4.0.3);
- Suspension cord;
- Water Level Meter (Dipper).

5 PROCEDURE

5.1 *Manual Water Level Measurement*

Groundwater dip readings will be taken as loggers are installed in each borehole, and then on a weekly basis for the duration of the works. The time of measurement of each dip reading will be recorded. The time indicated on all loggers and time recording devices will be synchronised.

The reference point for the dip readings is the top of PVC casing.

5.2 *Existing Boreholes*

Data loggers will be installed in all existing boreholes (11 No.) as soon as possible after commencement of site investigation works, where the condition of existing headwork installations permit.

If existing installations are not accessible or require modification in order to install the data logger, the Client's Representative will be advised and further instruction will be sought of same.

The loggers will be programmed to record at intervals of three minutes for the duration of the works. The groundwater level and total depth of borehole will be measured.

The loggers will be positioned at approximately 4-5m below the measured groundwater level (where possible) to ensure the logger remains submerged at all times e.g. under low tide conditions and to ensure sufficient water column exists above the logger to permit measurement.

The barometric data logger will be positioned at a suitable central location on the site and programmed to record at intervals of three minutes.

5.3 New Boreholes

Data loggers will be installed in new boreholes as soon as possible after completion of drilling of each borehole.

The loggers will be programmed to record at intervals of three minutes.

Installation of loggers will be undertaken as described for existing boreholes (see *Section 5.1* above).

Where new boreholes are drilled and all loggers are already installed, data loggers will be removed from existing boreholes and transferred to new installations.

The locations from which loggers will be removed will be selected to ensure data is collected from different geological/waste depth horizons together with different location distances from the shoreline. These locations will be agreed with WYG personnel prior to removal.

5.4 Excavation

A data logger will be installed in the excavation in the vicinity of BH125 to record surface water levels at this location. The logger will be installed as soon as possible after commencement of site investigation works.

5.5 Management of Data Loggers during Borehole Gas Monitoring

In order to facilitate weekly gas monitoring in new and existing boreholes, installed data loggers will be removed from standpipes for a period of approximately 24 hours prior to taking of gas readings. The time of removal will be recorded.

The loggers will be returned to the standpipes when gas readings are complete and the time of return recorded.

5.6 Use of Data Loggers during Permeability Testing

Continuous water level measurements will be undertaken during permeability testing (see Method Statements for Falling & Rising Head Tests).

A data logger will be installed in each borehole prior to the commencement of each test. The loggers will be programmed to record at 0.5 second intervals for the duration of the test.

The static groundwater level will be measured using a dipper and the data logger positioned approximately 4-5m below this level.

A data logger will be installed at the top of each borehole, or at a suitable location in the vicinity of each borehole, to record barometric pressure for the duration of the test. The loggers will be programmed to record at 0.5 second intervals for the duration of the test. Therefore two data loggers will be required for the duration of each permeability test.

6 DATA MANAGEMENT

6.1 Data Downloading

Data from each logger in the new and existing boreholes and the barologger will be downloaded approximately fortnightly for the duration of the works. This is to ensure loggers are functioning correctly and to minimise the risk of loss of data due to logger damage or malfunction.

The logger data for each permeability test will be downloaded as soon as possible after completion of each test. Logger data will be downloaded using Solinst Levellogger Software (Version 4.0.3).

Data will be saved in suitable format to permit barometric compensation.

6.2 Data Calibration and Correction

The logger data will be calibrated using groundwater levels measured with a dip meter. The manual dip readings will be used to correct the logger data for drift in water level readings.

6.3 Barometric Compensation

Levellogger data will be compensated using barologger readings either using Solinst Levellogger Software or manually where data gaps etc. do not permit easy compensation using provided software. Barometric compensation will be undertaken as described in *Levellogger Series Software Version 4 – User Guide*.

6.4 Data Presentation

Downloaded logger data will be presented as follows:

No.	Data File	Format
1.	Raw (uncompensated) levellogger data for existing boreholes, new boreholes & excavation	Excel file
2.	Raw (uncompensated) levellogger data for permeability tests	Excel file
3.	Barometric data (from barologger & from levellogger used during permeability testing)	Excel file
4.	Compensated levellogger data (showing compensated/corrected water level above data logger and water level below reference point with graph) for existing boreholes, new boreholes & excavation	Excel file
5.	Compensated levellogger data (showing compensated/corrected water level above data logger and water level below reference point with graph) for permeability tests	Excel file
6	Manual groundwater dip readings	Excel file

Groundwater dip readings (below reference point) for each borehole will be shown in Data Files No. 4 and 5 above. A separate excel file showing all groundwater dip readings will also be provided (File No. 6 above).

Data gaps due to removal of loggers for gas monitoring or data downloading etc will be indicated on Files No. 4 and File No. 5 above.

APPENDIX A

Data Sheets for Solinst Levelogger and Barologger

Levelogger Gold

Model 3001

The Levelogger® Gold is completely designed, developed and manufactured in-house, in the tradition of all Solinst high quality products. Due to the Solinst commitment to providing leading-edge instruments designed for repeatable accuracy, the Levelogger Gold is always advancing.

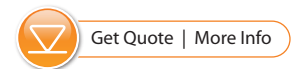
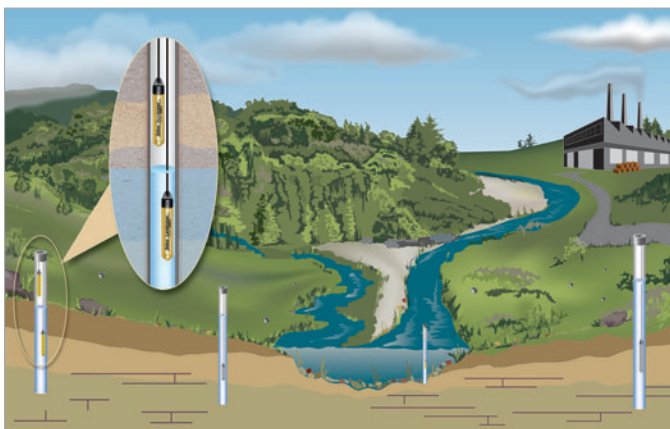
The Levelogger Gold is a water level and temperature recording device. It combines a datalogger, 10-year battery, pressure transducer and temperature sensor, in a small, minimal maintenance, 7/8" x 6" (22 mm x 154 mm) stainless steel housing. The sealed Faraday cage design greatly simplifies maintenance and provides protection against electrical spikes caused by lightning. A Zirconium Nitride coating resists corrosion.

The Levelogger Gold offers high resolution and reliability with an accuracy of 0.05%. The Levelogger Gold has excellent transducer, temperature and clock accuracies. Altitude, water density, temperature and barometric compensations also add to the accuracy and instrument stability.

High accuracy, long-term stability and an internal battery that lasts for 10 years when reading every minute, make Leveloggers the ideal devices for recording water levels. A Barologger provides the easiest and most accurate method of barometric compensation.

Applications

- Pumping and slug tests
- Watershed, drainage basin and recharge monitoring
- Stream gauging, lake and reservoir measurement
- Harbor and tidal fluctuation monitoring
- Wetlands and stormwater run-off monitoring
- Tank level monitoring
- Input water level data to SCADA/PLC systems
- Long-term water level monitoring in wells, surface water bodies and seawater environments



Features

- Self-test capability
- Maintenance-free, waterproof design
- Protected from power surges, such as lightning
- Real-time viewing; data can be exported
- Radio, satellite or cellular telemetry
- SDI-12 compatible, up to 1500 ft (450 m)
- User-selectable, 30 line sampling schedule

Robust Memory

The Levelogger Gold memory allows a maximum of 40,000 readings of level and temperature, set up in individual logs. The user has a choice of slate or continuous logging when operating in linear mode. In event-based and schedule sampling, memory is a form of circular slate, which starts logging from the end of the last log and wraps around to eventually overwrite older logs, but which will stop at the start of the current log. A separate redundant memory provides backup of the last 1200 readings, which can be accessed by a Diagnostic Utility program.

Downloading Options

The Levelogger Gold offers 4 download options: 'All Data' downloads the complete log, or the user can save time by selecting 'Append Data', when only new data is desired. A selected period of time prior to the last date stamp can be downloaded using 'Partial Download'. 'Recover Previous Log' is a safeguard in case the Levelogger has been restarted without downloading data. A complete data dump is also available as a feature of the Diagnostic Utility, which downloads all available memory in the Levelogger Gold.

High Accuracy

The Levelogger Gold has an accuracy of at least 0.05% net FS, a resolution of 0.0006 to 0.002% depending on range, a Barologger with algorithms based on air not water, enhanced altitude, density, temperature and barometric compensation, as well as a very accurate clock.



Levellogger Operation

Solinst has made programming the Levellogger Series extremely intuitive. Simply place the Levellogger in the optical reader or connect to the direct read cable. All in one screen, fill in the information fields for location, project ID, sample mode and rate, altitude, density adjustment and any desired offset.

Levellogger time may be synchronized to the computer clock, or the Levellogger Gold clock, or it can be user defined. There are options for immediate start or a future start time. The percentage battery life remaining and the amount of free memory are indicated on the settings screen.

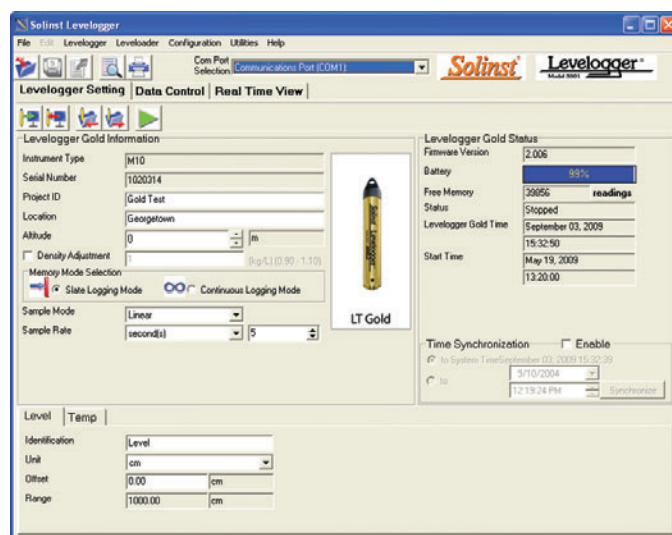
A manual measurement of the initial water depth is usually taken at each location, and noted as a base line measurement. When a Barologger is used for barometric pressure measurement, it is set above high water level in one location on site. If direct read cables are being used, data can also be viewed, logged on demand and retrieved from the Levellogger at any time using a Leveloader or a portable computer.

Convenient Sampling Options

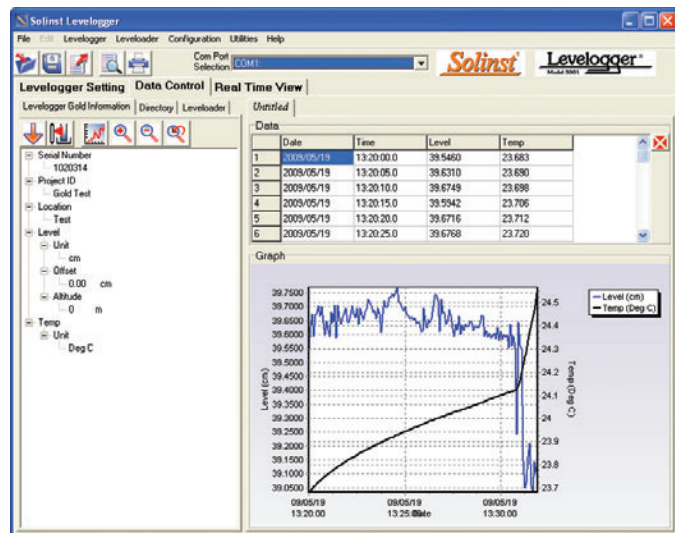
Solinst includes a very flexible, user-selectable sampling schedule, as well as the standard linear and event-based sampling options. Linear sampling can be anywhere from 0.5 seconds to 99 hours.

Event-based sampling can be set to record when the level changes anywhere from 0.1% up to 25% of the full range of the logger. Readings will be checked at the selected time interval, but only recorded in memory if the condition has been matched or exceeded.

The Schedule option allows up to 30 schedule items, each with its own sampling rate of seconds, minutes or hours, and a duration of seconds, minutes, hours, days or weeks. A running total of sample time and number of readings available are indicated and updated. Templates of these Schedules, and Levellogger Settings, can be saved for easy re-use.



Levellogger Settings Window



Real Time View Window

Data Download, Viewing and Export

Data is downloaded to a PC with the click of a screen icon or with the push of a button on the Leveloader. Collected data is retained in the Levellogger until it has been written over. The level data downloaded from a Levellogger has already been automatically compensated for temperature and altitude and the temperature data is also downloaded.

Barometric compensation of the Levellogger data is performed by a Wizard that can be used to input elevation offsets and adjust for Barometric efficiency. The software allows immediate viewing of the data in graph or table format using the 'Real Time View' option. It also allows easy export into a spreadsheet or database for further processing.

Use of Direct Read Cables

When it is desired to get real-time data and communicate with Levelloggers without removal from the water, they can be deployed using direct read cables.

The lower end of the direct read cable has a miniaturized infrared optical reader. The top cap of the Levellogger is removed and the direct read cable is threaded in its place. In turn, the upper end of the cable is attached to a portable computer or Leveloader, via a USB or RS232 PC Interface Cable. This allows viewing of the data, downloading and/or programming in the field.

Levelloggers can also be connected to an SDI-12 datalogger using the Solinst SDI-12 Interface Cable attached to a direct read cable.

The full benefits of a sealed Levellogger with no vent tube or electrical cable connection are also maintained. The logger is still sealed from all electrical interference through a Faraday cage design. Cable handling problems are minimized.



A Direct Read Cable with a Levellogger connected, attaches to a PC Interface Cable at a 2" Well Cap



PC Interface Cable connected to the Direct Read Cable



Enviro Cap™ lockable cap and key used with Wireline and Hooks

Helpful Utilities

The 'Self-Test Diagnostic Utility' can be used in case of an unexpected problem. It checks the functioning of the program, calibration, backup and logging memories, the pressure transducer, temperature sensor and battery voltage, as well as enabling a complete Memory Dump, if required. A Firmware Upgrade will be available from time to time, to allow upgrading of the Levellogger Gold, as new features are added.

Direct Read Cable Specifications

Direct read cables are available for attachment to any Levellogger, new or old, in standard lengths of: 15', 50', 100', 200', 250', 300' and 5 m, 15 m, 30 m, 60 m, 80 m, 100 m. Custom cable lengths up to 1500 ft (450 m) are also available to fit particular monitoring situations, as required. Cable markings are available upon request.

The 1/10" dia. (3 mm) coaxial cable has an outer polyethylene jacket for strength and durability. A stranded stainless steel braided conductor gives non-stretch accuracy.

The upper end of the direct read cable is fitted with a connector that can act as a well cap for a 1" well. This connector fits Solinst Levellogger well caps designed for 2" or 4" wells, and can easily be tethered at surface in other situations.

Use of Suspension Wireline and Kevlar Cord

Levelloggers may also be suspended in the water on a stainless steel wireline or Kevlar® cord. This is a very inexpensive method of deployment, and if in a well, allows the Levellogger to be easily locked, out of sight and inaccessible to anyone without a special key.

Solinst has adapted the Enviro Cap™ by adding a vent hole in the cap to allow for the equalization of barometric pressure in the well. The well cap has a convenient eyelet from which to suspend the Levellogger. It slips into the casing and is locked in place with the tamper-proof key, as shown.

The Enviro Caps are available sized for 2" and 4" wells. Well caps for other sizes of well can also be used.

Accurate Barometric Compensation

Levelloggers measure absolute pressure (water pressure + atmospheric pressure) expressed in feet, meters or centimeters of water column.

The most accurate method of obtaining changes in water level is to compensate for atmospheric pressure fluctuations using a Barologger. This avoids any time lag in the compensation calculation and any errors introduced due to moisture buildup, kinking or damage to vented cable. The Barologger Gold uses algorithms based on air rather than water pressure, which gives superior accuracy. The recorded barometric information can also be very useful to help determine barometric lag and/or barometric efficiency of the monitored aquifer.

The Data Compensation Wizard in the Levellogger software greatly simplifies the barometric adjustment of the water level measurements by using the synchronized data from one on-site Barologger with all the Levelloggers.

The overall results give more reliable, highly accurate level data than that obtained when using high maintenance and expensive vented cable.

® Kevlar is a registered trademark of DuPont Corp.

Levellogger Gold Specifications

Level Sensor:	Piezoresistive Silicon in 316L Stainless Steel
Accuracy (Typical):	0.05% FS
Stability of Readings:	Superior, low noise
Resolution:	0.002 to 0.0006% FS
Normalization:	Automatic Temp Compensation
Temperature Sensor:	Platinum Resistance Temperature Detector
Temp. Sensor Accuracy:	± 0.05°C
Temp. Sensor Resolution:	0.003°C
Temp. Comp. Range:	-10 to +40°C
Battery Life:	10 Years - based on one reading/min
Clock Accuracy:	± 1 minute/year
Operating Temperature:	-20°C to 80°C
Maximum # Readings:	40,000 of level and temperature
Memory:	Superior reliability EEPROM (Slate or Continuous) plus redundant backup of last 1200 readings
Communication:	Optical Infra-Red Interface, Serial at 9600 Baud, Conversion to RS232 or USB Computer Connection
Size:	7/8" x 6" (22 mm x 154 mm)
Weight:	6.3 oz (179 grams)
Backwards Compatibility:	Full
Corrosion Resistance:	Zirconium Nitride (ZrN) Coating
Other Wetted Materials:	316-L Stainless Steel, Delrin®, Viton®
Sampling Modes:	Linear, Event and User-Selectable with 30 separate line items
Measurement Rates:	0.5 sec to 99 hrs
Barometric Compensation:	Software Wizard and one Barologger in local area (approx. 20 miles/30 km) radius

Models	Full Scale (FS)	Accuracy (typical)	Resolution
Barologger	4.92 ft., 1.5 m	± 0.003 ft., 0.1 cm	0.002% FS
F15, M5	16.4 ft., 5 m	± 0.010 ft., 0.3 cm	0.001% FS
F30, M10	32.8 ft., 10 m	± 0.016 ft., 0.5 cm	0.0006% FS
F65, M20	65.6 ft., 20 m	± 0.032 ft., 1 cm	0.0006% FS
F100, M30	98.4 ft., 30 m	± 0.064 ft., 1.5 cm	0.0006% FS
F300, M100	328.1 ft., 100 m	± 0.164 ft., 5 cm	0.0006% FS

Levellogger Junior: See Model 3001 Junior Data Sheet for details
 Conductivity: See Model 3001 LTC Levellogger Junior Data Sheet

Leveloader Gold

The Leveloader Gold is a data transfer unit designed for use with all versions of the Solinst Levellogger, Barologger and Rainlogger. It is used to download and store multiple data files.



The 8 Mb FLASH memory stores up to 1,390,000 LT readings, 930,000 LTC readings, or 34 full Levellogger downloads. It can also be used to display data in real-time, and has optional password protection.

Simply use the connector cables for attachment to a Levellogger, or to a direct read cable, to allow downloading or reprogramming of the Levellogger settings in the field. It comes with cables for USB and RS232 connection to a PC for data transfer. (See Model 3001 Leveloader Gold Data Sheet.)

STS Telemetry



The STS Gold Telemetry System provides an economical and efficient method to access remote data instantly. Built for the Levellogger Series, the system combines high quality dataloggers, intuitive software and a variety of wireless communication options to create a remote monitoring solution.

CDMA and GSM digital cellular, satellite and radio wireless communication options give the flexibility to suit any project. Systems are suitable for both small to large networks. The STS Gold is designed to save costs by enabling the self-management of data, as well as remote collection of the data. Alarm notification, remote firmware upgrades and diagnostic reporting make system maintenance simple. (See Model 9100 Data Sheet.)

RRL Telemetry

The inexpensive RRL Gold Radio Telemetry is ideal for short range applications up to 1000 ft (300 m) or more. Distances can be increased by using some radios as 'repeater' stations. (See Model 9200 Data Sheet.)



! NOTE

To use the Barologger Gold with Software Version 4.0.3, ensure you are using version 2.007 firmware.

1.1.8 Barologger Gold

The Barologger Gold uses algorithms based on air pressure only. It measures and logs changes in atmospheric pressure, which are then used to compensate water level readings recorded by a Levellogger.

Barologger Gold Technical Specifications	
Level Sensor:	Piezoresistive Silicon in 316L Stainless Steel
Accuracy (Typical):	0.05% FS
Resolution:	0.002% FS
Normalization:	Automatic Temp Compensation
Temperature Sensor:	Platinum Resistance Temperature Detector (RTD)
Temp. Sensor Accuracy:	± 0.05°C
Temp. Sensor Resolution:	0.003°C
Temp. Comp. Range:	10°C to +40°C
Battery Life:	10 Years - based on one reading/min
Clock Accuracy:	± 1 minute/year
Operating Temperature:	-20°C to 80°C
Maximum # Readings:	40,000 of pressure and temperature
Memory:	EEPROM Slate, Continuous, and redundant backup of last 1200 readings
Communication:	Optical Infra-red: USB, RS-232, SDI-12
Communication Speed:	9600 bps
Size:	7/8" x 6" (22 mm x 154 mm)
Weight:	6.3 oz (179 grams)
Corrosion Resistance:	Zirconium Nitride (ZrN) Coating
Other Wetted Materials:	316L Stainless Steel, Delrin®, Viton®
Sampling Modes:	Linear, Event & User-Selectable with 30 separate line items
Measurement Rates:	0.5 sec to 99 hrs

LT Models	Full Scale (FS)	Accuracy (Typ)	Resolution
Barologger	Air Only	± 0.003 ft., 0.1 cm	0.002% FS



Certificate of Calibration

Certificate Number 22463-0 **Certificate Date** 26 April 2012

Date of Test 26 April 2012 **RPII Reference** LW-26/04/2012-80731

Client Reference WYG CK116 **PO Number** CE08671/NS/D8064

Owner WYG, Unit 2, University technology Centre, curraheen Road, Cork

Instrument Thermo Electron Corporation Mini Rad 1000 - 620

Position Front face perpendicular to the direction of radiation

Reference Point As marked on instrument

Calibration Quantity Ambient Dose Equivalent, H*(10)

The above instrument was calibrated free in air using gamma radiation from Cs-137 in accordance with RPII test procedure TP204. For the instruments response to other energies the manufacturer's specification should be consulted. The instrument was tested under normal working conditions of temperature and pressure. The standard ambient dose equivalent rates were measured with a secondary standard PTW LS01 chamber, S/N 920; reference calibration certificate E07090053

Survey Meter Results

Instrument Scale: 0-1000

Irradiator Source: Cs-137 0.7 GBq

Dose Rate	Mean reading	Mean Background	Net Reading	Calibration Factor	Expanded Uncertainty
microSv/h	microSv/h	microSv/h	microSv/h	-	%
6	5.50	0.10	5.40	1.11	8.84
50	47.50	0.10	47.40	1.05	5.85
500	475.00	0.10	474.90	1.05	5.85

Mean Calibration Factor 1.07

Calibration Result For Cs-137, the instrument is within specification +\ - 20%

Note
The results relate only to the instrument listed above. This report may not be reproduced except in full, without the approval of the RPII. Gamma radiations are in accordance with ISO 4037-1:1996 (E) and measurements are traceable to recognised international standards.



Certificate of Calibration

Certificate Number 22463-0

Certificate Date 26 April 2012

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of 95%. The standard uncertainty of measurement has been determined in accordance with EAL Publication EAL-R2.

The calibration factor is defined as the ratio of the standard quality to that indicated by the instrument under test. No adjustment to the internal calibration was necessary or has been made.

Issued by:

Eileen Hayden

Eileen Hayden
Technician, Measurement Services

Approved by:

Veronica Smith

Veronica Smith
Manager, Measurement Services

Note

The results relate only to the instrument listed above. This report may not be reproduced except in full, without the approval of the RPII. Gamma radiations are in accordance with ISO 4037-1:1996 (E) and measurements are traceable to recognised international standards.

GROUND GAS MONITORING PROCEDURES

Ground gas pressure, gas concentration and flow rate measurement were undertaken in accordance with the following procedure:

1. Atmospheric pressure readings were recorded daily for a period of three days before monitoring and for one day after monitoring.
2. Before monitoring, the tubing was attached to the equipment (GA2000 range gas analyser) and the equipment was switched on, not being connected to the standpipe installation. Clean-air was run through, the methane channel was zeroed away from any potential sources of ground gases and or vapours such as vehicles etc.
3. The monitoring equipment was kept switched on between boreholes to purge any residual gas and to prevent the necessity of zeroing the methane each time it is switched on.
4. The atmospheric pressure was recorded from the monitoring equipment and the observed weather conditions including estimated air temperature were recorded. Details of the ground conditions, with particular reference to well defects or damage if any, or open gas taps was also recorded.
5. The gas flow (l/hr) was measured, using the internal flow meter- the flow meter was switched on, the inlet tube was attached and the gas tap opened. Where a steady value is not observed the range including negative and positive values was recorded.
6. The differential gas pressure was measured in the standpipe installation.
7. The gas tap on the standpipe installation was closed the inlet tube.
8. The monitoring equipment was again attached to the standpipe installation using the gas inlet tubing. The gas tap was re-opened and the pump switched on.
9. Gas readings were recorded for methane (% by volume), methane (% LEL), peak methane (% volume), carbon dioxide (% volume), oxygen (% volume), hydrogen sulphide (ppm), carbon monoxide (ppm) for a minimum of 3 minutes being logged every 30 seconds for the first 2 minutes and then every minute up to a maximum of 10 minutes.
10. The aim was to monitor ground gas until peak or steady gas concentrations were observed.
11. Peak concentration were recorded.

12. Once the data was been recorded, the tubing was removed from the standpipe installation gas tap.
13. The flow monitoring tubing was again attached and a final flow reading taken.
14. The monitoring equipment was purged in clean air being away from potential gas sources air until the methane and carbon dioxide concentrations have returned to zero).
15. The gas tap was removed having completed the ground gas monitoring and water levels were measured with a manual dip meter in the standpipe installation.
16. Note the use of the term gas in the monitoring referenced the well specifically constructed for ground gas monitoring.
17. Having obtained groundwater levels, the gas tap was replaced ensuring it was closed and the standpipe installation cover locked/ secured.
18. This procedure was repeated for all borehole installations.

The following information was submitted being reporting of ground gas monitoring:

- (a) All of the gas flow velocity measurements in units of l/hr. The detection limit being 0.01l/hr.
- (b) Differential gas pressure measurement in units of mm water gauge. The sensitivity was 0.5mm.
- (c) All of the gas concentration measurements in accordance with the above agreed prcedures
- (d) The atmospheric pressure in millibars.
- (e) the weather conditions during monitoring.

CERTIFICATION OF CALIBRATION



ISSUED BY: GEOTECH LABORATORY

Date Of Calibration: 4 May, 2011

Certificate Number: GA13386_1/7320_UKAS



No. 4533

Page 1 of 2 Pages

Approved by Signatory

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Web site: www.geotech.co.uk

Dawn Hemings

Laboratory Inspection

Customer: *Commissioning Services Limited*

Deerpark Business Complex
Dublin Road
Carlow
IRELAND

Description: Gas Analyser

Model: GA2000

Serial Number: GA13386

UKAS Accredited results:

Methane (CH ₄)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
50.01	49.74	0.94
15.01	15.30	0.64
5.01	5.10	0.41

Carbon Dioxide (CO ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
49.99	50.56	1.11
14.97	14.92	0.70
5.00	4.90	0.43

Oxygen (O ₂)		
Certified Gas (%)	Instrument Reading (%)	Uncertainty (%)
21.00	21.06	0.31

All concentrations are molar.

CH₄, CO₂ readings recorded at: 31.5°C

O₂ reading recorded at: 23.2°C

Barometric Pressure: 1013mb

Method of Test: The analyser is calibrated in a temperature controlled chamber using reference gases.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

This certificate is issued in accordance with the laboratory accreditation requirements of the United Kingdom Accreditation Service. It provides traceability of measurement to recognised national standards, and to units of measurement realised at the National Physical Laboratory or other recognised national standards laboratories. Certification only applies to results shown. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.