ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2092410-7 Soil 09-MAY-18 Z111	L2092410-8 Soil 09-MAY-18 BH129M-02	L2092410-10 Soil 09-MAY-18 BH129M-04	L2092410-12 Soil 09-MAY-18 BH129M-06	L2092410-14 Soil 10-MAY-18 BH130M-02
SOIL						
Volatile Organic Compounds	1,3-Dichloropropene (cis & trans) (mg/kg)					
	Ethylbenzene (mg/kg)					
	Methyl t-butyl ether (MTBE) (mg/kg)					
	Styrene (mg/kg)					
	1,1,1,2-Tetrachloroethane (mg/kg)					
	1,1,2,2-Tetrachloroethane (mg/kg)					
	Tetrachloroethylene (mg/kg)					
	Toluene (mg/kg)					
	1,1,1-Trichloroethane (mg/kg)					
	1,1,2-Trichloroethane (mg/kg)					
	Trichloroethylene (mg/kg)					
	Trichlorofluoromethane (mg/kg)					
	Vinyl Chloride (mg/kg)					
	ortho-Xylene (mg/kg)					
	meta- & para-Xylene (mg/kg)					
	Xylenes (mg/kg)					
	Surrogate: 4-Bromofluorobenzene (SS) (%)					
	Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons	EPH10-19 (mg/kg)		<200	<200		<200
	EPH19-32 (mg/kg)		<200	<200		290
	LEPH (mg/kg)		<200	<200		<200
	HEPH (mg/kg)		<200	<200		290
	Volatile Hydrocarbons (VH6-10) (mg/kg)					
	VPH (C6-C10) (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)		87.5	89.6		89.6
	Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)		<0.0050	0.239		0.0471
	Acenaphthylene (mg/kg)		<0.0050	<0.0080 DLQ		0.0458
	Anthracene (mg/kg)		<0.0040	0.235		0.155
	Benz(a)anthracene (mg/kg)		<0.010	0.072		0.454
	Benzo(a)pyrene (mg/kg)		<0.010	0.042		0.511
	Benzo(b&j)fluoranthene (mg/kg)		0.012	0.054		0.510
	Benzo(b+j+k)fluoranthene (mg/kg)		<0.015	0.076		0.718
	Benzo(g,h,i)perylene (mg/kg)		<0.010	0.020		0.310
	Benzo(k)fluoranthene (mg/kg)		<0.010	0.022		0.208
	Chrysene (mg/kg)		<0.010	0.087		0.559

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2092410-17	L2092410-18			
	Description	Soil	Soil			
	Sampled Date	10-MAY-18	10-MAY-18			
	Sampled Time					
	Client ID	BH130M-05	BH125M-06			
Grouping	**Analyte**					
SOIL						
Volatile Organic Compounds	1,3-Dichloropropene (cis & trans) (mg/kg)					
	Ethylbenzene (mg/kg)					
	Methyl t-butyl ether (MTBE) (mg/kg)					
	Styrene (mg/kg)					
	1,1,1,2-Tetrachloroethane (mg/kg)					
	1,1,2,2-Tetrachloroethane (mg/kg)					
	Tetrachloroethylene (mg/kg)					
	Toluene (mg/kg)					
	1,1,1-Trichloroethane (mg/kg)					
	1,1,2-Trichloroethane (mg/kg)					
	Trichloroethylene (mg/kg)					
	Trichlorofluoromethane (mg/kg)					
	Vinyl Chloride (mg/kg)					
	ortho-Xylene (mg/kg)					
	meta- & para-Xylene (mg/kg)					
	Xylenes (mg/kg)					
	Surrogate: 4-Bromofluorobenzene (SS) (%)					
	Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons	EPH10-19 (mg/kg)	<200				
	EPH19-32 (mg/kg)	<200				
	LEPH (mg/kg)	<200				
	HEPH (mg/kg)	<200				
	Volatile Hydrocarbons (VH6-10) (mg/kg)					
	VPH (C6-C10) (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)	87.1				
	Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.0050				
	Acenaphthylene (mg/kg)	<0.0050				
	Anthracene (mg/kg)	<0.0040				
	Benz(a)anthracene (mg/kg)	<0.010				
	Benzo(a)pyrene (mg/kg)	<0.010				
	Benzo(b&j)fluoranthene (mg/kg)	<0.010				
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.015				
	Benzo(g,h,i)perylene (mg/kg)	<0.010				
	Benzo(k)fluoranthene (mg/kg)	<0.010				
	Chrysene (mg/kg)	<0.010				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2092410-1	L2092410-2	L2092410-4	L2092410-5	L2092410-6
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	09-MAY-18	09-MAY-18	09-MAY-18	09-MAY-18	09-MAY-18
Sampled Time					
Client ID	BH125M-01	BH125M-02	BH125M-04	BH125M-05	BH129M-01
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Dibenz(a,h)anthracene (mg/kg)		<0.014 DLCI		<0.0050	
Fluoranthene (mg/kg)		0.061		<0.010	
Fluorene (mg/kg)		<0.028 DLCI		<0.010	
Indeno(1,2,3-c,d)pyrene (mg/kg)		0.028		<0.010	
1-Methylnaphthalene (mg/kg)		<0.14 DLCI		0.068	
2-Methylnaphthalene (mg/kg)		0.162		0.144	
Naphthalene (mg/kg)		0.150		0.074	
Phenanthrene (mg/kg)		0.082		0.022	
Pyrene (mg/kg)		0.057		<0.010	
Quinoline (mg/kg)		<0.14 DLCI		<0.050	
Surrogate: Acenaphthene d10 (%)		89.3		112.0	
Surrogate: Chrysene d12 (%)		82.2		122.9	
Surrogate: Naphthalene d8 (%)		84.7		109.5	
Surrogate: Phenanthrene d10 (%)		91.3		125.0	
B(a)P Total Potency Equivalent (mg/kg)		0.031		<0.020	
IACR (CCME) (mg/kg)		0.44		<0.15	
Phenolics					
4-Chloro-3-methylphenol (mg/kg)					
2-Chlorophenol (mg/kg)					
3-Chlorophenol (mg/kg)					
4-Chlorophenol (mg/kg)					
2,3-Dichlorophenol (mg/kg)					
2,4 & 2,5-Dichlorophenol (mg/kg)					
2,6-Dichlorophenol (mg/kg)					
3,4-Dichlorophenol (mg/kg)					
3,5-Dichlorophenol (mg/kg)					
2,4-Dimethylphenol (mg/kg)					
o-Cresol (mg/kg)					
m-Cresol (mg/kg)					
p-Cresol (mg/kg)					
Pentachlorophenol (mg/kg)					
Phenol (mg/kg)					
2,3,4,5-Tetrachlorophenol (mg/kg)					
2,3,4,6-Tetrachlorophenol (mg/kg)					
2,3,5,6-Tetrachlorophenol (mg/kg)					
2,3,4-Trichlorophenol (mg/kg)					
2,3,5-Trichlorophenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2092410-7	L2092410-8	L2092410-10	L2092410-12	L2092410-14
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	09-MAY-18	09-MAY-18	09-MAY-18	09-MAY-18	10-MAY-18
Sampled Time					
Client ID	Z111	BH129M-02	BH129M-04	BH129M-06	BH130M-02
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons — Dibenz(a,h)anthracene (mg/kg)		<0.0050	<0.0070 DLCI		0.0772
Fluoranthene (mg/kg)		<0.010	0.375		0.762
Fluorene (mg/kg)		<0.010	0.223		0.045
Indeno(1,2,3-c,d)pyrene (mg/kg)		<0.010	0.026		0.291
1-Methylnaphthalene (mg/kg)		<0.050	0.143		<0.050
2-Methylnaphthalene (mg/kg)		<0.010	0.183		0.056
Naphthalene (mg/kg)		<0.010	0.078		0.067
Phenanthrene (mg/kg)		<0.010	0.944		0.655
Pyrene (mg/kg)		<0.010	0.320		1.09
Quinoline (mg/kg)		<0.050	<0.050		<0.050
Surrogate: Acenaphthene d10 (%)		108.1	113.4		109.0
Surrogate: Chrysene d12 (%)		121.7	125.9		105.0
Surrogate: Naphthalene d8 (%)		108.1	107.9		95.0
Surrogate: Phenanthrene d10 (%)		120.1	125.5		113.0
B(a)P Total Potency Equivalent (mg/kg)		<0.020	0.063		0.744
IACR (CCME) (mg/kg)		0.15	0.87		8.00
Phenolics — 4-Chloro-3-methylphenol (mg/kg)			<0.020		
2-Chlorophenol (mg/kg)			<0.020		
3-Chlorophenol (mg/kg)			<0.040 DLCI		
4-Chlorophenol (mg/kg)			<0.020		
2,3-Dichlorophenol (mg/kg)			<0.020		
2,4 & 2,5-Dichlorophenol (mg/kg)			<0.020		
2,6-Dichlorophenol (mg/kg)			<0.020		
3,4-Dichlorophenol (mg/kg)			<0.020		
3,5-Dichlorophenol (mg/kg)			<0.020		
2,4-Dimethylphenol (mg/kg)			<0.060 DLCI		
o-Cresol (mg/kg)			<0.020		
m-Cresol (mg/kg)			<0.020		
p-Cresol (mg/kg)			<0.030		
Pentachlorophenol (mg/kg)			<0.020		
Phenol (mg/kg)			<0.020		
2,3,4,5-Tetrachlorophenol (mg/kg)			<0.020		
2,3,4,6-Tetrachlorophenol (mg/kg)			<0.020		
2,3,5,6-Tetrachlorophenol (mg/kg)			<0.020		
2,3,4-Trichlorophenol (mg/kg)			<0.020		
2,3,5-Trichlorophenol (mg/kg)			<0.020		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2092410-17	L2092410-18			
	Description	Soil	Soil			
	Sampled Date	10-MAY-18	10-MAY-18			
	Sampled Time					
	Client ID	BH130M-05	BH125M-06			
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Dibenz(a,h)anthracene (mg/kg)	<0.0050				
	Fluoranthene (mg/kg)	0.012				
	Fluorene (mg/kg)	<0.010				
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010				
	1-Methylnaphthalene (mg/kg)	<0.050				
	2-Methylnaphthalene (mg/kg)	<0.010				
	Naphthalene (mg/kg)	<0.010				
	Phenanthrene (mg/kg)	<0.010				
	Pyrene (mg/kg)	0.013				
	Quinoline (mg/kg)	<0.050				
	Surrogate: Acenaphthene d10 (%)	111.0				
	Surrogate: Chrysene d12 (%)	121.4				
	Surrogate: Naphthalene d8 (%)	110.8				
	Surrogate: Phenanthrene d10 (%)	120.0				
	B(a)P Total Potency Equivalent (mg/kg)	<0.020				
	IACR (CCME) (mg/kg)	<0.15				
Phenolics	4-Chloro-3-methylphenol (mg/kg)					
	2-Chlorophenol (mg/kg)					
	3-Chlorophenol (mg/kg)					
	4-Chlorophenol (mg/kg)					
	2,3-Dichlorophenol (mg/kg)					
	2,4 & 2,5-Dichlorophenol (mg/kg)					
	2,6-Dichlorophenol (mg/kg)					
	3,4-Dichlorophenol (mg/kg)					
	3,5-Dichlorophenol (mg/kg)					
	2,4-Dimethylphenol (mg/kg)					
	o-Cresol (mg/kg)					
	m-Cresol (mg/kg)					
	p-Cresol (mg/kg)					
	Pentachlorophenol (mg/kg)					
	Phenol (mg/kg)					
	2,3,4,5-Tetrachlorophenol (mg/kg)					
	2,3,4,6-Tetrachlorophenol (mg/kg)					
	2,3,5,6-Tetrachlorophenol (mg/kg)					
	2,3,4-Trichlorophenol (mg/kg)					
	2,3,5-Trichlorophenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2092410-1	L2092410-2	L2092410-4	L2092410-5	L2092410-6
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	09-MAY-18	09-MAY-18	09-MAY-18	09-MAY-18	09-MAY-18
	Sampled Time					
	Client ID	BH125M-01	BH125M-02	BH125M-04	BH125M-05	BH129M-01
Grouping	**Analyte**					
SOIL						
Phenolics	2,3,6-Trichlorophenol (mg/kg)					
	2,4,5-Trichlorophenol (mg/kg)					
	2,4,6-Trichlorophenol (mg/kg)					
	3,4,5-Trichlorophenol (mg/kg)					
	Surrogate: 2-Chlorophenol-d4 (%)					
	Surrogate: 2,4-Dichlorophenol-d3 (%)					
	Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)					
	2,6-Dimethylphenol (mg/kg)					
	3,4-Dimethylphenol (mg/kg)					
	Hydroquinone (mg/kg)					
	2-Phenylphenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2092410-7	L2092410-8	L2092410-10	L2092410-12	L2092410-14
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	09-MAY-18	09-MAY-18	09-MAY-18	09-MAY-18	10-MAY-18
Sampled Time					
Client ID	Z111	BH129M-02	BH129M-04	BH129M-06	BH130M-02
Grouping / **Analyte**					
SOIL					
Phenolics					
2,3,6-Trichlorophenol (mg/kg)			<0.020		
2,4,5-Trichlorophenol (mg/kg)			<0.020		
2,4,6-Trichlorophenol (mg/kg)			<0.020		
3,4,5-Trichlorophenol (mg/kg)			<0.020		
Surrogate: 2-Chlorophenol-d4 (%)			98.2		
Surrogate: 2,4-Dichlorophenol-d3 (%)			100.0		
Surrogate: 2,4,6-Tribromophenol (%)			98.3		
Non-Chlorinated Phenolics					
Butylated Hydroxytoluene (mg/kg)			<0.20		
2,6-Dimethylphenol (mg/kg)			<0.020		
3,4-Dimethylphenol (mg/kg)			<0.020		
Hydroquinone (mg/kg)			<0.20		
2-Phenylphenol (mg/kg)			<0.60		

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2092410-17	L2092410-18			
	Description	Soil	Soil			
	Sampled Date	10-MAY-18	10-MAY-18			
	Sampled Time					
	Client ID	BH130M-05	BH125M-06			
Grouping	**Analyte**					
SOIL						
Phenolics	2,3,6-Trichlorophenol (mg/kg)					
	2,4,5-Trichlorophenol (mg/kg)					
	2,4,6-Trichlorophenol (mg/kg)					
	3,4,5-Trichlorophenol (mg/kg)					
	Surrogate: 2-Chlorophenol-d4 (%)					
	Surrogate: 2,4-Dichlorophenol-d3 (%)					
	Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)					
	2,6-Dimethylphenol (mg/kg)					
	3,4-Dimethylphenol (mg/kg)					
	Hydroquinone (mg/kg)					
	2-Phenylphenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)	DUP-H	L2092410-12
Duplicate	Lead (Pb)	DUP-H	L2092410-10, -14, -2, -4, -5, -8
Duplicate	Manganese (Mn)	DUP-H	L2092410-12
Duplicate	Molybdenum (Mo)	DUP-H	L2092410-12
Duplicate	Selenium (Se)	DUP-H	L2092410-12
Duplicate	Zinc (Zn)	DUP-H	L2092410-10, -14, -2, -4, -5, -8
Duplicate	Zinc (Zn)	DUP-H	L2092410-12
Duplicate	Antimony (Sb)	DUP-H,J	L2092410-10, -14, -2, -4, -5, -8
Duplicate	Thallium (Tl)	DUP-H,J	L2092410-12
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2092410-1, -18, -6
Matrix Spike	Benzo(b&j)fluoranthene	MS-B	L2092410-10, -14, -17, -2, -5, -8
Matrix Spike	Benzo(g,h,i)perylene	MS-B	L2092410-10, -14, -17, -2, -5, -8
Matrix Spike	Fluoranthene	MS-B	L2092410-10, -14, -17, -2, -5, -8
Matrix Spike	Indeno(1,2,3-c,d)pyrene	MS-B	L2092410-10, -14, -17, -2, -5, -8
Matrix Spike	Pyrene	MS-B	L2092410-10, -14, -17, -2, -5, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
DUP-H,J	Duplicate results outside ALS DQO, due to sample heterogeneity. Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CLPHEN-TMB-MS-VA	Soil	Chlorinated Phenols by Tumbler/GCMS	EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

HG-TCLP-CVAFS-VA	Soil	Mercury by CVAAS (TCLP)	EPA 1311/245.7

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 245.7).

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHs = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

MET-TCLP-ICP-VA	Soil	Metals by ICPOES (TCLP)	EPA 1311/6010B

Reference Information

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MOISTURE-VA	Soil	Moisture content	CWS for PHC in Soil - Tier 1

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA	Soil	PAH - Rotary Extraction (Hexane/Acetone)	EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3570 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

PHEN-M-TMB-MS-VA	Soil	Misc. Phenolics in Soil	EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

PHEN-TMB-MS-VA	Soil	Phenolics by Tumbler/GC-MS	EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

VH-HSFID-VA	Soil	VH in soil by Headspace GCFID	BC Env. Lab Manual (VH in Solids)

This analysis involves the extraction of a subsample of the sediment/soil with methanol. Aliquots of the methanol extract are then added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999).

VH-SURR-FID-VA	Soil	VH Surrogates for Soils	BC Env. Lab Manual (VH in Solids)
VOC-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7-L-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Soil	VOC7 and/or VOC Surrogates for Soils	EPA 5035A/5021A/8260C
VPH-CALC-VA	Soil	VPH is VH minus select aromatics	BC MOE VPH

VPHs measures Volatile Petroleum Hydrocarbons in soil. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure.
VPHs = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene

XYLENES-CALC-VA	Soil	Sum of Xylene Isomer Concentrations	EPA 8260B & 524.2

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

Reference Information

17-691770 17-691990

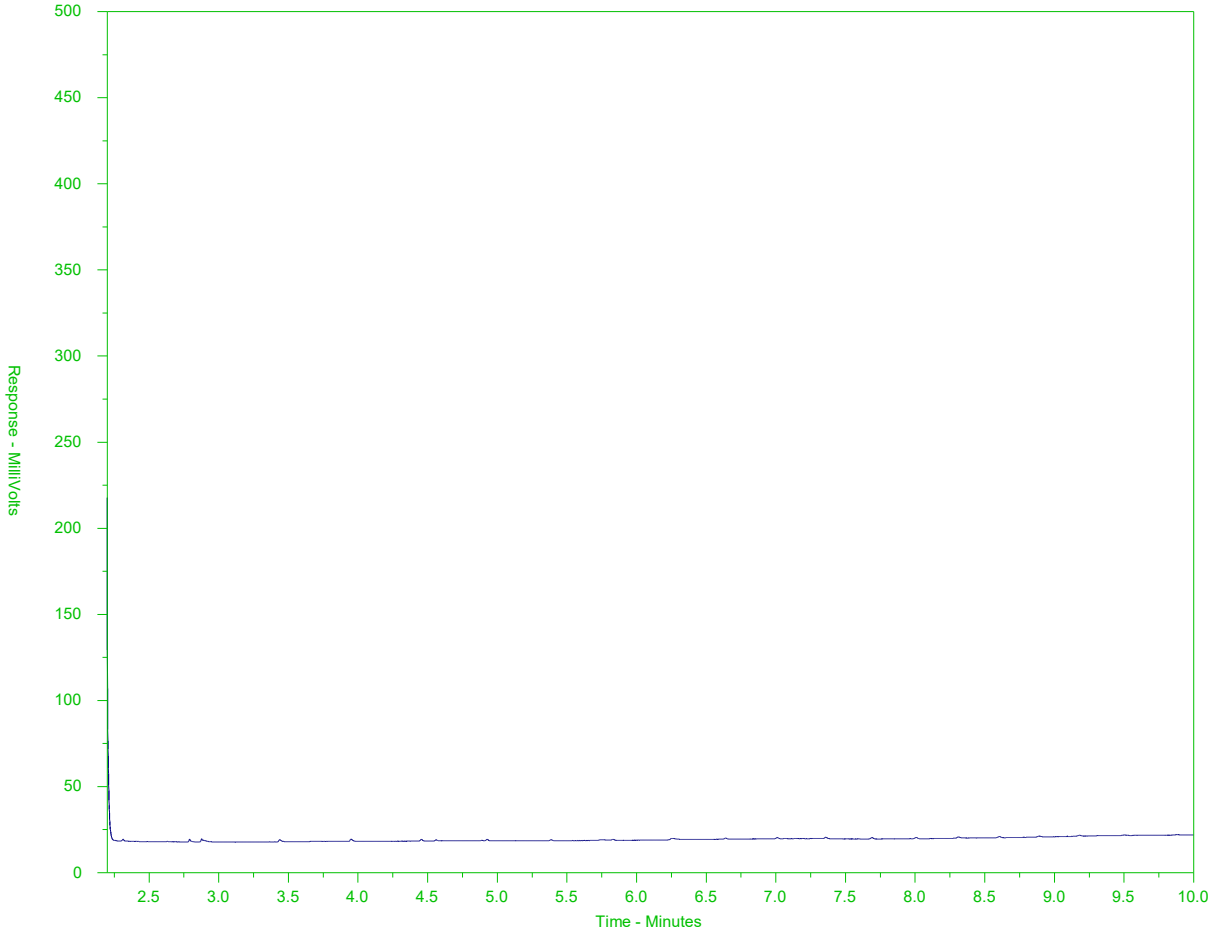
GLOSSARY OF REPORT TERMS

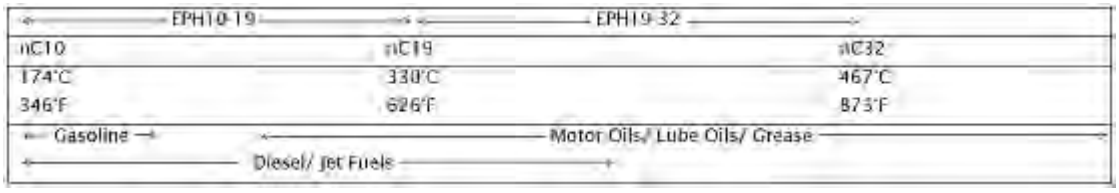
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2092410-1
Client Sample ID: BH125M-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

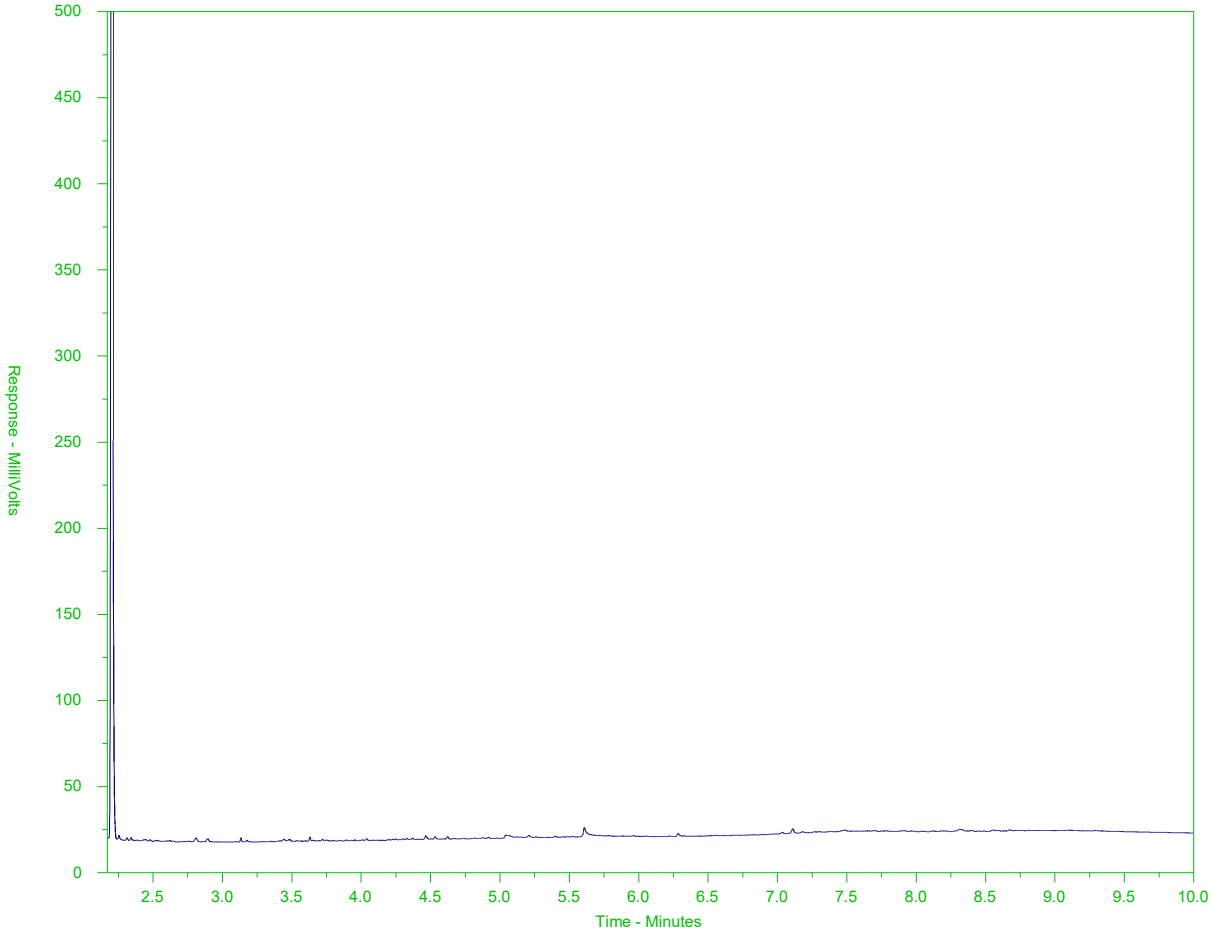
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2092410-2
Client Sample ID: BH125M-02



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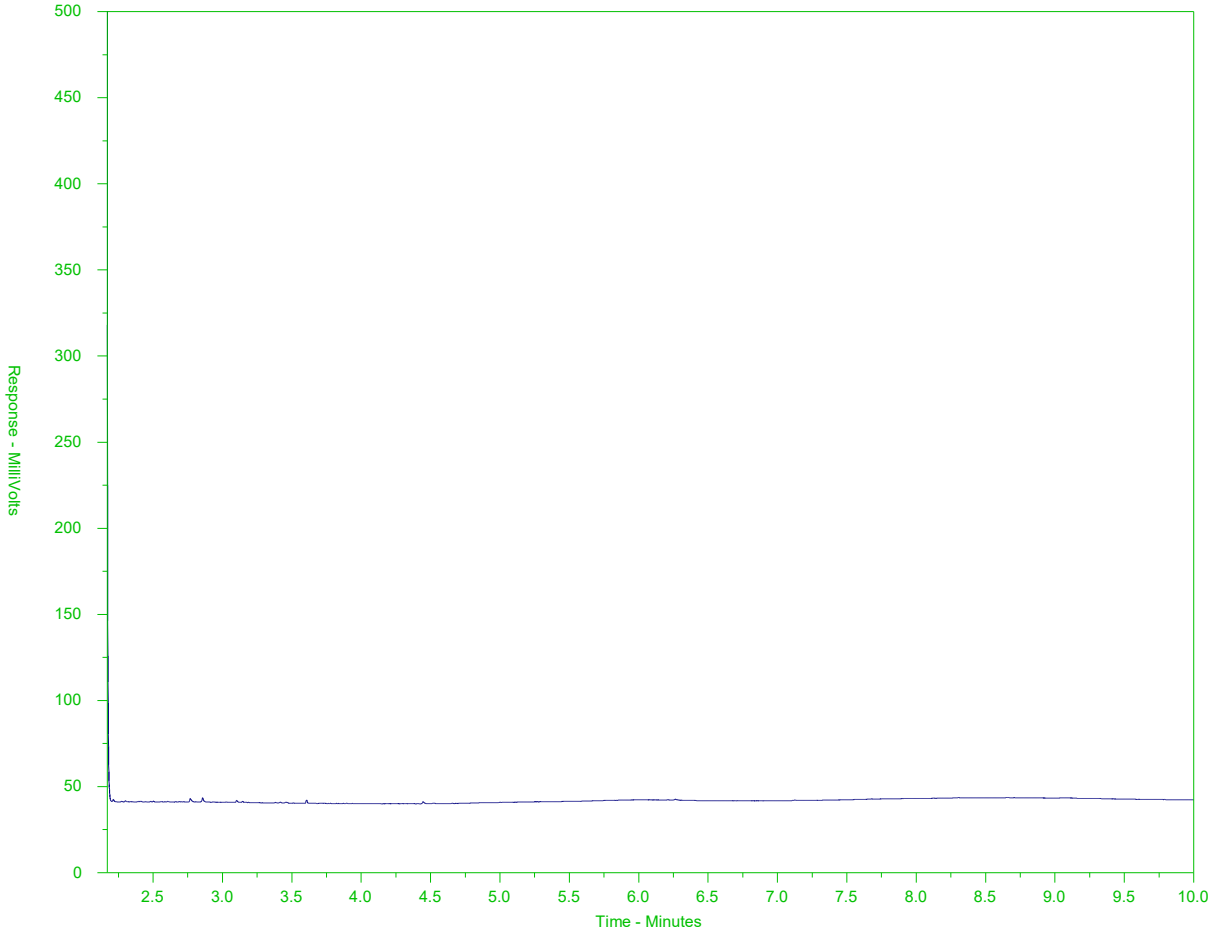
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

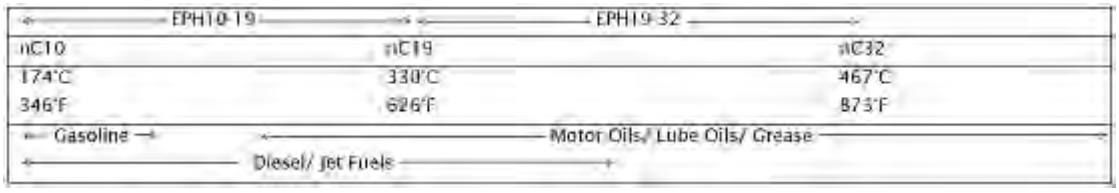
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2092410-5
Client Sample ID: BH125M-05





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

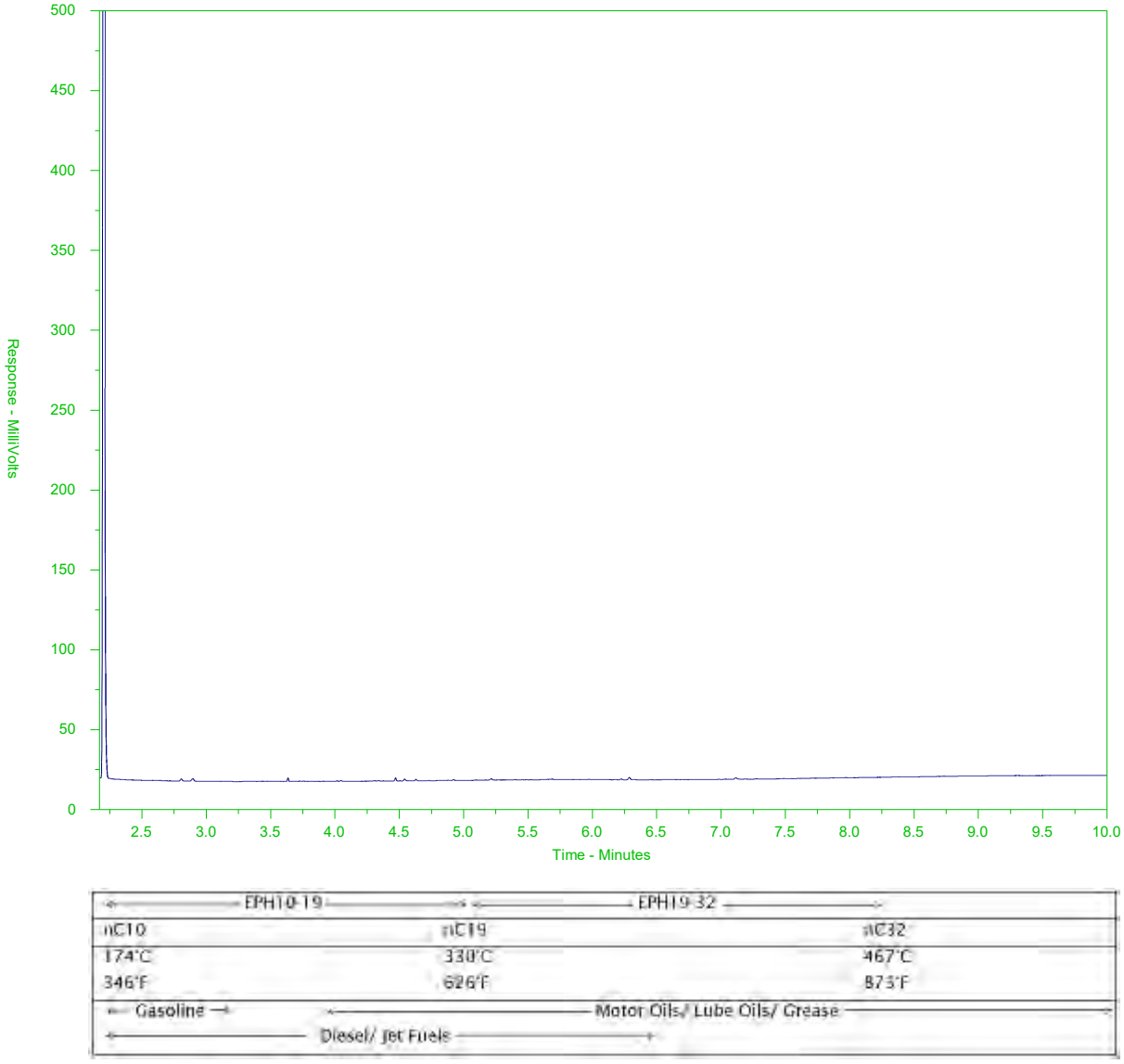
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2092410-8
Client Sample ID: BH129M-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

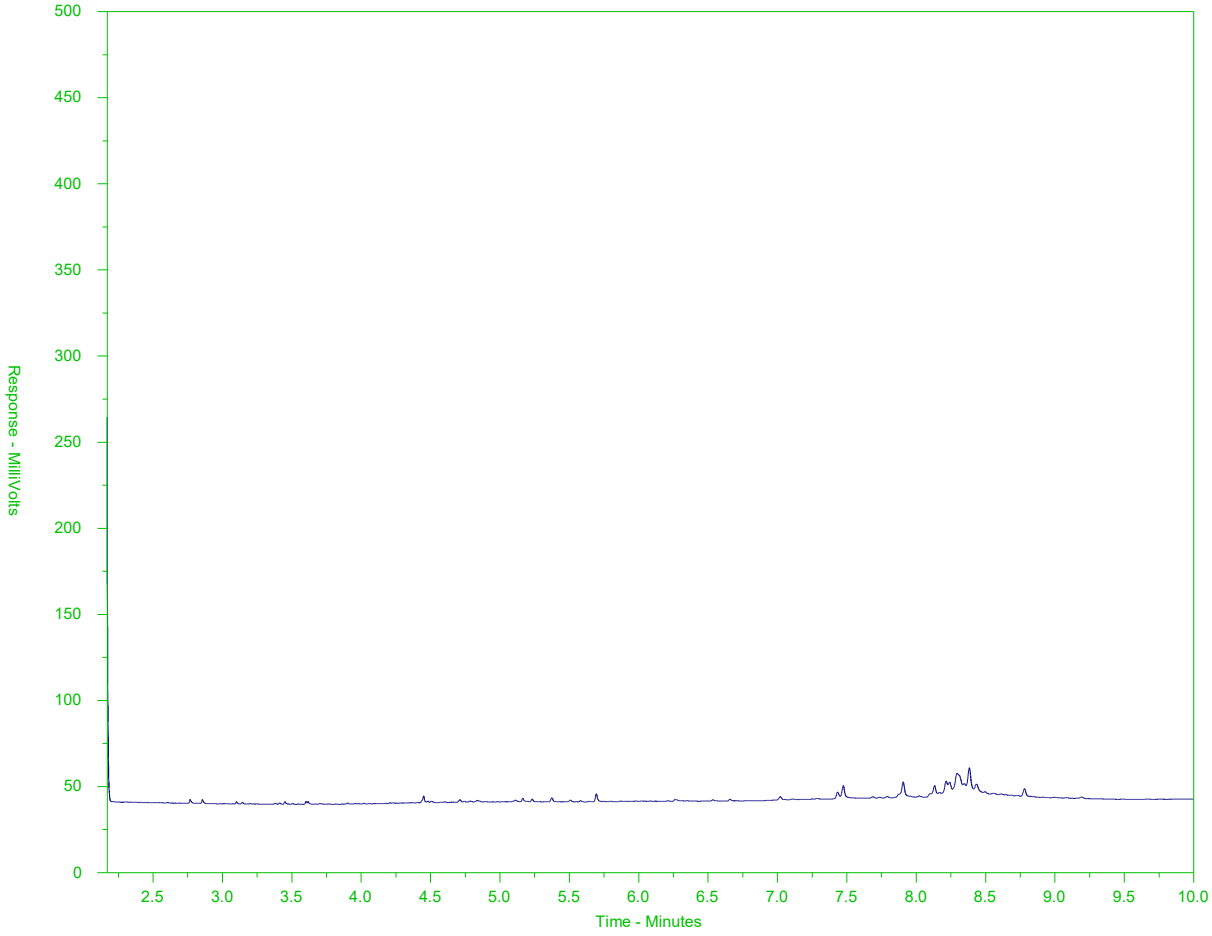
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

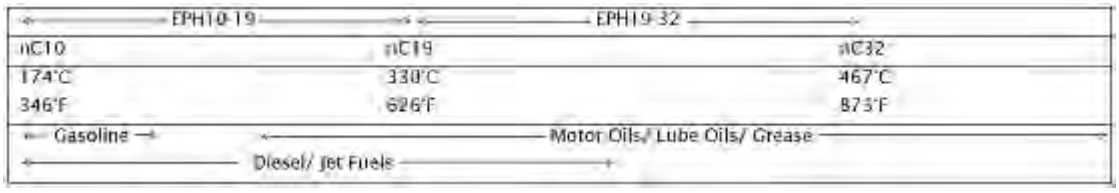
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2092410-10
Client Sample ID: BH129M-04





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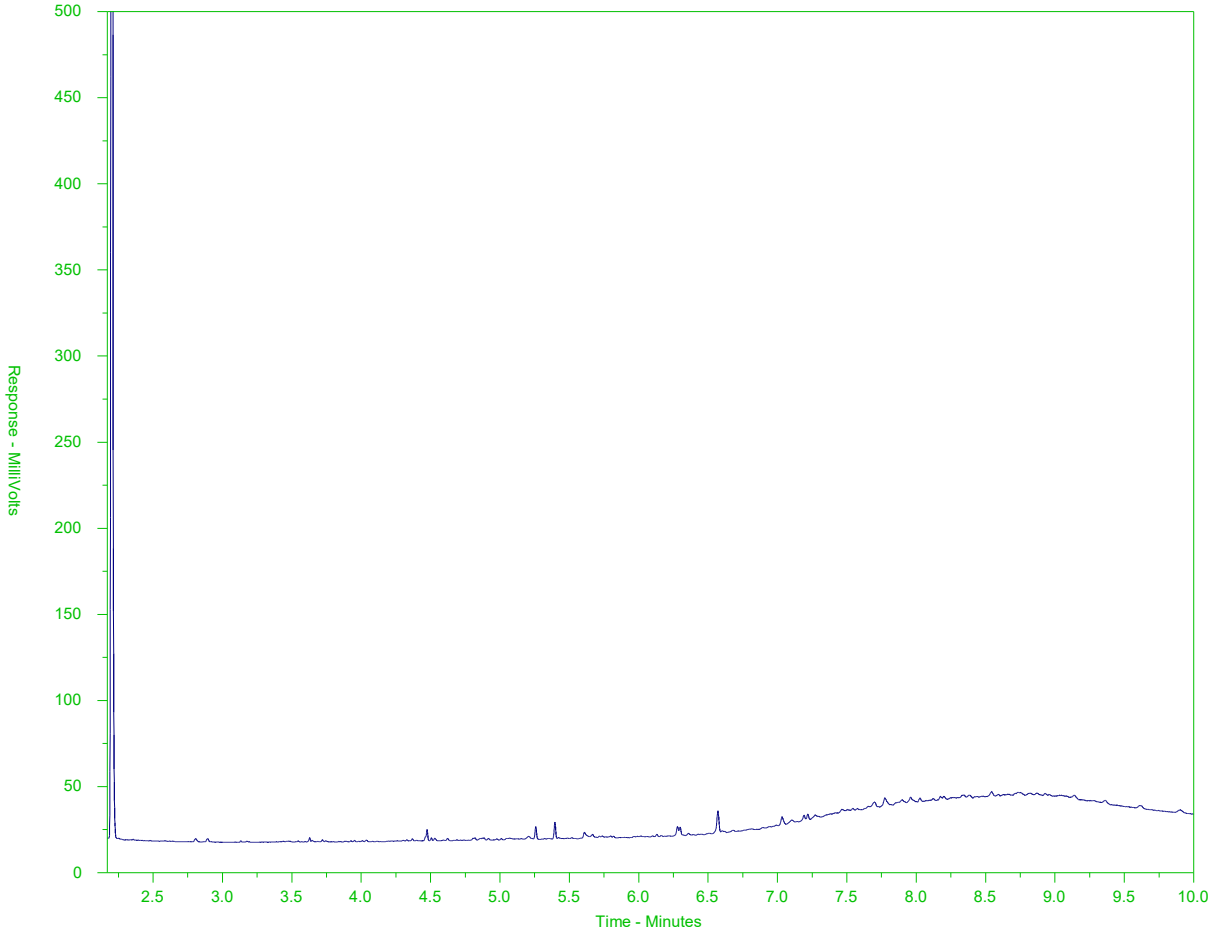
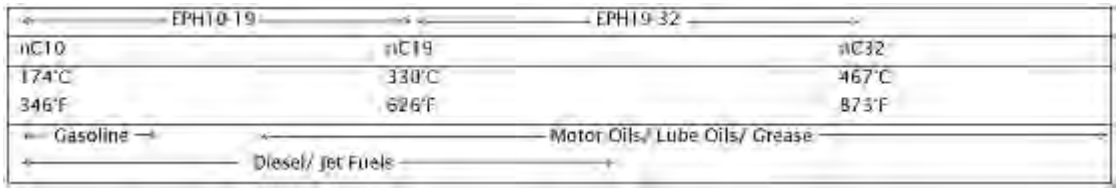
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2092410-14
Client Sample ID: BH130M-02





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

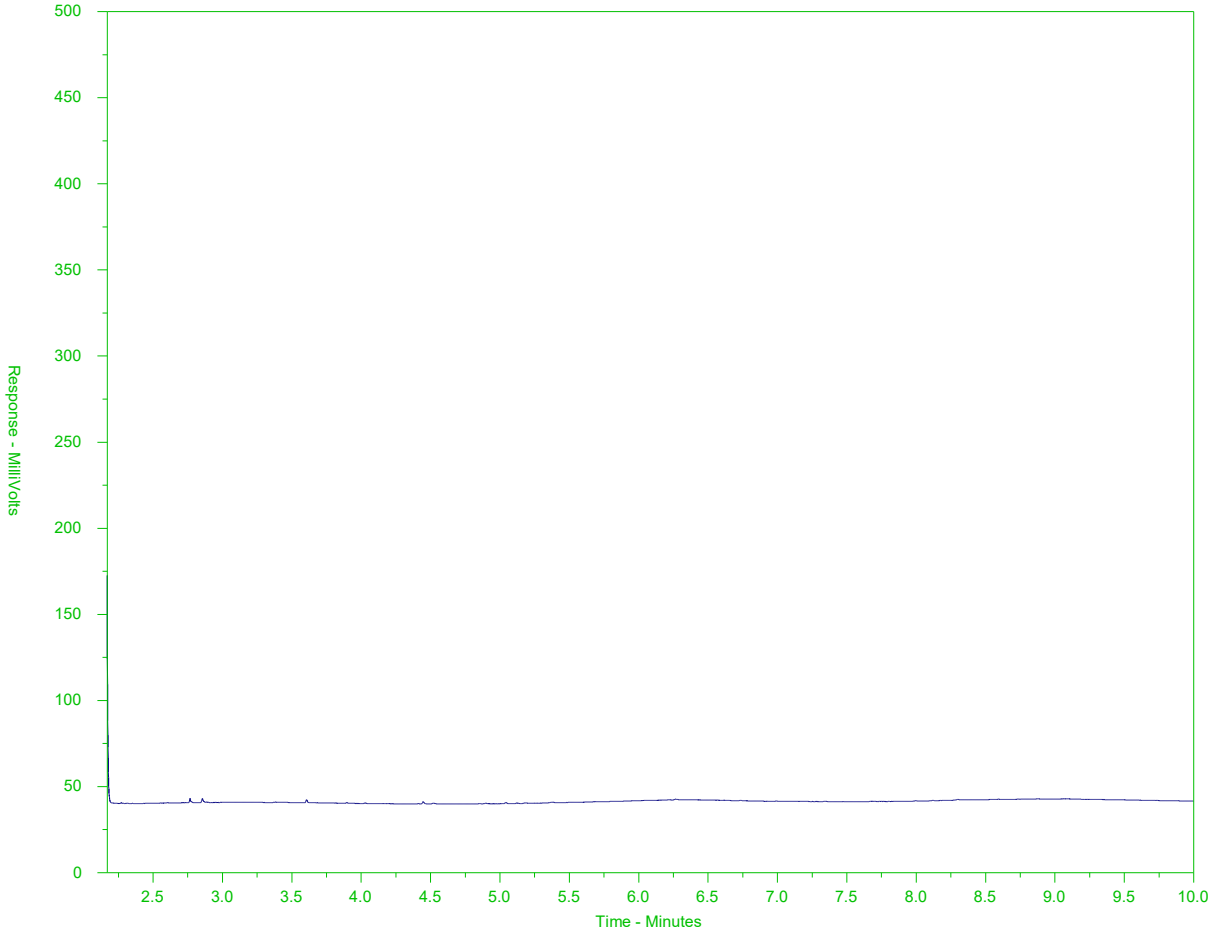
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2092410-17
Client Sample ID: BH130M-05



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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2092410-COFC

COC Number: 17 - 691770

Page 1 of 2

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL Environmental	Select Report Format: ☐ PDF ☐ EXCEL | | EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	604 682 3707	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL | | MAIL ☐ FAX	Date and Time Required for all E&P TATs:
Street:	1500-1185 W Georgia	Email 1 or Fax zmohamed@pggroup.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver, BC	Email 2 sbarr@pggroup.com	
Postal Code:		Email 3 ariviers@pggroup.com	

Invoice To		Invoice Distribution	Analysis Request
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	B355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: B. Mock

Sampler: A. Riviers

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH125M-01	9 May 18		Soil			4
	BH125M-02	"		"			4
	BH125M-03	"		"			4
	BH125M-04	"		"			4
	BH125M-05	"		"			2
	BH129M-01	"		"			2
	Z111	"		"			2
	BH129M-02	"		"			2
	BH129M-03	"		"			4
	BH129M-04	"		"			2
	BH129M-05	"		"			2
	BH129M-06	"		"			2

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? | | YES | | NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
						16	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Andrea Rivera	10 May 2018					JC	MAY 10 2018	1128hr

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2092410-COFC

COC Number: 17 - 691990

Report To	Contact and company name below will appear on the final report
Company:	PGL Environmental
Contact:	Zayed Manaouch
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	see p. 1
Postal Code:	

Report Format / Distribution

Select Report Format: ☐ PDF ☐ EXCEL | | EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL | | MAIL ☐ FAX
Email 1 or Fax
Email 2
Email 3

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax
Email 2

Project Information	
ALS Account # / Quote #:	
Job #:	5355-01.01
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH13OM-01	10 May 18		Soil			2
	BH13OM-02	↓		↓			2
	BH13OM-03						4
	BH13OM-04						3
	BH13OM-05	↓		↓			2

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO
Are samples for human consumption/ use?
| | YES | | NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
						16	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	10 May 2018					JC	MAY 10 2018	1128Am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 15-MAY-18
Report Date: 09-JUL-18 11:25 (MT)
Version: FINAL REV. 3

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2094439

Project P.O. #:	NOT SUBMITTED
Job Reference:	5355-01.01
C of C Numbers:	15-609541, 15-609542, 15-609543, 15-609544
Legal Site Desc:	

Comments: This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2094439-1 Soil 14-MAY-18 BH143-01	L2094439-2 Soil 14-MAY-18 BH143-02	L2094439-3 Soil 14-MAY-18 BH143-03	L2094439-4 Soil 14-MAY-18 BH143-04	L2094439-6 Soil 14-MAY-18 BH143-06
SOIL						
Physical Tests	Moisture (%)	8.66		8.12		
	pH (1:2 soil:water) (pH)	7.41	7.29	6.54	7.26	7.95
Saturated Paste Extractables	Chloride (Cl) (mg/kg)			2.85		
	% Saturation (%)			23.8		
	Sodium (Na) (mg/kg)			4.6		
Metals	Aluminum (Al) (mg/kg)	11400	12300	9930	9700	18900
	Antimony (Sb) (mg/kg)	1.34	13.3	0.18	0.11	0.40
	Arsenic (As) (mg/kg)	5.44	37.9	6.46	2.10	9.72
	Barium (Ba) (mg/kg)	69.1	231	40.3	37.6	62.6
	Beryllium (Be) (mg/kg)	0.16	0.18	0.13	0.10	0.39
	Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	11.2
	Cadmium (Cd) (mg/kg)	0.712	1.09	0.041	0.058	0.255
	Chromium (Cr) (mg/kg)	24.6	33.9	11.8	10.6	35.3
	Cobalt (Co) (mg/kg)	7.93	8.55	3.87	3.94	11.6
	Copper (Cu) (mg/kg)	49.4	94.3	10.7	13.2	32.5
	Iron (Fe) (mg/kg)	20400	27100	12800	12600	30500
	Lead (Pb) (mg/kg)	90.8	355	3.54	2.19	18.8
	Lithium (Li) (mg/kg)	7.7	5.7	4.6	3.7	19.0
	Manganese (Mn) (mg/kg)	345	321	187	163	367
	Mercury (Hg) (mg/kg)	0.0377	0.0164	0.0141	0.0064	0.140
	Molybdenum (Mo) (mg/kg)	1.46	2.01	0.20	0.15	1.52
	Nickel (Ni) (mg/kg)	33.9	31.8	7.25	6.83	32.4
	Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	0.52
	Silver (Ag) (mg/kg)	0.13	0.93	<0.10	<0.10	0.16
	Strontium (Sr) (mg/kg)	37.0	48.0	30.0	25.4	62.0
	Thallium (Tl) (mg/kg)	0.055	<0.050	<0.050	<0.050	0.147
	Tin (Sn) (mg/kg)	3.6	20.1	<2.0	<2.0	<2.0
	Tungsten (W) (mg/kg)	<0.50	0.86	<0.50	<0.50	<0.50
	Uranium (U) (mg/kg)	0.325	0.328	0.272	0.255	1.84
	Vanadium (V) (mg/kg)	43.1	45.2	36.2	39.1	59.0
	Zinc (Zn) (mg/kg)	155	383	24.1	22.8	75.7
Hydrocarbons	EPH10-19 (mg/kg)	<200		<200		
	EPH19-32 (mg/kg)	<200		<200		
	LEPH (mg/kg)	<200		<200		
	HEPH (mg/kg)	<200		<200		
	Surrogate: 2-Bromobenzotrifluoride (%)	86.4		83.2		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2094439-8 Soil 14-MAY-18 BH144-01	L2094439-10 Soil 14-MAY-18 BH144-03	L2094439-11 Soil 14-MAY-18 BH144-04	L2094439-12 Soil 14-MAY-18 BH144-05	L2094439-14 Soil 14-MAY-18 BH146-01
SOIL						
Physical Tests	Moisture (%)		11.0			
	pH (1:2 soil:water) (pH)	7.95	6.57	6.82	8.28	8.40
Saturated Paste Extractables	Chloride (Cl) (mg/kg)					
	% Saturation (%)					
	Sodium (Na) (mg/kg)					
Metals	Aluminum (Al) (mg/kg)	14600	12800	8300	21000	10300
	Antimony (Sb) (mg/kg)	0.63	0.11	<0.10	0.54	0.79
	Arsenic (As) (mg/kg)	4.15	1.57	1.16	5.87	2.87
	Barium (Ba) (mg/kg)	85.8	49.5	35.0	86.4	73.1
	Beryllium (Be) (mg/kg)	0.21	0.16	<0.10	0.37	0.15
	Boron (B) (mg/kg)	<5.0	<5.0	<5.0	12.0	<5.0
	Cadmium (Cd) (mg/kg)	0.231	0.034	0.028	0.392	0.222
	Chromium (Cr) (mg/kg)	29.0	10.9	9.31	30.5	20.2
	Cobalt (Co) (mg/kg)	12.4	4.63	3.76	10.1	6.30
	Copper (Cu) (mg/kg)	34.4	11.8	9.91	44.4	30.1
	Iron (Fe) (mg/kg)	25200	14300	13900	29200	18800
	Lead (Pb) (mg/kg)	24.3	2.06	1.50	50.5	39.3
	Lithium (Li) (mg/kg)	9.1	5.1	3.9	16.6	5.4
	Manganese (Mn) (mg/kg)	521	209	167	340	274
	Mercury (Hg) (mg/kg)	0.0270	0.0102	<0.0050	0.747	0.816
	Molybdenum (Mo) (mg/kg)	0.85	0.20	0.13	1.51	0.59
	Nickel (Ni) (mg/kg)	86.6	8.04	6.32	27.1	21.8
	Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	0.38	<0.20
	Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	0.28	<0.10
	Strontium (Sr) (mg/kg)	42.3	35.8	20.2	78.0	44.9
	Thallium (Tl) (mg/kg)	0.061	<0.050	<0.050	0.141	0.071
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	6.3	4.3
	Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Uranium (U) (mg/kg)	0.278	0.296	0.261	1.07	1.20
	Vanadium (V) (mg/kg)	58.2	40.8	41.7	62.3	50.2
	Zinc (Zn) (mg/kg)	71.4	23.9	21.7	119	68.0
Hydrocarbons	EPH10-19 (mg/kg)		<200			
	EPH19-32 (mg/kg)		<200			
	LEPH (mg/kg)		<200			
	HEPH (mg/kg)		<200			
	Surrogate: 2-Bromobenzotrifluoride (%)		88.5			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-15	L2094439-16	L2094439-17	L2094439-18	L2094439-20
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH146-02	Z114	BH146-03	Z115	BH146-05
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)			14.7		
pH (1:2 soil:water) (pH)	8.17	8.21	7.33	7.41	7.29
Saturated Paste Extractables Chloride (Cl) (mg/kg)					
% Saturation (%)					
Sodium (Na) (mg/kg)					
Metals Aluminum (Al) (mg/kg)	14200	14900	11900	10100	17100
Antimony (Sb) (mg/kg)	0.63	1.37	0.11	<0.10	1.88
Arsenic (As) (mg/kg)	2.93	4.09	1.94	1.68	11.1
Barium (Ba) (mg/kg)	70.8	130	46.1	39.0	255
Beryllium (Be) (mg/kg)	0.18	0.21	0.14	0.13	0.37
Boron (B) (mg/kg)	<5.0	8.5	<5.0	<5.0	23.8
Cadmium (Cd) (mg/kg)	0.113	0.420	0.037	0.034	0.246
Chromium (Cr) (mg/kg)	16.0	18.1	13.8	11.6	18.4
Cobalt (Co) (mg/kg)	6.17	7.80	4.60	4.17	8.40
Copper (Cu) (mg/kg)	21.3	53.2	12.1	11.3	77.4
Iron (Fe) (mg/kg)	19300	23800	15100	14500	31800
Lead (Pb) (mg/kg)	26.1	108	2.25	1.96	278
Lithium (Li) (mg/kg)	5.6	7.7	4.9	4.7	10.4
Manganese (Mn) (mg/kg)	273	372	193	202	435
Mercury (Hg) (mg/kg)	0.585	5.54	0.0362	0.0155	2.07
Molybdenum (Mo) (mg/kg)	0.52	0.90	0.24	0.21	1.49
Nickel (Ni) (mg/kg)	27.3	42.1	12.1	8.47	20.0
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	0.12	<0.10	<0.10	0.93
Strontium (Sr) (mg/kg)	40.8	85.8	28.4	26.2	179
Thallium (Tl) (mg/kg)	<0.050	<0.050	<0.050	<0.050	0.102
Tin (Sn) (mg/kg)	5.1	19.7	<2.0	<2.0	146
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.398	0.535	0.276	0.276	0.746
Vanadium (V) (mg/kg)	56.1	59.8	46.0	42.3	62.6
Zinc (Zn) (mg/kg)	62.5	195	24.4	23.6	199
Hydrocarbons EPH10-19 (mg/kg)			<200		
EPH19-32 (mg/kg)			<200		
LEPH (mg/kg)			<200		
HEPH (mg/kg)			<200		
Surrogate: 2-Bromobenzotrifluoride (%)			79.5		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-21	L2094439-22	L2094439-23	L2094439-25	L2094439-27
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH146-06	BH146-07	BH147-01	BH147-03	BH147-05
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)			8.24		
pH (1:2 soil:water) (pH)	8.14	8.67	7.15	7.88	8.53
Saturated Paste Extractables Chloride (Cl) (mg/kg)					
% Saturation (%)					
Sodium (Na) (mg/kg)					
Metals Aluminum (Al) (mg/kg)	20400	19200	14700	13300	11600
Antimony (Sb) (mg/kg)	1.45	0.62	0.85	0.21	0.20
Arsenic (As) (mg/kg)	15.0	11.2	5.86	2.51	2.33
Barium (Ba) (mg/kg)	162	56.5	95.4	55.9	52.4
Beryllium (Be) (mg/kg)	0.47	0.45	0.21	0.14	0.14
Boron (B) (mg/kg)	29.5	14.1	<5.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.449	0.483	0.626	0.111	0.119
Chromium (Cr) (mg/kg)	37.6	39.1	21.5	15.7	14.1
Cobalt (Co) (mg/kg)	11.6	13.6	7.65	5.40	5.84
Copper (Cu) (mg/kg)	73.6	34.7	39.0	15.9	15.7
Iron (Fe) (mg/kg)	37300	32700	20200	16500	16400
Lead (Pb) (mg/kg)	219	11.5	45.0	3.28	4.65
Lithium (Li) (mg/kg)	19.0	23.3	11.5	5.5	4.8
Manganese (Mn) (mg/kg)	441	375	371	230	244
Mercury (Hg) (mg/kg)	0.105	0.0512	0.0500	0.0156	0.0122
Molybdenum (Mo) (mg/kg)	4.41	9.33	0.63	0.24	0.23
Nickel (Ni) (mg/kg)	34.9	40.3	25.1	11.1	9.52
Selenium (Se) (mg/kg)	0.56	0.76	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	0.30	0.15	<0.10	<0.10	<0.10
Strontium (Sr) (mg/kg)	144	47.2	53.6	32.8	33.8
Thallium (Tl) (mg/kg)	0.157	0.158	0.057	<0.050	<0.050
Tin (Sn) (mg/kg)	79.4	<2.0	2.0	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	3.37	5.05	0.407	0.338	0.308
Vanadium (V) (mg/kg)	61.7	61.6	50.9	46.8	48.9
Zinc (Zn) (mg/kg)	132	78.1	87.6	63.2	44.8
Hydrocarbons EPH10-19 (mg/kg)			<200		
EPH19-32 (mg/kg)			<200		
LEPH (mg/kg)			<200		
HEPH (mg/kg)			<200		
Surrogate: 2-Bromobenzotrifluoride (%)			89.4		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-32	L2094439-33	L2094439-35	L2094439-39	L2094439-40
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH148-02	BH148-03	BH148-05	BH149-01	Z116
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)				4.96	4.75
pH (1:2 soil:water) (pH)	6.52	6.55	6.45	7.92	7.89
Saturated Paste Extractables Chloride (Cl) (mg/kg)					
% Saturation (%)					
Sodium (Na) (mg/kg)					
Metals Aluminum (Al) (mg/kg)	15400	10900	16900	10600	11100
Antimony (Sb) (mg/kg)	0.13	<0.10	0.12	0.18	0.18
Arsenic (As) (mg/kg)	2.50	1.47	2.32	1.94	2.09
Barium (Ba) (mg/kg)	62.4	44.3	70.0	43.1	44.6
Beryllium (Be) (mg/kg)	0.17	<0.10	0.17	0.11	0.13
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.073	0.028	0.050	0.047	0.051
Chromium (Cr) (mg/kg)	16.4	11.9	17.5	12.1	13.6
Cobalt (Co) (mg/kg)	5.89	4.21	5.54	5.06	5.45
Copper (Cu) (mg/kg)	18.0	11.5	12.6	13.6	14.6
Iron (Fe) (mg/kg)	18600	15300	16500	15700	16700
Lead (Pb) (mg/kg)	2.52	1.58	2.92	4.02	4.50
Lithium (Li) (mg/kg)	6.1	3.9	7.2	5.6	6.3
Manganese (Mn) (mg/kg)	248	157	224	257	286
Mercury (Hg) (mg/kg)	0.0154	0.0076	0.0215	0.0134	0.0165
Molybdenum (Mo) (mg/kg)	0.30	0.20	0.32	0.28	0.40
Nickel (Ni) (mg/kg)	12.4	7.11	11.9	7.57	8.56
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium (Sr) (mg/kg)	32.8	26.5	25.5	27.8	28.1
Thallium (Tl) (mg/kg)	0.058	<0.050	0.052	<0.050	<0.050
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.248	0.257	0.301	0.338	0.310
Vanadium (V) (mg/kg)	51.9	51.8	52.7	43.1	44.9
Zinc (Zn) (mg/kg)	32.1	20.6	40.8	27.9	29.6
Hydrocarbons EPH10-19 (mg/kg)				<200	<200
EPH19-32 (mg/kg)				<200	<200
LEPH (mg/kg)				<200	<200
HEPH (mg/kg)				<200	<200
Surrogate: 2-Bromobenzotrifluoride (%)				88.6	90.6

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2094439-41 Soil 14-MAY-18 BH149-02	L2094439-42 Soil 14-MAY-18 BH149-03	L2094439-43 Soil 14-MAY-18 BH149-04	L2094439-44 Soil 14-MAY-18 BH149-05	L2094439-45 Soil 14-MAY-18 BH149-06
SOIL						
Physical Tests	Moisture (%)					
	pH (1:2 soil:water) (pH)	7.74	7.82	5.86	5.87	6.55
Saturated Paste Extractables	Chloride (Cl) (mg/kg)					
	% Saturation (%)					
	Sodium (Na) (mg/kg)					
Metals	Aluminum (Al) (mg/kg)	11000	8760	17600	17100	18200
	Antimony (Sb) (mg/kg)	0.13	<0.10	0.19	0.18	0.49
	Arsenic (As) (mg/kg)	2.10	2.06	2.32	2.45	11.1
	Barium (Ba) (mg/kg)	46.7	33.9	79.8	76.7	99.7
	Beryllium (Be) (mg/kg)	0.11	<0.10	0.19	0.20	0.40
	Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	9.9
	Cadmium (Cd) (mg/kg)	0.042	0.034	0.064	0.048	0.490
	Chromium (Cr) (mg/kg)	13.0	9.54	19.4	19.0	35.0
	Cobalt (Co) (mg/kg)	4.55	3.70	7.75	7.97	11.8
	Copper (Cu) (mg/kg)	12.3	9.39	21.1	20.4	32.9
	Iron (Fe) (mg/kg)	16100	15000	22500	22200	30300
	Lead (Pb) (mg/kg)	2.31	1.42	3.00	3.02	14.0
	Lithium (Li) (mg/kg)	4.5	3.6	6.4	6.7	18.5
	Manganese (Mn) (mg/kg)	198	168	254	249	350
	Mercury (Hg) (mg/kg)	0.0094	<0.0050	0.0132	0.0136	0.0978
	Molybdenum (Mo) (mg/kg)	0.28	0.15	0.24	0.23	5.92
	Nickel (Ni) (mg/kg)	8.04	6.19	13.3	13.7	34.1
	Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	0.79
	Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	0.16
	Strontium (Sr) (mg/kg)	24.8	21.7	50.9	45.3	51.3
	Thallium (Tl) (mg/kg)	<0.050	<0.050	0.071	0.065	0.153
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Uranium (U) (mg/kg)	0.336	0.251	0.514	0.430	4.71
	Vanadium (V) (mg/kg)	49.2	42.7	63.7	60.0	64.3
	Zinc (Zn) (mg/kg)	24.7	20.2	39.9	39.4	70.4
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-1	L2094439-2	L2094439-3	L2094439-4	L2094439-6
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH143-01	BH143-02	BH143-03	BH143-04	BH143-06
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/kg)	<0.0050		<0.0050		
Acenaphthylene (mg/kg)	0.0231		<0.0050		
Anthracene (mg/kg)	0.0448		<0.0040		
Benz(a)anthracene (mg/kg)	0.044		<0.010		
Benzo(a)pyrene (mg/kg)	0.061		<0.010		
Benzo(b&j)fluoranthene (mg/kg)	0.136		<0.010		
Benzo(b+j+k)fluoranthene (mg/kg)	0.177		<0.015		
Benzo(g,h,i)perylene (mg/kg)	0.064		<0.010		
Benzo(k)fluoranthene (mg/kg)	0.041		<0.010		
Chrysene (mg/kg)	<0.10 DLCI		<0.010		
Dibenz(a,h)anthracene (mg/kg)	0.0130		<0.0050		
Fluoranthene (mg/kg)	0.084		<0.010		
Fluorene (mg/kg)	<0.010		<0.010		
Indeno(1,2,3-c,d)pyrene (mg/kg)	0.068		<0.010		
1-Methylnaphthalene (mg/kg)	<0.050		<0.050		
2-Methylnaphthalene (mg/kg)	0.034		<0.010		
Naphthalene (mg/kg)	0.030		<0.010		
Phenanthrene (mg/kg)	0.061		<0.010		
Pyrene (mg/kg)	0.095		<0.010		
Quinoline (mg/kg)	<0.050		<0.050		
Surrogate: Acenaphthene d10 (%)	92.6		84.8		
Surrogate: Chrysene d12 (%)	117.3		110.2		
Surrogate: Naphthalene d8 (%)	85.3		81.6		
Surrogate: Phenanthrene d10 (%)	104.1		88.1		
B(a)P Total Potency Equivalent (mg/kg)	0.105		<0.020		
IACR (CCME) (mg/kg)	1.52		<0.15		

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-8	L2094439-10	L2094439-11	L2094439-12	L2094439-14
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH144-01	BH144-03	BH144-04	BH144-05	BH146-01
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)		<0.0050			
Acenaphthylene (mg/kg)		<0.0050			
Anthracene (mg/kg)		<0.0040			
Benz(a)anthracene (mg/kg)		<0.010			
Benzo(a)pyrene (mg/kg)		<0.010			
Benzo(b&j)fluoranthene (mg/kg)		<0.010			
Benzo(b+j+k)fluoranthene (mg/kg)		<0.015			
Benzo(g,h,i)perylene (mg/kg)		<0.010			
Benzo(k)fluoranthene (mg/kg)		<0.010			
Chrysene (mg/kg)		<0.010			
Dibenz(a,h)anthracene (mg/kg)		<0.0050			
Fluoranthene (mg/kg)		<0.010			
Fluorene (mg/kg)		<0.010			
Indeno(1,2,3-c,d)pyrene (mg/kg)		<0.010			
1-Methylnaphthalene (mg/kg)		<0.050			
2-Methylnaphthalene (mg/kg)		<0.010			
Naphthalene (mg/kg)		<0.010			
Phenanthrene (mg/kg)		<0.010			
Pyrene (mg/kg)		<0.010			
Quinoline (mg/kg)		<0.050			
Surrogate: Acenaphthene d10 (%)		91.6			
Surrogate: Chrysene d12 (%)		121.2			
Surrogate: Naphthalene d8 (%)		89.4			
Surrogate: Phenanthrene d10 (%)		96.8			
B(a)P Total Potency Equivalent (mg/kg)		<0.020			
IACR (CCME) (mg/kg)		<0.15			

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-15	L2094439-16	L2094439-17	L2094439-18	L2094439-20
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH146-02	Z114	BH146-03	Z115	BH146-05
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/kg)			<0.0050		
Acenaphthylene (mg/kg)			<0.0050		
Anthracene (mg/kg)			<0.0040		
Benz(a)anthracene (mg/kg)			<0.010		
Benzo(a)pyrene (mg/kg)			<0.010		
Benzo(b&j)fluoranthene (mg/kg)			<0.010		
Benzo(b+j+k)fluoranthene (mg/kg)			<0.015		
Benzo(g,h,i)perylene (mg/kg)			<0.010		
Benzo(k)fluoranthene (mg/kg)			<0.010		
Chrysene (mg/kg)			<0.010		
Dibenz(a,h)anthracene (mg/kg)			<0.0050		
Fluoranthene (mg/kg)			<0.010		
Fluorene (mg/kg)			<0.010		
Indeno(1,2,3-c,d)pyrene (mg/kg)			<0.010		
1-Methylnaphthalene (mg/kg)			<0.050		
2-Methylnaphthalene (mg/kg)			<0.010		
Naphthalene (mg/kg)			<0.010		
Phenanthrene (mg/kg)			<0.010		
Pyrene (mg/kg)			<0.010		
Quinoline (mg/kg)			<0.050		
Surrogate: Acenaphthene d10 (%)			81.7		
Surrogate: Chrysene d12 (%)			79.2		
Surrogate: Naphthalene d8 (%)			77.2		
Surrogate: Phenanthrene d10 (%)			80.5		
B(a)P Total Potency Equivalent (mg/kg)			<0.020		
IACR (CCME) (mg/kg)			<0.15		

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-21	L2094439-22	L2094439-23	L2094439-25	L2094439-27
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH146-06	BH146-07	BH147-01	BH147-03	BH147-05
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)			0.0050 DLCI		
Acenaphthylene (mg/kg)			0.0274		
Anthracene (mg/kg)			0.0415		
Benz(a)anthracene (mg/kg)			0.062		
Benzo(a)pyrene (mg/kg)			0.072		
Benzo(b&j)fluoranthene (mg/kg)			0.124		
Benzo(b+j+k)fluoranthene (mg/kg)			0.167		
Benzo(g,h,i)perylene (mg/kg)			0.066		
Benzo(k)fluoranthene (mg/kg)			0.043		
Chrysene (mg/kg)			<0.20 DLCI		
Dibenz(a,h)anthracene (mg/kg)			0.0142 DLCI		
Fluoranthene (mg/kg)			0.129		
Fluorene (mg/kg)			<0.010 DLCI		
Indeno(1,2,3-c,d)pyrene (mg/kg)			0.062		
1-Methylnaphthalene (mg/kg)			0.054 DLCI		
2-Methylnaphthalene (mg/kg)			0.076		
Naphthalene (mg/kg)			0.061		
Phenanthrene (mg/kg)			0.100		
Pyrene (mg/kg)			0.143		
Quinoline (mg/kg)			<0.050		
Surrogate: Acenaphthene d10 (%)			77.4		
Surrogate: Chrysene d12 (%)			92.3		
Surrogate: Naphthalene d8 (%)			66.5		
Surrogate: Phenanthrene d10 (%)			77.8		
B(a)P Total Potency Equivalent (mg/kg)			0.117		
IACR (CCME) (mg/kg)			1.57		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-32	L2094439-33	L2094439-35	L2094439-39	L2094439-40
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH148-02	BH148-03	BH148-05	BH149-01	Z116
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/kg)				<0.0050	<0.0050
Acenaphthylene (mg/kg)				<0.0050	<0.0050
Anthracene (mg/kg)				<0.0040	<0.0040
Benz(a)anthracene (mg/kg)				<0.010	<0.010
Benzo(a)pyrene (mg/kg)				<0.010	<0.010
Benzo(b&j)fluoranthene (mg/kg)				<0.010	0.010
Benzo(b+j+k)fluoranthene (mg/kg)				<0.015	<0.015
Benzo(g,h,i)perylene (mg/kg)				<0.010	<0.010
Benzo(k)fluoranthene (mg/kg)				<0.010	<0.010
Chrysene (mg/kg)				<0.010	<0.010
Dibenz(a,h)anthracene (mg/kg)				<0.0050	<0.0050
Fluoranthene (mg/kg)				<0.010	0.011
Fluorene (mg/kg)				<0.010	<0.010
Indeno(1,2,3-c,d)pyrene (mg/kg)				<0.010	<0.010
1-Methylnaphthalene (mg/kg)				<0.050	<0.050
2-Methylnaphthalene (mg/kg)				<0.010	<0.010
Naphthalene (mg/kg)				<0.010	<0.010
Phenanthrene (mg/kg)				<0.010	<0.010
Pyrene (mg/kg)				<0.010	0.011
Quinoline (mg/kg)				<0.050	<0.050
Surrogate: Acenaphthene d10 (%)				84.9	81.3
Surrogate: Chrysene d12 (%)				117.4	118.7
Surrogate: Naphthalene d8 (%)				82.7	79.4
Surrogate: Phenanthrene d10 (%)				90.1	93.3
B(a)P Total Potency Equivalent (mg/kg)				<0.020	<0.020
IACR (CCME) (mg/kg)				<0.15	<0.15

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094439-41	L2094439-42	L2094439-43	L2094439-44	L2094439-45
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18	14-MAY-18
Sampled Time					
Client ID	BH149-02	BH149-03	BH149-04	BH149-05	BH149-06
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/kg)					
Acenaphthylene (mg/kg)					
Anthracene (mg/kg)					
Benz(a)anthracene (mg/kg)					
Benzo(a)pyrene (mg/kg)					
Benzo(b&j)fluoranthene (mg/kg)					
Benzo(b+j+k)fluoranthene (mg/kg)					
Benzo(g,h,i)perylene (mg/kg)					
Benzo(k)fluoranthene (mg/kg)					
Chrysene (mg/kg)					
Dibenz(a,h)anthracene (mg/kg)					
Fluoranthene (mg/kg)					
Fluorene (mg/kg)					
Indeno(1,2,3-c,d)pyrene (mg/kg)					
1-Methylnaphthalene (mg/kg)					
2-Methylnaphthalene (mg/kg)					
Naphthalene (mg/kg)					
Phenanthrene (mg/kg)					
Pyrene (mg/kg)					
Quinoline (mg/kg)					
Surrogate: Acenaphthene d10 (%)					
Surrogate: Chrysene d12 (%)					
Surrogate: Naphthalene d8 (%)					
Surrogate: Phenanthrene d10 (%)					
B(a)P Total Potency Equivalent (mg/kg)					
IACR (CCME) (mg/kg)					

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Chromium (Cr)	DUP-H	L2094439-1, -10, -23, -3, -39, -40
Duplicate	Uranium (U)	DUP-H	L2094439-2, -22

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CL-PASTE-IC-VA	Soil	Chloride in Soil (Paste) by IC	Carter-CSSS / EPA 300.1 (modified)

A soil extract produced by the saturated paste extraction procedure is analyzed for chloride by Ion Chromatography with conductivity detection.

EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHs = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

MET-PASTE-ICP-VA	Soil	Metals in Soil (Paste) by ICPOES	Carter-CSSS / EPA 6010B (modified)

A soil extract produced by the saturated paste extraction procedure is analyzed for Sodium, Calcium, and Magnesium by ICPOES as per "Soil Sampling and Methods of Analysis" by M. Carter.

MOISTURE-VA	Soil	Moisture content	CWS for PHC in Soil - Tier 1

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA	Soil	PAH - Rotary Extraction (Hexane/Acetone)	EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3570 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

SAT-PCNT-VA	Soil	Saturation Percentage	Carter-CSSS

Saturation Percentage (SP) is the total volume of water present in a saturated paste (in mL) divided by the dry weight of the sample (in grams), expressed as a percentage, as described in "Soil Sampling and Methods of Analysis" by M. Carter.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Reference Information

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

15-609541 15-609542 15-609543 15-609544

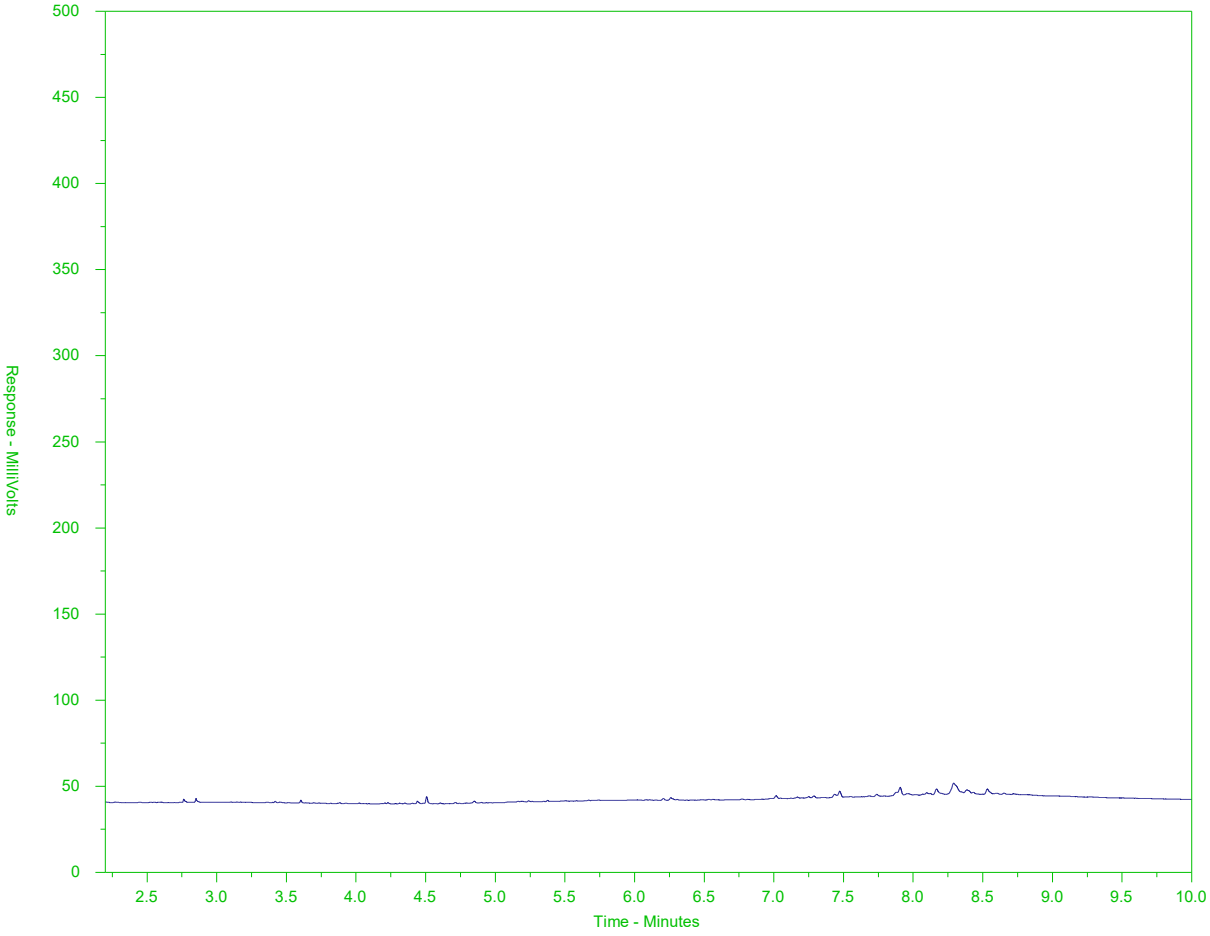
GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094439-1
Client Sample ID: BH143-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

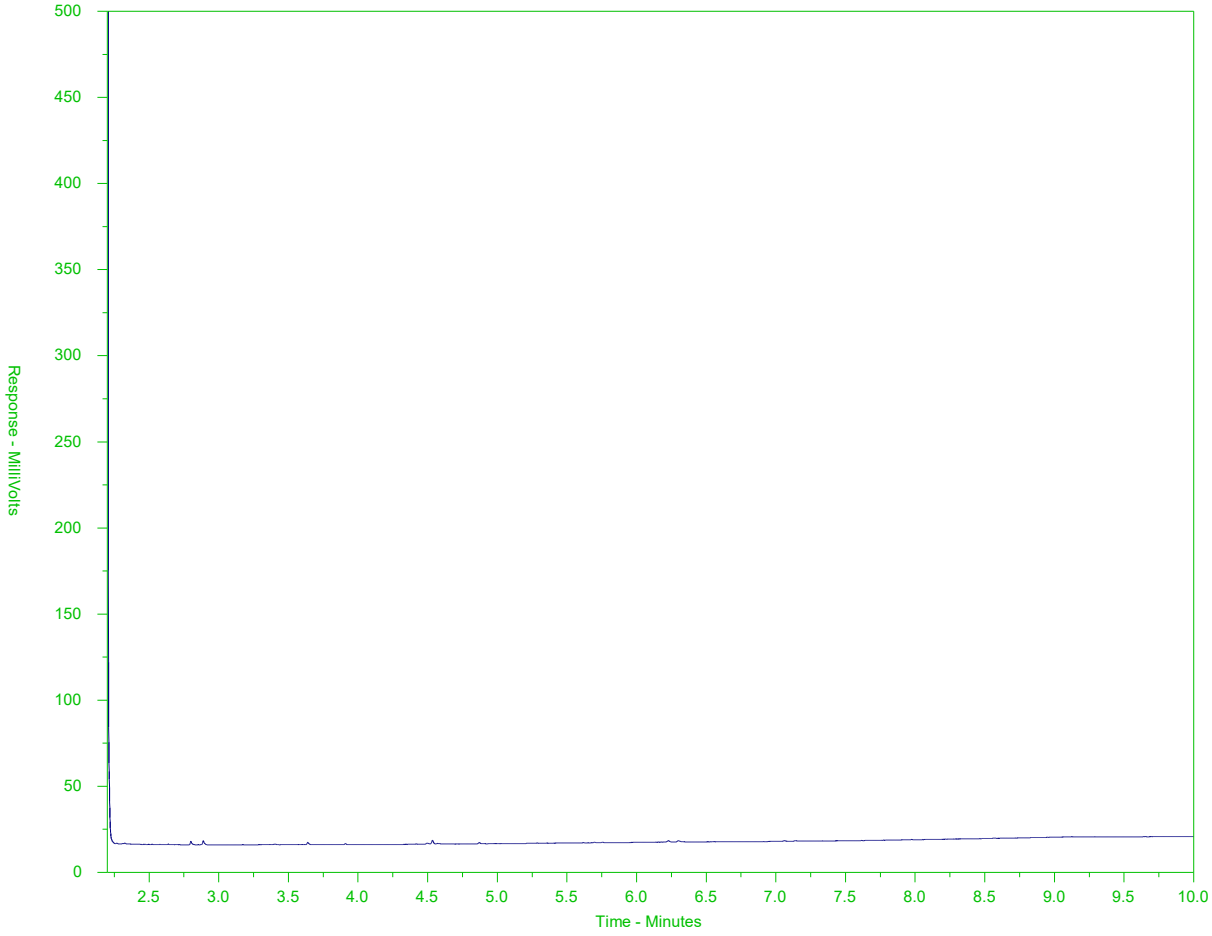
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094439-3
Client Sample ID: BH143-03



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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

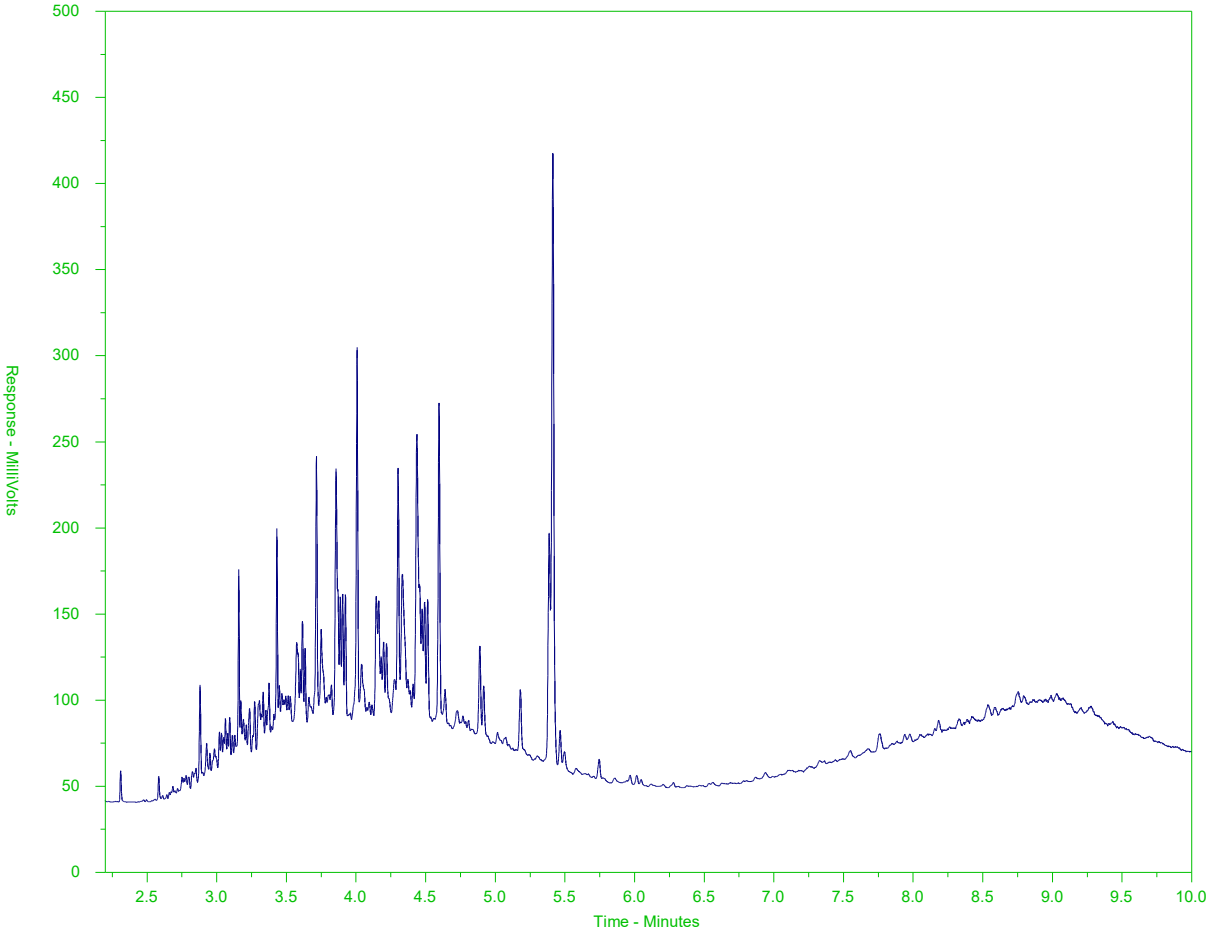
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG2778051-4#L2094439-3
Client Sample ID: BH143-03



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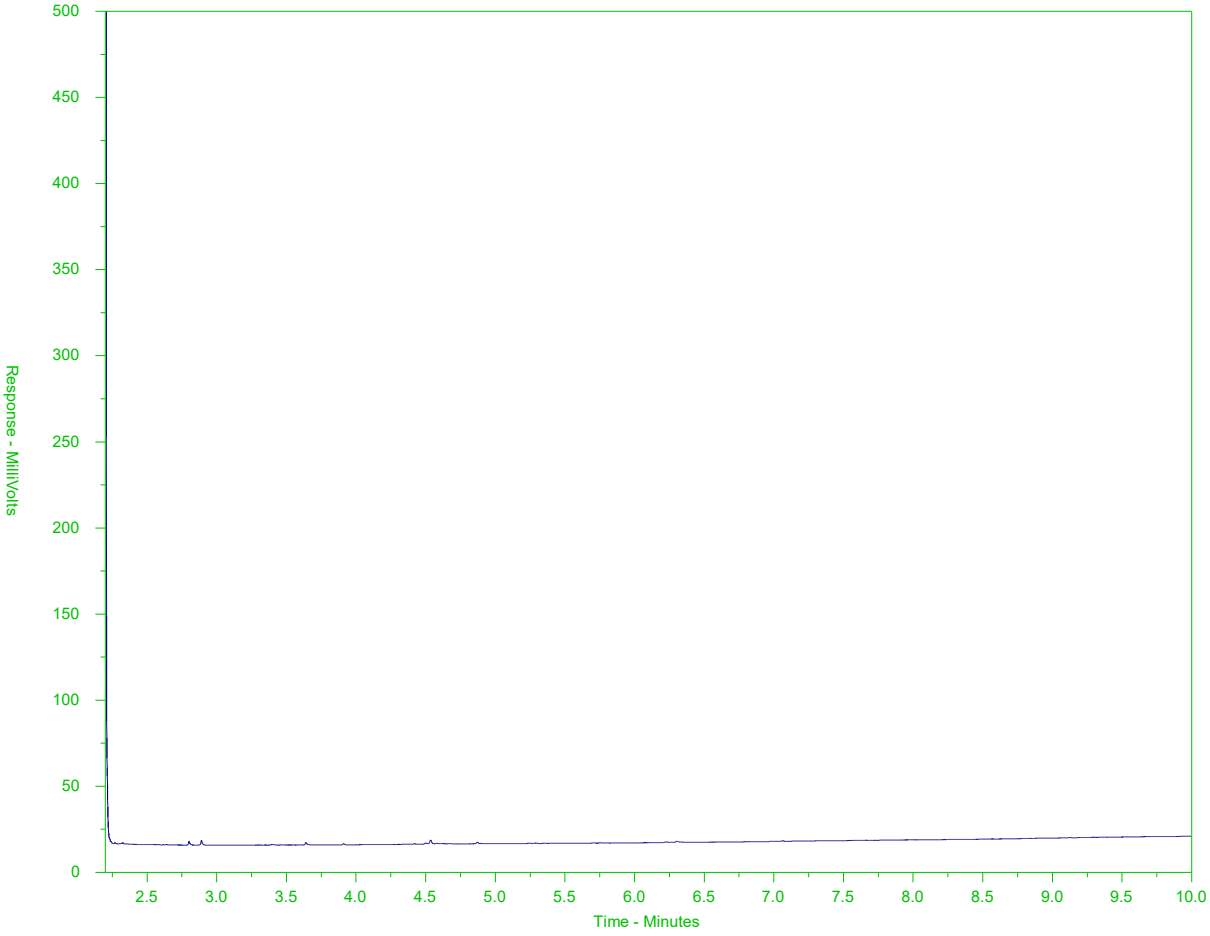
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094439-10
Client Sample ID: BH144-03



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

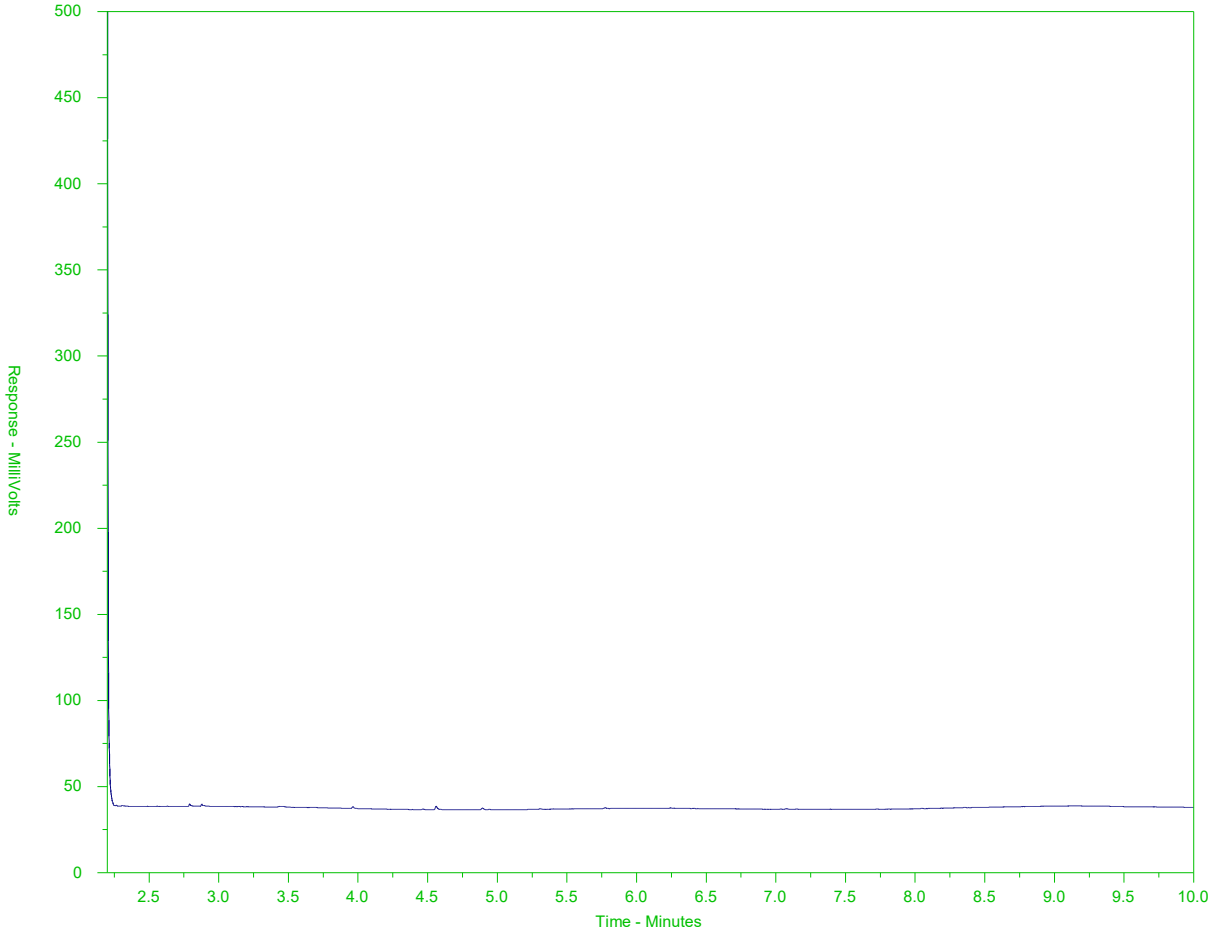
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

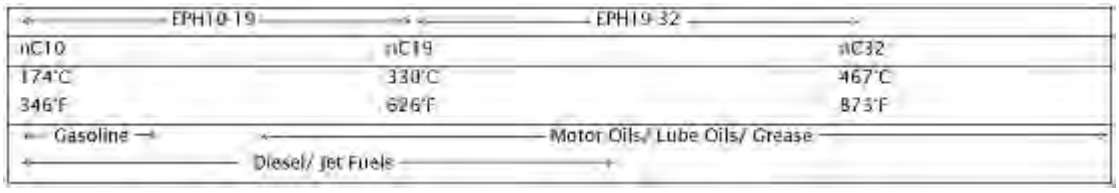
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094439-17
Client Sample ID: BH146-03





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

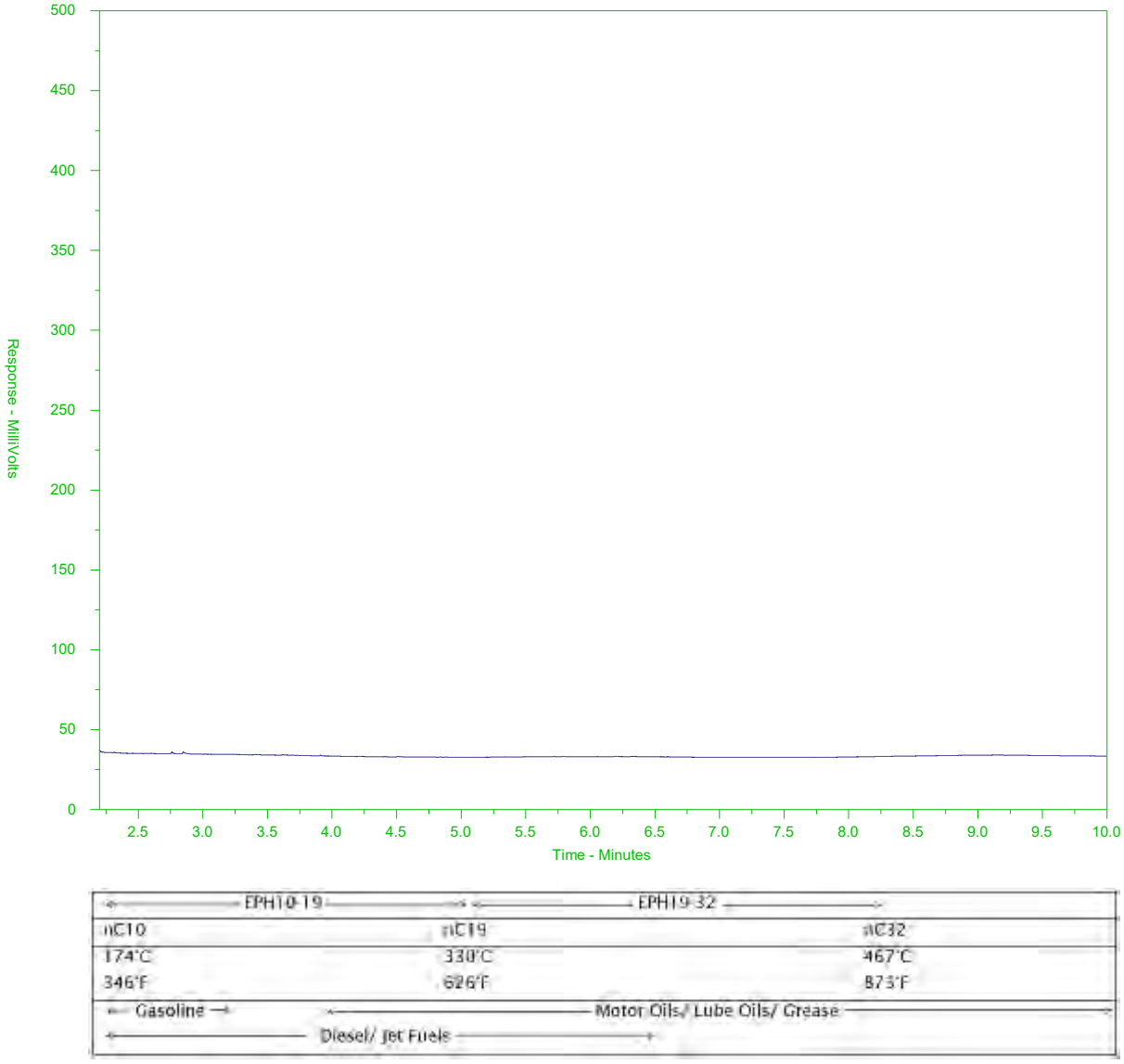
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG2812217-3#L2094439-17
Client Sample ID: BH146-03



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

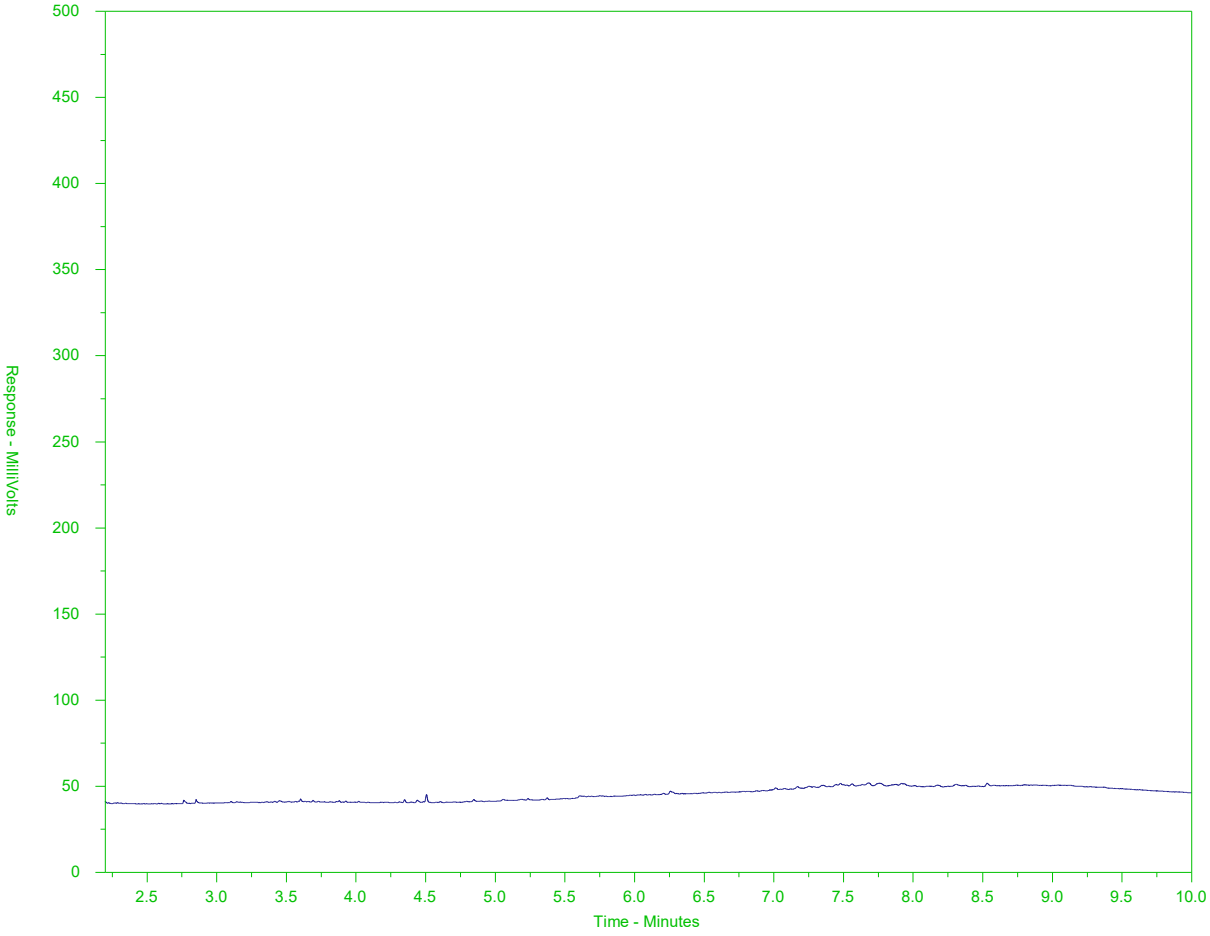
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094439-23
Client Sample ID: BH147-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

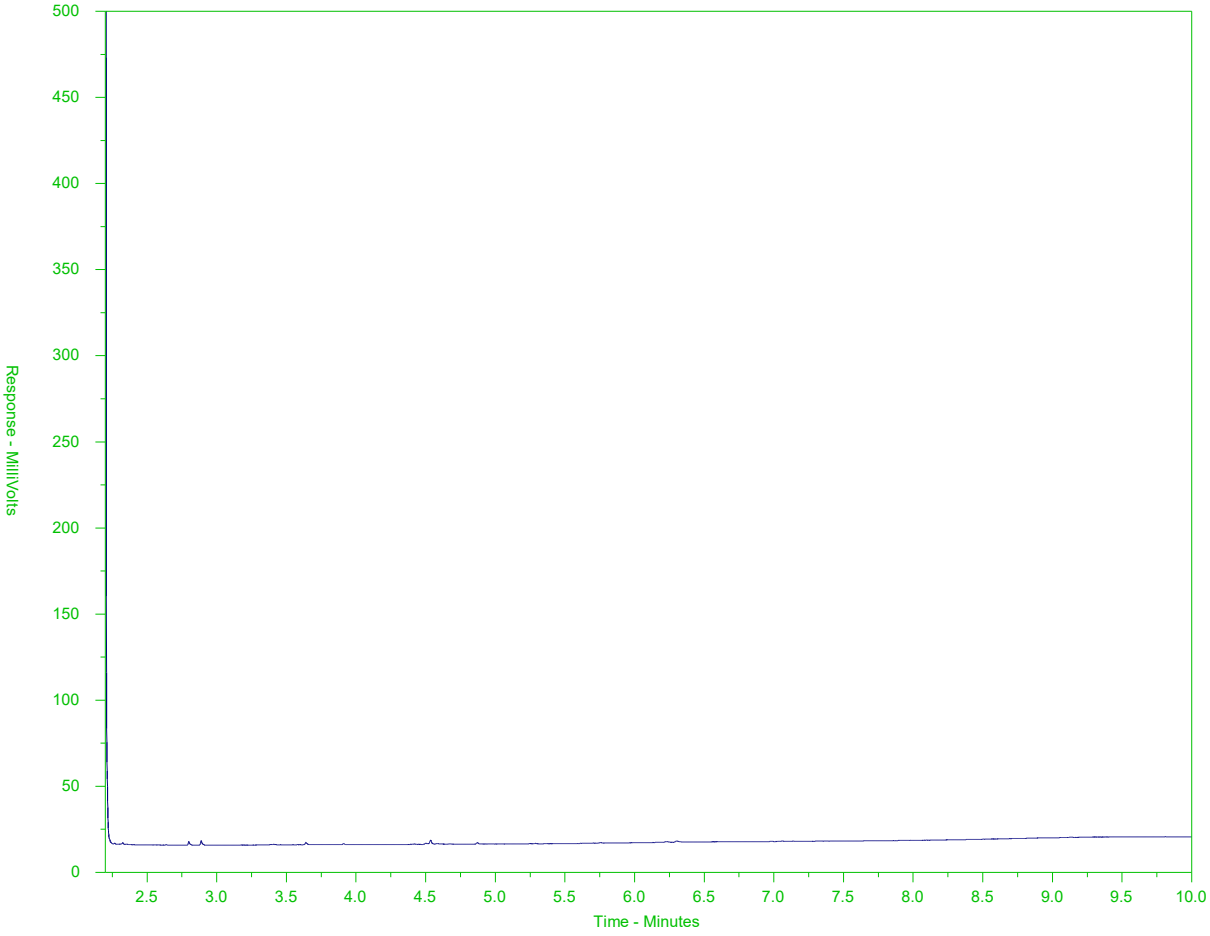
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094439-39
Client Sample ID: BH149-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

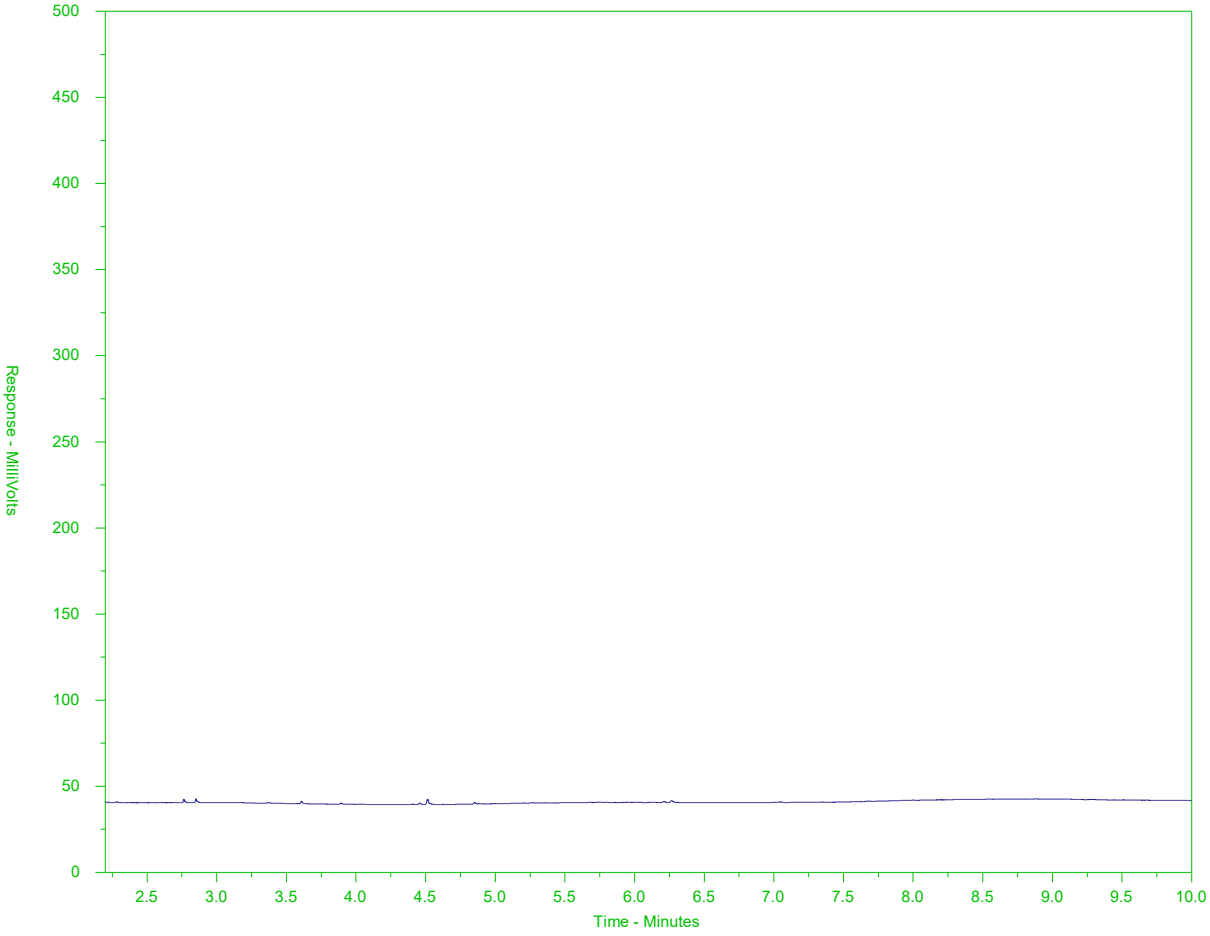
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094439-40
Client Sample ID: Z116



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2094439-COFC

COC Number: 15 - 609541

Report To	Contact and company name below will appear on the final report
Company:	PGL Environmental
Contact:	Zayed Mohamed
Phone:	604 682 3707
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	

Report Format / Distribution

Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax
Email 2
Email 3

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4] ☐ | 3 day [P3] ☐ | 2 day [P2] ☐
EMERGENCY: 1 Business day [E1] ☐ | Same Day, Weekend or Statutory holiday [E0] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax
Email 2

Project Information

ALS Account # / Quote #: Q66350
Job #: 5355-01-01
PO / AFE:
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#
Major/Minor Code: | Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):

ALS Contact: B. Mock | Sampler: A. Rivers

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	BH143-01	14 May 18		Soil	5
	BH143-02				3
	BH143-03				5
	BH143-04				5
	BH143-05				3
	BH143-06				3
	BH143-07				3
	BH144-01				3
	BH144-02				3
	BH144-03				5
	BH144-04				5
	BH144-05				3

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human drinking water use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐
Ice Packs ☑ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			14	16	17

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	15 May 2018	100				JC	5/15/18	10 am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC** form.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2094439-COFC

COC Number: 15 - 609542

Report To	Contact and company name below will appear on the final report
Company:	PbL Environmental
Contact:	Zayed Mohamed
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	

Report Format / Distribution	
Select Report Format:	☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	
Email 3	

Invoice To		
	Same as Report To	☐ YES ☐ NO
	Copy of Invoice with Report	☐ YES ☐ NO
Company:		
Contact:		

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	
Job #:	5355-01.01
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: B. Mack

Sampler: A. Rivera

Select Service Level: ☐ E&P TATs with your AM - surcharges will apply

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4] ☐ | 3 day [P3] ☐ | 2 day [P2] ☐

EMERGENCY: 1 Business day [E1] ☐ | Same Day, Weekend or Statutory holiday [E0] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	BH144-06	14 May 18		Soil	3
	BH145-01				3
	BH196-02				3
	~~BH196-03~~ Z114				3
	BH196-03				5
	Z115				5
	BH196-04				3
	BH196-05				3
	BH196-06				3
	BH196-07				3
	BH147-01				3
	BH147-02				3

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human drinking water use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice Packs	☑	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			14	16	17

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:
Andrea R	15 May 2018	100

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:
JC	5/15/18	10

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ALS Environmental
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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2094439-COFC

COC Number: 15 - 609543

Page 3 of 4

Report To	Contact and company name below will appear on the final report
Company:	P&L Environmental
Contact:	Zayed Morsal
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	

Report Format / Distribution	
Select Report Format:	☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	
Email 3	

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4] ☐		1 Business day [E1] ☐
	3 day [P3] ☐		Same Day, Weekend or Statutory holiday [E0] ☐
	2 day [P2] ☐		

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To		
	Same as Report To	☐ YES ☐ NO
	Copy of Invoice with Report	☐ YES ☐ NO
Company:		
Contact:		

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	
Job #:	5355-01.01
PO / AFE:	
LSD:	
ALS Lab Work Order # (lab use only)	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	BH147-03				5
	BH147-04				5
	BH147-05				3
	BH147-06				3
	BH147-07				3
	BH147-08				3
	BH148-01				2
	BH148-02				4 2
	BH148-03				2 4
	BH148-04				2
	BH148-05				2
	BH148-06				2

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO

Are samples for human drinking water use?
☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice Packs	☑	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			14	16	17

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:
	15 May 2018	10:00

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:
JC	5/15/18	10Am

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ALS Environmental
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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2094439-COFC

COC Number: 15 - 609544

Page 4 of 4

Report To	Contact and company name below will appear on the final report
Company:	PGL Environmental
Contact:	Zayed Mohamed
Phone:	
Company address below will appear on the final report	
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax
Email 2

Project Information

ALS Account # / Quote #:
Job #:
PO / AFE:
LSD:
ALS Lab Work Order # (lab use only):

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:
ALS Contact: Sampler:

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4] ☐ | 3 day [P3] ☐ | 2 day [P2] ☐

EMERGENCY: 1 Business day [E1] ☐ | Same Day, Weekend or Statutory holiday [E0] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	BH148-07	15 May 18		Soil	3
	BH148-08				3
	BH149-01				3
	~~BH149-02~~ Z116				2
	~~BH149-03~~ BH149-02				3
	~~BH149-04~~ BH149-03				5
	~~BH149-05~~ BH149-04				5
	~~BH149-06~~ BH149-05				3
	BH149-06				3

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO
Are samples for human drinking water use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			14	16	17

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	15 May 2018					JC	5/15/18	10AM

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Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 15-MAY-18
Report Date: 03-JUL-18 18:02 (MT)
Version: FINAL REV. 3

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2094442

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 15-609540, 15-609550, 15-609552
Legal Site Desc:

Comments: ADDITIONAL 28-JUN-18 12:39
22-JUN-2018 This report replaces the previous version and contains additional analyses, as requested.
3-JUL-2018 This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-2	L2094442-4	L2094442-6	L2094442-7	L2094442-8
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH131M-02	BH131M-04	BH131M-06	BH132-01	BH132-02
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	6.82			6.41	9.45
pH (1:2 soil:water) (pH)	8.76	7.73	6.74		7.62
Saturated Paste Extractables Chloride (Cl) (mg/kg)					1.79
% Saturation (%)					30.2
Sodium (Na) (mg/kg)					3.9
Metals Aluminum (Al) (mg/kg)	9160	11200	14100		17500
Antimony (Sb) (mg/kg)	2.39	0.23	0.22		0.26
Arsenic (As) (mg/kg)	2.48	1.83	5.30		3.11
Barium (Ba) (mg/kg)	80.9	42.8	35.7		93.5
Beryllium (Be) (mg/kg)	0.16	0.15	0.21		0.26
Boron (B) (mg/kg)	<5.0	<5.0	7.2		<5.0
Cadmium (Cd) (mg/kg)	0.139	0.051	0.123		0.114
Chromium (Cr) (mg/kg)	11.3	12.3	21.2		22.2
Cobalt (Co) (mg/kg)	4.90	4.85	6.76		7.82
Copper (Cu) (mg/kg)	23.7	14.0	17.9		24.6
Iron (Fe) (mg/kg)	13900	14900	22300		21400
Lead (Pb) (mg/kg)	57.2	3.28	8.20		12.4
Lithium (Li) (mg/kg)	5.0	5.2	18.9		8.7
Manganese (Mn) (mg/kg)	281	197	225		321
Mercury (Hg) (mg/kg)	0.0242	0.0100	0.0297		0.0235
Molybdenum (Mo) (mg/kg)	0.37	0.18	1.61		1.19
Nickel (Ni) (mg/kg)	8.10	9.15	17.8		16.4
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20		<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10		<0.10
Strontium (Sr) (mg/kg)	52.6	29.0	31.4		36.2
Thallium (Tl) (mg/kg)	<0.050	<0.050	0.074		0.083
Tin (Sn) (mg/kg)	<2.0	<2.0	2.1		<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50		<0.50
Uranium (U) (mg/kg)	0.374	0.281	0.994		0.332
Vanadium (V) (mg/kg)	40.9	40.8	47.5		57.2
Zinc (Zn) (mg/kg)	72.0	26.3	44.8		49.6
TCLP Metals 1st Preliminary pH (pH)					
2nd Preliminary pH (pH)					
Final pH (pH)					
Extraction Solution Initial pH (pH)					
Antimony (Sb)-Leachable (mg/L)					
Arsenic (As)-Leachable (mg/L)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L2094442-12 Soil 10-MAY-18 BH132-06	L2094442-13 Soil 10-MAY-18 BH133-01	L2094442-14 Soil 10-MAY-18 BH133-02	L2094442-15 Soil 10-MAY-18 BH134M-01	L2094442-16 Soil 10-MAY-18 BH134M-02
SOIL							
Physical Tests	Moisture (%)			13.8	7.04	9.93	7.96
	pH (1:2 soil:water) (pH)		7.10		7.47		7.47
Saturated Paste Extractables	Chloride (Cl) (mg/kg)		1.91				
	% Saturation (%)		23.8				
	Sodium (Na) (mg/kg)		4.8				
Metals	Aluminum (Al) (mg/kg)		9310		12800		12600
	Antimony (Sb) (mg/kg)		0.12		0.33		0.34
	Arsenic (As) (mg/kg)		1.87		2.62		2.47
	Barium (Ba) (mg/kg)		34.8		74.6		63.6
	Beryllium (Be) (mg/kg)		0.12		0.19		0.18
	Boron (B) (mg/kg)		<5.0		<5.0		<5.0
	Cadmium (Cd) (mg/kg)		0.039		0.095		0.100
	Chromium (Cr) (mg/kg)		10.0		20.3		16.8
	Cobalt (Co) (mg/kg)		4.49		6.55		6.16
	Copper (Cu) (mg/kg)		10.8		23.2		23.8
	Iron (Fe) (mg/kg)		12500		19100		17000
	Lead (Pb) (mg/kg)		2.36		22.8		31.9
	Lithium (Li) (mg/kg)		4.4		7.1		6.6
	Manganese (Mn) (mg/kg)		185		324		288
	Mercury (Hg) (mg/kg)		0.0111		0.0203		0.0219
	Molybdenum (Mo) (mg/kg)		0.20		0.52		0.39
	Nickel (Ni) (mg/kg)		7.09		12.9		12.4
	Selenium (Se) (mg/kg)		<0.20		<0.20		<0.20
	Silver (Ag) (mg/kg)		<0.10		<0.10		<0.10
	Strontium (Sr) (mg/kg)		25.6		36.9		30.5
	Thallium (Tl) (mg/kg)		<0.050		0.058		<0.050
	Tin (Sn) (mg/kg)		<2.0		<2.0		<2.0
	Tungsten (W) (mg/kg)		<0.50		<0.50		<0.50
	Uranium (U) (mg/kg)		0.321		0.338		0.338
	Vanadium (V) (mg/kg)		36.0		51.0		45.3
	Zinc (Zn) (mg/kg)		22.6		47.7		42.6
TCLP Metals	1st Preliminary pH (pH)						
	2nd Preliminary pH (pH)						
	Final pH (pH)						
	Extraction Solution Initial pH (pH)						
	Antimony (Sb)-Leachable (mg/L)						
	Arsenic (As)-Leachable (mg/L)						

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-18	L2094442-21	L2094442-22	L2094442-23	L2094442-24
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH134M-04	BH135-01	Z112	BH135-02	BH135-03
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	10.7	10.3	11.0	9.11	
pH (1:2 soil:water) (pH)	7.40	7.46		8.19	6.17
Saturated Paste Extractables Chloride (Cl) (mg/kg)					3.54
% Saturation (%)					23.6
Sodium (Na) (mg/kg)					2.8
Metals Aluminum (Al) (mg/kg)	11900	12700		14500	11600
Antimony (Sb) (mg/kg)	0.20	3.20		10.8	0.24
Arsenic (As) (mg/kg)	1.89	5.05		5.92	2.46
Barium (Ba) (mg/kg)	56.8	126		225	63.9
Beryllium (Be) (mg/kg)	0.17	0.19		0.23	0.18
Boron (B) (mg/kg)	<5.0	<5.0		6.6	<5.0
Cadmium (Cd) (mg/kg)	0.069	0.459		0.637	0.054
Chromium (Cr) (mg/kg)	13.1	31.5		45.7	13.9
Cobalt (Co) (mg/kg)	5.64	9.10		8.46	5.79
Copper (Cu) (mg/kg)	21.6	70.9		154	15.0
Iron (Fe) (mg/kg)	15900	25100		27700	17300
Lead (Pb) (mg/kg)	17.4	188		389	10.4
Lithium (Li) (mg/kg)	5.5	7.9		8.2	5.2
Manganese (Mn) (mg/kg)	257	365		383	241
Mercury (Hg) (mg/kg)	0.0111	0.0601		0.0853	0.0234
Molybdenum (Mo) (mg/kg)	0.24	1.39		1.47	0.28
Nickel (Ni) (mg/kg)	9.24	27.6		22.0	9.90
Selenium (Se) (mg/kg)	<0.20	<0.20		<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10		0.16	<0.10
Strontium (Sr) (mg/kg)	29.0	35.5		70.5	31.7
Thallium (Tl) (mg/kg)	<0.050	0.050		0.068	0.058
Tin (Sn) (mg/kg)	<2.0	26.8		21.9	<2.0
Tungsten (W) (mg/kg)	<0.50	2.98		<0.50	<0.50
Uranium (U) (mg/kg)	0.286	0.363		0.481	0.314
Vanadium (V) (mg/kg)	41.8	50.8		54.9	43.1
Zinc (Zn) (mg/kg)	45.9	304		869	37.3
TCLP Metals 1st Preliminary pH (pH)		7.78	7.89	9.08	
2nd Preliminary pH (pH)		1.57	1.56	1.62	
Final pH (pH)		4.95	5.07	4.98	
Extraction Solution Initial pH (pH)		4.93	4.93	4.93	
Antimony (Sb)-Leachable (mg/L)		<1.0	<1.0	<1.0	
Arsenic (As)-Leachable (mg/L)		<1.0	<1.0	<1.0	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-26	L2094442-27	L2094442-28	L2094442-29	L2094442-30
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH135-05	BH135-06	BH135-07	BH136-01	BH136-02
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)				10.1	11.5
pH (1:2 soil:water) (pH)	7.84	7.80	8.62	8.04	7.94
Saturated Paste Extractables Chloride (Cl) (mg/kg)			76.0		
% Saturation (%)			37.1		
Sodium (Na) (mg/kg)			73.9		
Metals Aluminum (Al) (mg/kg)	15800	12900	23500	15300	19800
Antimony (Sb) (mg/kg)	0.96	0.63	0.43	0.92	0.26
Arsenic (As) (mg/kg)	4.65	2.99	5.31	5.45	4.70
Barium (Ba) (mg/kg)	219	148	65.1	159	92.7
Beryllium (Be) (mg/kg)	0.22	0.16	0.39	0.22	0.28
Boron (B) (mg/kg)	30.7	13.3	5.8	13.7	<5.0
Cadmium (Cd) (mg/kg)	0.140	0.072	0.075	0.296	0.108
Chromium (Cr) (mg/kg)	18.4	18.5	35.9	31.1	24.9
Cobalt (Co) (mg/kg)	6.60	6.35	12.9	8.12	9.80
Copper (Cu) (mg/kg)	32.1	23.9	26.9	63.4	35.3
Iron (Fe) (mg/kg)	20400	19200	25300	26300	24600
Lead (Pb) (mg/kg)	214	70.9	5.33	69.1	6.24
Lithium (Li) (mg/kg)	7.1	8.2	14.2	8.7	8.8
Manganese (Mn) (mg/kg)	322	283	275	400	298
Mercury (Hg) (mg/kg)	0.344	0.0999	0.0253	0.113	0.0489
Molybdenum (Mo) (mg/kg)	0.92	0.56	1.41	1.88	0.52
Nickel (Ni) (mg/kg)	12.6	12.3	21.9	25.6	20.0
Selenium (Se) (mg/kg)	0.31	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	0.20	0.12	0.12	<0.10	<0.10
Strontium (Sr) (mg/kg)	137	89.6	47.1	140	62.1
Thallium (Tl) (mg/kg)	0.053	<0.050	0.083	0.052	0.072
Tin (Sn) (mg/kg)	11.0	8.1	<2.0	4.3	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.422	0.374	1.55	0.403	0.366
Vanadium (V) (mg/kg)	50.6	52.9	90.0	55.2	62.5
Zinc (Zn) (mg/kg)	110	55.8	41.8	100	67.3
TCLP Metals 1st Preliminary pH (pH)					
2nd Preliminary pH (pH)					
Final pH (pH)					
Extraction Solution Initial pH (pH)					
Antimony (Sb)-Leachable (mg/L)					
Arsenic (As)-Leachable (mg/L)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-2	L2094442-4	L2094442-6	L2094442-7	L2094442-8
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH131M-02	BH131M-04	BH131M-06	BH132-01	BH132-02
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Barium (Ba)-Leachable (mg/L)					
Beryllium (Be)-Leachable (mg/L)					
Boron (B)-Leachable (mg/L)					
Cadmium (Cd)-Leachable (mg/L)					
Calcium (Ca)-Leachable (mg/L)					
Chromium (Cr)-Leachable (mg/L)					
Cobalt (Co)-Leachable (mg/L)					
Copper (Cu)-Leachable (mg/L)					
Iron (Fe)-Leachable (mg/L)					
Lead (Pb)-Leachable (mg/L)					
Magnesium (Mg)-Leachable (mg/L)					
Mercury (Hg)-Leachable (mg/L)					
Nickel (Ni)-Leachable (mg/L)					
Selenium (Se)-Leachable (mg/L)					
Silver (Ag)-Leachable (mg/L)					
Thallium (Tl)-Leachable (mg/L)					
Vanadium (V)-Leachable (mg/L)					
Zinc (Zn)-Leachable (mg/L)					
Volatile Organic Compounds					
VOC Sample Container					Field MeOH
Benzene (mg/kg)					<0.0050
Bromodichloromethane (mg/kg)					<0.050
Bromoform (mg/kg)					<0.050
Carbon Tetrachloride (mg/kg)					<0.050
Chlorobenzene (mg/kg)					<0.050
Dibromochloromethane (mg/kg)					<0.050
Chloroethane (mg/kg)					<0.10
Chloroform (mg/kg)					<0.10
Chloromethane (mg/kg)					<0.10
1,2-Dichlorobenzene (mg/kg)					<0.050
1,3-Dichlorobenzene (mg/kg)					<0.050
1,4-Dichlorobenzene (mg/kg)					<0.050
1,1-Dichloroethane (mg/kg)					<0.050
1,2-Dichloroethane (mg/kg)					<0.050
1,1-Dichloroethylene (mg/kg)					<0.050
cis-1,2-Dichloroethylene (mg/kg)					<0.050
trans-1,2-Dichloroethylene (mg/kg)					<0.050
Dichloromethane (mg/kg)					<0.30

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2094442-12 Soil 10-MAY-18 BH132-06	L2094442-13 Soil 10-MAY-18 BH133-01	L2094442-14 Soil 10-MAY-18 BH133-02	L2094442-15 Soil 10-MAY-18 BH134M-01	L2094442-16 Soil 10-MAY-18 BH134M-02
SOIL						
TCLP Metals	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					
	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					
Volatile Organic Compounds	VOC Sample Container			Field MeOH		Field MeOH
	Benzene (mg/kg)			<0.0050		<0.0050
	Bromodichloromethane (mg/kg)			<0.050		<0.050
	Bromoform (mg/kg)			<0.050		<0.050
	Carbon Tetrachloride (mg/kg)			<0.050		<0.050
	Chlorobenzene (mg/kg)			<0.050		<0.050
	Dibromochloromethane (mg/kg)			<0.050		<0.050
	Chloroethane (mg/kg)			<0.10		<0.10
	Chloroform (mg/kg)			<0.10		<0.10
	Chloromethane (mg/kg)			<0.10		<0.10
	1,2-Dichlorobenzene (mg/kg)			<0.050		<0.050
	1,3-Dichlorobenzene (mg/kg)			<0.050		<0.050
	1,4-Dichlorobenzene (mg/kg)			<0.050		<0.050
	1,1-Dichloroethane (mg/kg)			<0.050		<0.050
	1,2-Dichloroethane (mg/kg)			<0.050		<0.050
	1,1-Dichloroethylene (mg/kg)			<0.050		<0.050
	cis-1,2-Dichloroethylene (mg/kg)			<0.050		<0.050
	trans-1,2-Dichloroethylene (mg/kg)			<0.050		<0.050
	Dichloromethane (mg/kg)			<0.30		<0.30

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-18	L2094442-21	L2094442-22	L2094442-23	L2094442-24
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH134M-04	BH135-01	Z112	BH135-02	BH135-03
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Barium (Ba)-Leachable (mg/L)		<2.5	<2.5	<2.5	
Beryllium (Be)-Leachable (mg/L)		<0.025	<0.025	<0.025	
Boron (B)-Leachable (mg/L)		<0.50	<0.50	<0.50	
Cadmium (Cd)-Leachable (mg/L)		<0.050	<0.050	<0.050	
Calcium (Ca)-Leachable (mg/L)		37.3	150	66.6	
Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	
Cobalt (Co)-Leachable (mg/L)		<0.050	<0.050	<0.050	
Copper (Cu)-Leachable (mg/L)		0.263	0.206	0.728	
Iron (Fe)-Leachable (mg/L)		<5.0	<5.0	<5.0	
Lead (Pb)-Leachable (mg/L)		1.18	4.51	1.72	
Magnesium (Mg)-Leachable (mg/L)		3.15	3.98	3.06	
Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	
Nickel (Ni)-Leachable (mg/L)		<0.25	<0.25	<0.25	
Selenium (Se)-Leachable (mg/L)		<1.0	<1.0	<1.0	
Silver (Ag)-Leachable (mg/L)		<0.050	<0.050	<0.050	
Thallium (Tl)-Leachable (mg/L)		<1.0	<1.0	<1.0	
Vanadium (V)-Leachable (mg/L)		<0.15	<0.15	<0.15	
Zinc (Zn)-Leachable (mg/L)		2.66	1.46	7.11	
Volatile Organic Compounds					
VOC Sample Container	Field MeOH			Field MeOH	
Benzene (mg/kg)	<0.0050			0.0080	
Bromodichloromethane (mg/kg)	<0.050			<0.050	
Bromoform (mg/kg)	<0.050			<0.050	
Carbon Tetrachloride (mg/kg)	<0.050			<0.050	
Chlorobenzene (mg/kg)	<0.050			<0.050	
Dibromochloromethane (mg/kg)	<0.050			<0.050	
Chloroethane (mg/kg)	<0.10			<0.10	
Chloroform (mg/kg)	<0.10			<0.10	
Chloromethane (mg/kg)	<0.10			<0.10	
1,2-Dichlorobenzene (mg/kg)	<0.050			<0.050	
1,3-Dichlorobenzene (mg/kg)	<0.050			<0.050	
1,4-Dichlorobenzene (mg/kg)	<0.050			<0.050	
1,1-Dichloroethane (mg/kg)	<0.050			<0.050	
1,2-Dichloroethane (mg/kg)	<0.050			<0.050	
1,1-Dichloroethylene (mg/kg)	<0.050			<0.050	
cis-1,2-Dichloroethylene (mg/kg)	<0.050			<0.050	
trans-1,2-Dichloroethylene (mg/kg)	<0.050			<0.050	
Dichloromethane (mg/kg)	<0.30			<0.30	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-26	L2094442-27	L2094442-28	L2094442-29	L2094442-30
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH135-05	BH135-06	BH135-07	BH136-01	BH136-02
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Barium (Ba)-Leachable (mg/L)					
Beryllium (Be)-Leachable (mg/L)					
Boron (B)-Leachable (mg/L)					
Cadmium (Cd)-Leachable (mg/L)					
Calcium (Ca)-Leachable (mg/L)					
Chromium (Cr)-Leachable (mg/L)					
Cobalt (Co)-Leachable (mg/L)					
Copper (Cu)-Leachable (mg/L)					
Iron (Fe)-Leachable (mg/L)					
Lead (Pb)-Leachable (mg/L)					
Magnesium (Mg)-Leachable (mg/L)					
Mercury (Hg)-Leachable (mg/L)					
Nickel (Ni)-Leachable (mg/L)					
Selenium (Se)-Leachable (mg/L)					
Silver (Ag)-Leachable (mg/L)					
Thallium (TI)-Leachable (mg/L)					
Vanadium (V)-Leachable (mg/L)					
Zinc (Zn)-Leachable (mg/L)					
Volatile Organic Compounds					
VOC Sample Container					Field MeOH
Benzene (mg/kg)					<0.0050
Bromodichloromethane (mg/kg)					<0.050
Bromoform (mg/kg)					<0.050
Carbon Tetrachloride (mg/kg)					<0.050
Chlorobenzene (mg/kg)					<0.050
Dibromochloromethane (mg/kg)					<0.050
Chloroethane (mg/kg)					<0.10
Chloroform (mg/kg)					<0.10
Chloromethane (mg/kg)					<0.10
1,2-Dichlorobenzene (mg/kg)					<0.050
1,3-Dichlorobenzene (mg/kg)					<0.050
1,4-Dichlorobenzene (mg/kg)					<0.050
1,1-Dichloroethane (mg/kg)					<0.050
1,2-Dichloroethane (mg/kg)					<0.050
1,1-Dichloroethylene (mg/kg)					<0.050
cis-1,2-Dichloroethylene (mg/kg)					<0.050
trans-1,2-Dichloroethylene (mg/kg)					<0.050
Dichloromethane (mg/kg)					<0.30

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-2	L2094442-4	L2094442-6	L2094442-7	L2094442-8
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH131M-02	BH131M-04	BH131M-06	BH132-01	BH132-02
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,2-Dichloropropane (mg/kg)					<0.050
cis-1,3-Dichloropropylene (mg/kg)					<0.050
trans-1,3-Dichloropropylene (mg/kg)					<0.050
1,3-Dichloropropene (cis & trans) (mg/kg)					<0.10
Ethylbenzene (mg/kg)					<0.015
Methyl t-butyl ether (MTBE) (mg/kg)					<0.20
Styrene (mg/kg)					<0.050
1,1,1,2-Tetrachloroethane (mg/kg)					<0.050
1,1,2,2-Tetrachloroethane (mg/kg)					<0.050
Tetrachloroethylene (mg/kg)					<0.050
Toluene (mg/kg)					<0.050
1,1,1-Trichloroethane (mg/kg)					<0.050
1,1,2-Trichloroethane (mg/kg)					<0.050
Trichloroethylene (mg/kg)					<0.010
Trichlorofluoromethane (mg/kg)					<0.10
Vinyl Chloride (mg/kg)					<0.10
ortho-Xylene (mg/kg)					<0.050
meta- & para-Xylene (mg/kg)					<0.050
Xylenes (mg/kg)					<0.075
Surrogate: 4-Bromofluorobenzene (SS) (%)					90.0
Surrogate: 1,4-Difluorobenzene (SS) (%)					90.6
Hydrocarbons					
EPH10-19 (mg/kg)	<200			<200	<200
EPH19-32 (mg/kg)	<200			<200	<200
LEPH (mg/kg)	<200				<200
HEPH (mg/kg)	<200				<200
Volatile Hydrocarbons (VH6-10) (mg/kg)					<100
VPH (C6-C10) (mg/kg)					<100
Surrogate: 2-Bromobenzotrifluoride (%)	83.2			94.7	87.2
Surrogate: 3,4-Dichlorotoluene (SS) (%)					107.0
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	<0.0050				<0.0050
Acenaphthylene (mg/kg)	0.0770				<0.0050
Anthracene (mg/kg)	0.0292				<0.0040
Benz(a)anthracene (mg/kg)	0.074				<0.010
Benzo(a)pyrene (mg/kg)	0.173				<0.010
Benzo(b&j)fluoranthene (mg/kg)	0.254				<0.010
Benzo(b+j+k)fluoranthene (mg/kg)	0.353				<0.015

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-12	L2094442-13	L2094442-14	L2094442-15	L2094442-16
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH132-06	BH133-01	BH133-02	BH134M-01	BH134M-02
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds / 1,2-Dichloropropane (mg/kg)			<0.050		<0.050
cis-1,3-Dichloropropylene (mg/kg)			<0.050		<0.050
trans-1,3-Dichloropropylene (mg/kg)			<0.050		<0.050
1,3-Dichloropropene (cis & trans) (mg/kg)			<0.10		<0.10
Ethylbenzene (mg/kg)			<0.015		<0.015
Methyl t-butyl ether (MTBE) (mg/kg)			<0.20		<0.20
Styrene (mg/kg)			<0.050		<0.050
1,1,1,2-Tetrachloroethane (mg/kg)			<0.050		<0.050
1,1,2,2-Tetrachloroethane (mg/kg)			<0.050		<0.050
Tetrachloroethylene (mg/kg)			<0.050		<0.050
Toluene (mg/kg)			<0.050		<0.050
1,1,1-Trichloroethane (mg/kg)			<0.050		<0.050
1,1,2-Trichloroethane (mg/kg)			<0.050		<0.050
Trichloroethylene (mg/kg)			<0.010		<0.010
Trichlorofluoromethane (mg/kg)			<0.10		<0.10
Vinyl Chloride (mg/kg)			<0.10		<0.10
ortho-Xylene (mg/kg)			<0.050		<0.050
meta- & para-Xylene (mg/kg)			<0.050		<0.050
Xylenes (mg/kg)			<0.075		<0.075
Surrogate: 4-Bromofluorobenzene (SS) (%)			92.0		88.9
Surrogate: 1,4-Difluorobenzene (SS) (%)			90.7		88.0
Hydrocarbons / EPH10-19 (mg/kg)		260	<200	<200	<200
EPH19-32 (mg/kg)		3660	<200	1620	<200
LEPH (mg/kg)			<200		<200
HEPH (mg/kg)			<200		<200
Volatile Hydrocarbons (VH6-10) (mg/kg)			<100		<100
VPH (C6-C10) (mg/kg)			<100		<100
Surrogate: 2-Bromobenzotrifluoride (%)		94.5	85.6	74.3	88.0
Surrogate: 3,4-Dichlorotoluene (SS) (%)			105.3		107.1
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/kg)			<0.0050		<0.0050
Acenaphthylene (mg/kg)			<0.0050		<0.0050
Anthracene (mg/kg)			<0.0040		<0.0040
Benz(a)anthracene (mg/kg)			<0.010		<0.010
Benzo(a)pyrene (mg/kg)			<0.010		<0.010
Benzo(b&j)fluoranthene (mg/kg)			<0.010		<0.010
Benzo(b+j+k)fluoranthene (mg/kg)			<0.015		<0.015

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-18	L2094442-21	L2094442-22	L2094442-23	L2094442-24
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH134M-04	BH135-01	Z112	BH135-02	BH135-03
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds / 1,2-Dichloropropane (mg/kg)	<0.050			<0.050	
cis-1,3-Dichloropropylene (mg/kg)	<0.050			<0.050	
trans-1,3-Dichloropropylene (mg/kg)	<0.050			<0.050	
1,3-Dichloropropene (cis & trans) (mg/kg)	<0.10			<0.10	
Ethylbenzene (mg/kg)	<0.015			<0.015	
Methyl t-butyl ether (MTBE) (mg/kg)	<0.20			<0.20	
Styrene (mg/kg)	<0.050			<0.050	
1,1,1,2-Tetrachloroethane (mg/kg)	<0.050			<0.050	
1,1,2,2-Tetrachloroethane (mg/kg)	<0.050			<0.050	
Tetrachloroethylene (mg/kg)	<0.050			<0.050	
Toluene (mg/kg)	<0.050			<0.050	
1,1,1-Trichloroethane (mg/kg)	<0.050			<0.050	
1,1,2-Trichloroethane (mg/kg)	<0.050			<0.050	
Trichloroethylene (mg/kg)	<0.010			<0.010	
Trichlorofluoromethane (mg/kg)	<0.10			<0.10	
Vinyl Chloride (mg/kg)	<0.10			<0.10	
ortho-Xylene (mg/kg)	<0.050			<0.050	
meta- & para-Xylene (mg/kg)	<0.050			<0.050	
Xylenes (mg/kg)	<0.075			<0.075	
Surrogate: 4-Bromofluorobenzene (SS) (%)	81.4			82.5	
Surrogate: 1,4-Difluorobenzene (SS) (%)	83.1			84.8	
Hydrocarbons / EPH10-19 (mg/kg)	<200	<200	<200	<200	
EPH19-32 (mg/kg)	<200	<200	<200	250	
LEPH (mg/kg)	<200			<200	
HEPH (mg/kg)	<200			250	
Volatile Hydrocarbons (VH6-10) (mg/kg)	<100			<100	
VPH (C6-C10) (mg/kg)	<100			<100	
Surrogate: 2-Bromobenzotrifluoride (%)	67.3	78.7	93.1	80.1	
Surrogate: 3,4-Dichlorotoluene (SS) (%)	90.3			92.4	
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/kg)	<0.0050			0.0150	
Acenaphthylene (mg/kg)	<0.0050			0.100	
Anthracene (mg/kg)	<0.0040			0.237	
Benz(a)anthracene (mg/kg)	<0.010			0.850	
Benzo(a)pyrene (mg/kg)	<0.010			0.660	
Benzo(b&j)fluoranthene (mg/kg)	<0.010			1.10	
Benzo(b+j+k)fluoranthene (mg/kg)	<0.015			1.47	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-26	L2094442-27	L2094442-28	L2094442-29	L2094442-30
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH135-05	BH135-06	BH135-07	BH136-01	BH136-02
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,2-Dichloropropane (mg/kg)					<0.050
cis-1,3-Dichloropropylene (mg/kg)					<0.050
trans-1,3-Dichloropropylene (mg/kg)					<0.050
1,3-Dichloropropene (cis & trans) (mg/kg)					<0.10
Ethylbenzene (mg/kg)					<0.015
Methyl t-butyl ether (MTBE) (mg/kg)					<0.20
Styrene (mg/kg)					<0.050
1,1,1,2-Tetrachloroethane (mg/kg)					<0.050
1,1,2,2-Tetrachloroethane (mg/kg)					<0.050
Tetrachloroethylene (mg/kg)					<0.050
Toluene (mg/kg)					<0.050
1,1,1-Trichloroethane (mg/kg)					<0.050
1,1,2-Trichloroethane (mg/kg)					<0.050
Trichloroethylene (mg/kg)					<0.010
Trichlorofluoromethane (mg/kg)					<0.10
Vinyl Chloride (mg/kg)					<0.10
ortho-Xylene (mg/kg)					<0.050
meta- & para-Xylene (mg/kg)					<0.050
Xylenes (mg/kg)					<0.075
Surrogate: 4-Bromofluorobenzene (SS) (%)					78.6
Surrogate: 1,4-Difluorobenzene (SS) (%)					92.1
Hydrocarbons					
EPH10-19 (mg/kg)				<200	<200
EPH19-32 (mg/kg)				240	<200
LEPH (mg/kg)					<200
HEPH (mg/kg)					<200
Volatile Hydrocarbons (VH6-10) (mg/kg)					<100
VPH (C6-C10) (mg/kg)					<100
Surrogate: 2-Bromobenzotrifluoride (%)				93.5	81.5
Surrogate: 3,4-Dichlorotoluene (SS) (%)					100.2
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)					<0.0050
Acenaphthylene (mg/kg)					<0.0050
Anthracene (mg/kg)					<0.0040
Benz(a)anthracene (mg/kg)					<0.010
Benzo(a)pyrene (mg/kg)					<0.010
Benzo(b&j)fluoranthene (mg/kg)					<0.010
Benzo(b+j+k)fluoranthene (mg/kg)					<0.015

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-2	L2094442-4	L2094442-6	L2094442-7	L2094442-8
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH131M-02	BH131M-04	BH131M-06	BH132-01	BH132-02
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Benzo(g,h,i)perylene (mg/kg)	0.127				<0.010
Benzo(k)fluoranthene (mg/kg)	0.099				<0.010
Chrysene (mg/kg)	0.078				<0.010
Dibenz(a,h)anthracene (mg/kg)	0.0306				<0.0050
Fluoranthene (mg/kg)	0.145				<0.010
Fluorene (mg/kg)	<0.010				<0.010
Indeno(1,2,3-c,d)pyrene (mg/kg)	0.155				<0.010
1-Methylnaphthalene (mg/kg)	<0.050				<0.050
2-Methylnaphthalene (mg/kg)	<0.010				<0.010
Naphthalene (mg/kg)	0.013				<0.010
Phenanthrene (mg/kg)	0.071				<0.010
Pyrene (mg/kg)	0.144				<0.010
Quinoline (mg/kg)	<0.050				<0.050
Surrogate: Acenaphthene d10 (%)	89.8				93.1
Surrogate: Chrysene d12 (%)	102.8				115.3
Surrogate: Naphthalene d8 (%)	78.6				87.9
Surrogate: Phenanthrene d10 (%)	96.2				101.8
B(a)P Total Potency Equivalent (mg/kg)	0.264				<0.020
IACR (CCME) (mg/kg)	3.15				<0.15

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-12	L2094442-13	L2094442-14	L2094442-15	L2094442-16
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH132-06	BH133-01	BH133-02	BH134M-01	BH134M-02
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Benzo(g,h,i)perylene (mg/kg)			<0.010		<0.010
Benzo(k)fluoranthene (mg/kg)			<0.010		<0.010
Chrysene (mg/kg)			<0.020 DLCI		<0.010
Dibenz(a,h)anthracene (mg/kg)			<0.0050		<0.0050
Fluoranthene (mg/kg)			<0.010		<0.010
Fluorene (mg/kg)			<0.010		<0.010
Indeno(1,2,3-c,d)pyrene (mg/kg)			<0.010		<0.010
1-Methylnaphthalene (mg/kg)			<0.050		<0.050
2-Methylnaphthalene (mg/kg)			0.047		<0.010
Naphthalene (mg/kg)			0.020		<0.010
Phenanthrene (mg/kg)			0.014		<0.010
Pyrene (mg/kg)			0.014		<0.010
Quinoline (mg/kg)			<0.050		<0.050
Surrogate: Acenaphthene d10 (%)			101.2		99.5
Surrogate: Chrysene d12 (%)			117.5		107.7
Surrogate: Naphthalene d8 (%)			87.5		82.3
Surrogate: Phenanthrene d10 (%)			108.9		105.3
B(a)P Total Potency Equivalent (mg/kg)			<0.020		<0.020
IACR (CCME) (mg/kg)			<0.15		<0.15

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2094442-18	L2094442-21	L2094442-22	L2094442-23	L2094442-24
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18	10-MAY-18
Sampled Time					
Client ID	BH134M-04	BH135-01	Z112	BH135-02	BH135-03
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Benzo(g,h,i)perylene (mg/kg)	<0.010			0.606	
Benzo(k)fluoranthene (mg/kg)	<0.010			0.368	
Chrysene (mg/kg)	<0.010			0.795	
Dibenz(a,h)anthracene (mg/kg)	<0.0050			0.120	
Fluoranthene (mg/kg)	<0.010			1.88	
Fluorene (mg/kg)	<0.010			0.033	
Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010			0.688	
1-Methylnaphthalene (mg/kg)	<0.050			<0.050	
2-Methylnaphthalene (mg/kg)	<0.010			0.045	
Naphthalene (mg/kg)	<0.010			0.074	
Phenanthrene (mg/kg)	<0.010			0.814	
Pyrene (mg/kg)	<0.010			1.54	
Quinoline (mg/kg)	<0.050			<0.050	
Surrogate: Acenaphthene d10 (%)	83.9			70.2	
Surrogate: Chrysene d12 (%)	118.4			94.6	
Surrogate: Naphthalene d8 (%)	94.8			58.3	
Surrogate: Phenanthrene d10 (%)	97.3			76.0	
B(a)P Total Potency Equivalent (mg/kg)	<0.020			1.10	
IACR (CCME) (mg/kg)	<0.15			14.8	

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L2094442-26 Soil 10-MAY-18 BH135-05	L2094442-27 Soil 10-MAY-18 BH135-06	L2094442-28 Soil 10-MAY-18 BH135-07	L2094442-29 Soil 10-MAY-18 BH136-01	L2094442-30 Soil 10-MAY-18 BH136-02
SOIL							
Polycyclic Aromatic Hydrocarbons	Benzo(g,h,i)perylene (mg/kg)						<0.010
	Benzo(k)fluoranthene (mg/kg)						<0.010
	Chrysene (mg/kg)						<0.010
	Dibenz(a,h)anthracene (mg/kg)						<0.0050
	Fluoranthene (mg/kg)						<0.010
	Fluorene (mg/kg)						<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)						<0.010
	1-Methylnaphthalene (mg/kg)						<0.050
	2-Methylnaphthalene (mg/kg)						0.011
	Naphthalene (mg/kg)						0.011
	Phenanthrene (mg/kg)						<0.010
	Pyrene (mg/kg)						<0.010
	Quinoline (mg/kg)						<0.050
	Surrogate: Acenaphthene d10 (%)						90.8
	Surrogate: Chrysene d12 (%)						97.4
	Surrogate: Naphthalene d8 (%)						89.3
	Surrogate: Phenanthrene d10 (%)						97.1
	B(a)P Total Potency Equivalent (mg/kg)						<0.020
	IACR (CCME) (mg/kg)						<0.15

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)	DUP-H	L2094442-12, -28, -4, -6
Duplicate	Antimony (Sb)	DUP-H	L2094442-18, -23
Duplicate	Chromium (Cr)	DUP-H	L2094442-18, -23
Duplicate	Manganese (Mn)	DUP-H	L2094442-12, -28, -4, -6
Duplicate	Molybdenum (Mo)	DUP-H	L2094442-12, -28, -4, -6
Duplicate	Selenium (Se)	DUP-H	L2094442-12, -28, -4, -6
Duplicate	Uranium (U)	DUP-H	L2094442-24, -26, -30
Duplicate	Zinc (Zn)	DUP-H	L2094442-12, -28, -4, -6
Duplicate	Zinc (Zn)	DUP-H	L2094442-18, -23
Duplicate	Thallium (Tl)	DUP-H,J	L2094442-12, -28, -4, -6
Matrix Spike	Phenanthrene	E	L2094442-30
Matrix Spike	Benzo(b&j)fluoranthene	K	L2094442-18, -23
Matrix Spike	EPH10-19	MS-B	L2094442-14, -16, -2, -8
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2094442-21, -22, -23
Matrix Spike	1-Methylnaphthalene	MS-B	L2094442-14, -16, -2, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
DUP-H,J	Duplicate results outside ALS DQO, due to sample heterogeneity. Duplicate results and limits are expressed in terms of absolute difference.
E	Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.
K	Matrix Spike recovery outside ALS DQO due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CL-PASTE-IC-VA	Soil	Chloride in Soil (Paste) by IC	Carter-CSSS / EPA 300.1 (modified)

A soil extract produced by the saturated paste extraction procedure is analyzed for chloride by Ion Chromatography with conductivity detection.

EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

HG-TCLP-CVAFS-VA	Soil	Mercury by CVAAS (TCLP)	EPA 1311/245.7

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 245.7).

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHs = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

Reference Information

MET-PASTE-ICP-VA	Soil	Metals in Soil (Paste) by ICPOES	Carter-CSSS / EPA 6010B (modified)

A soil extract produced by the saturated paste extraction procedure is analyzed for Sodium, Calcium, and Magnesium by ICPOES as per "Soil Sampling and Methods of Analysis" by M. Carter.

MET-TCLP-ICP-VA	Soil	Metals by ICPOES (TCLP)	EPA 1311/6010B

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MOISTURE-VA	Soil	Moisture content	CWS for PHC in Soil - Tier 1

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA	Soil	PAH - Rotary Extraction (Hexane/Acetone)	EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3570 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

SAT-PCNT-VA	Soil	Saturation Percentage	Carter-CSSS

Saturation Percentage (SP) is the total volume of water present in a saturated paste (in mL) divided by the dry weight of the sample (in grams), expressed as a percentage, as described in "Soil Sampling and Methods of Analysis" by M. Carter.

VH-HSFID-VA	Soil	VH in soil by Headspace GCFID	BC Env. Lab Manual (VH in Solids)

This analysis involves the extraction of a subsample of the sediment/soil with methanol. Aliquots of the methanol extract are then added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999).

VH-SURR-FID-VA	Soil	VH Surrogates for Soils	BC Env. Lab Manual (VH in Solids)
VOC-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7-L-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Soil	VOC7 and/or VOC Surrogates for Soils	EPA 5035A/5021A/8260C
VPH-CALC-VA	Soil	VPH is VH minus select aromatics	BC MOE VPH

VPHs measures Volatile Petroleum Hydrocarbons in soil. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure.
VPHs = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene

XYLENES-CALC-VA	Soil	Sum of Xylene Isomer Concentrations	EPA 8260B & 524.2

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Reference Information

Chain of Custody Numbers:

15-609540 15-609550 15-609552

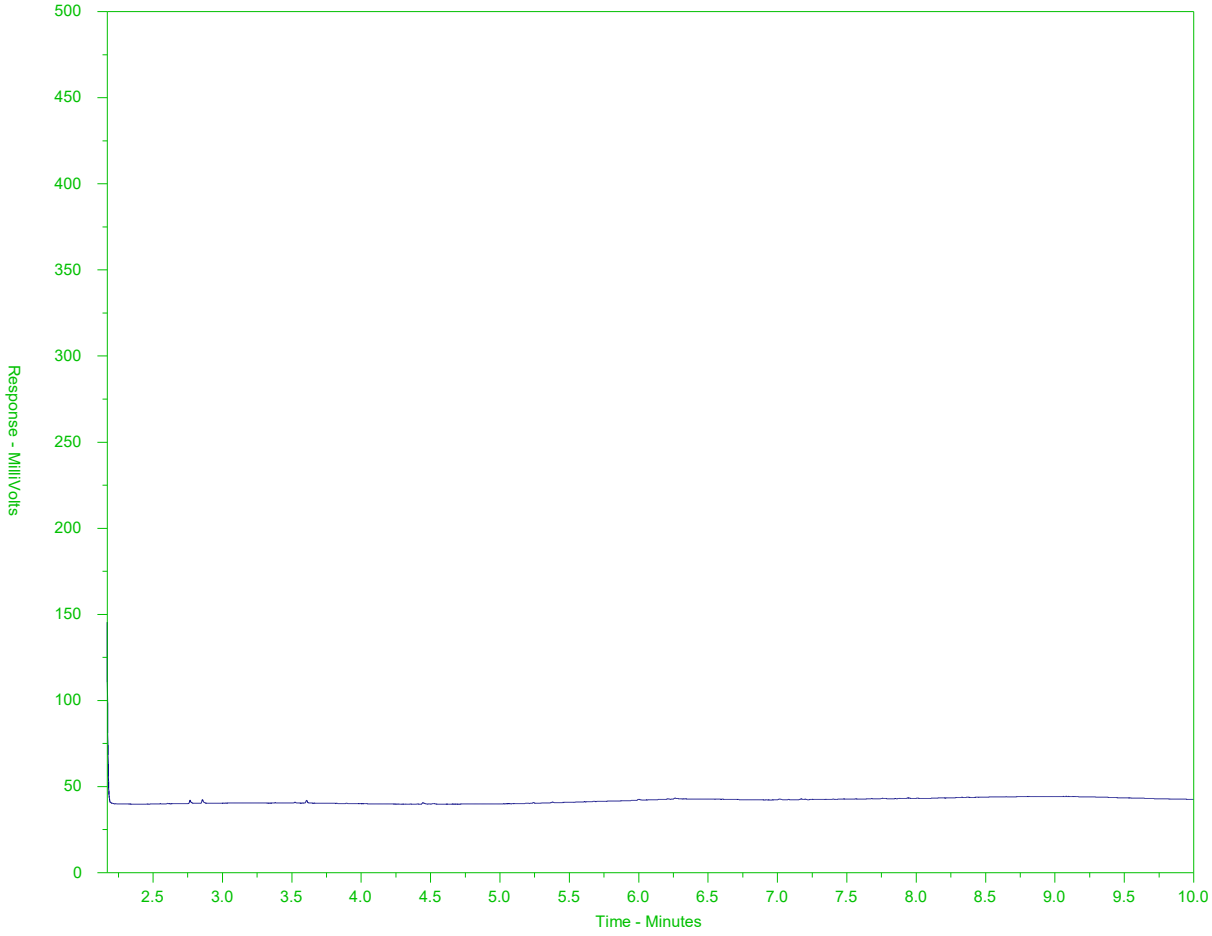
GLOSSARY OF REPORT TERMS

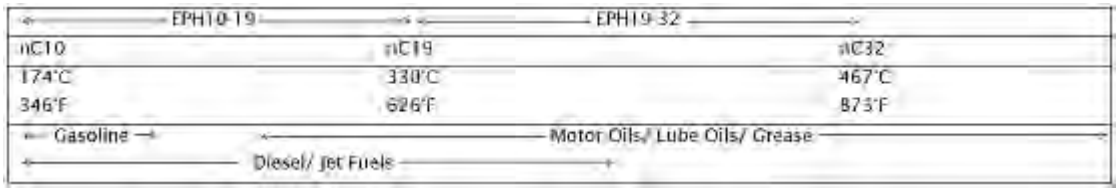
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-2
Client Sample ID: BH131M-02





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

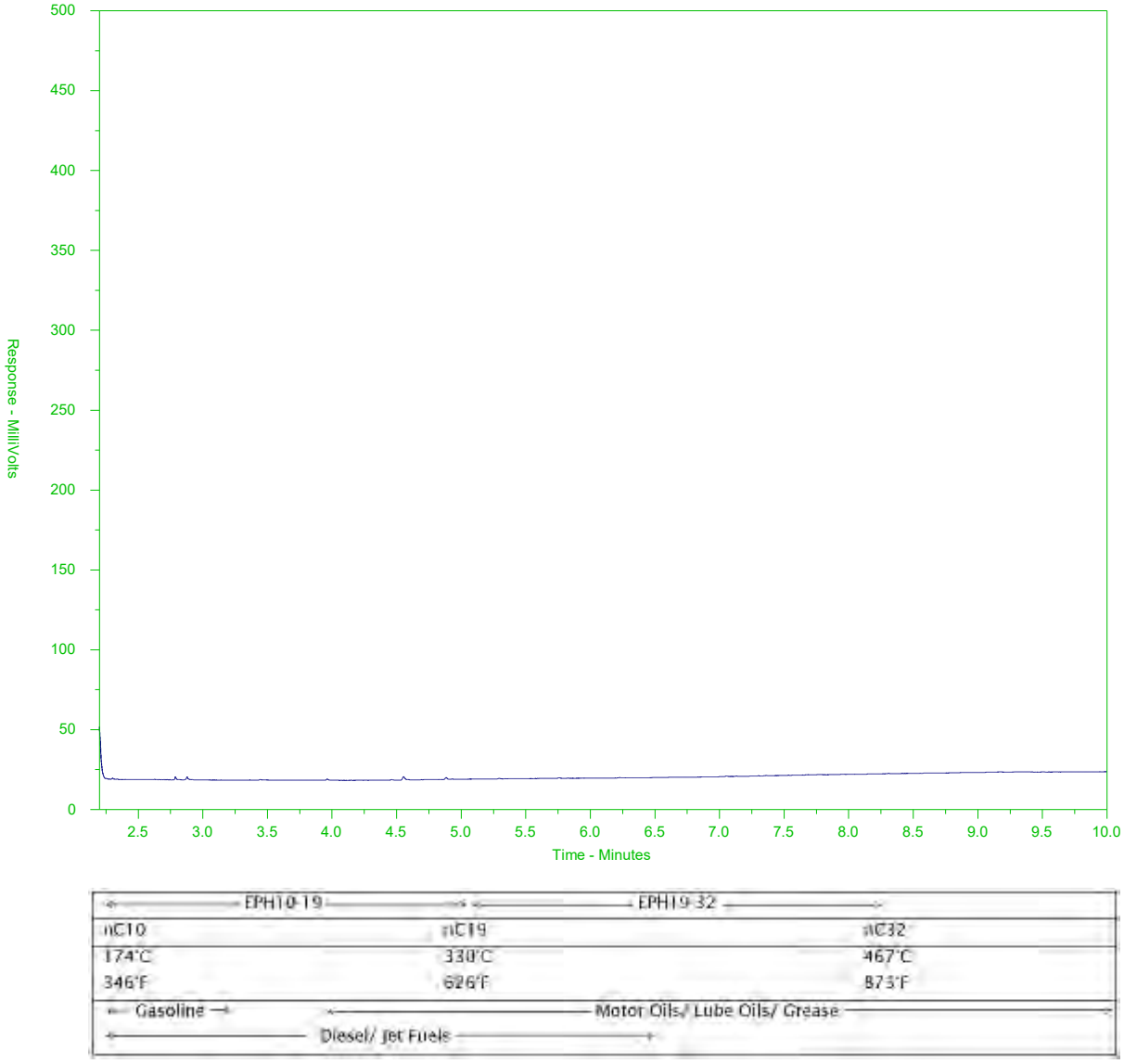
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-7
Client Sample ID: BH132-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

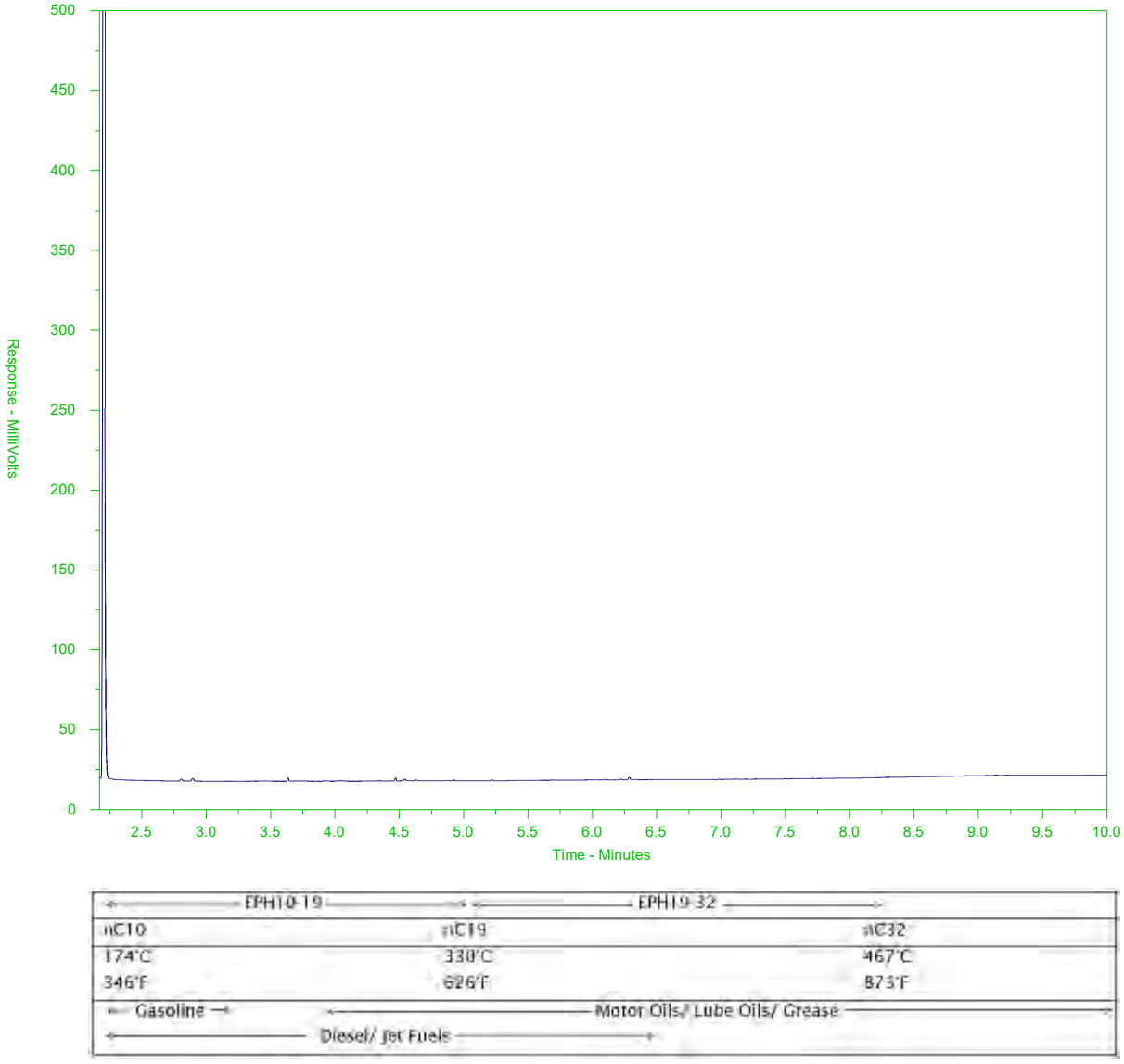
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-8
Client Sample ID: BH132-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

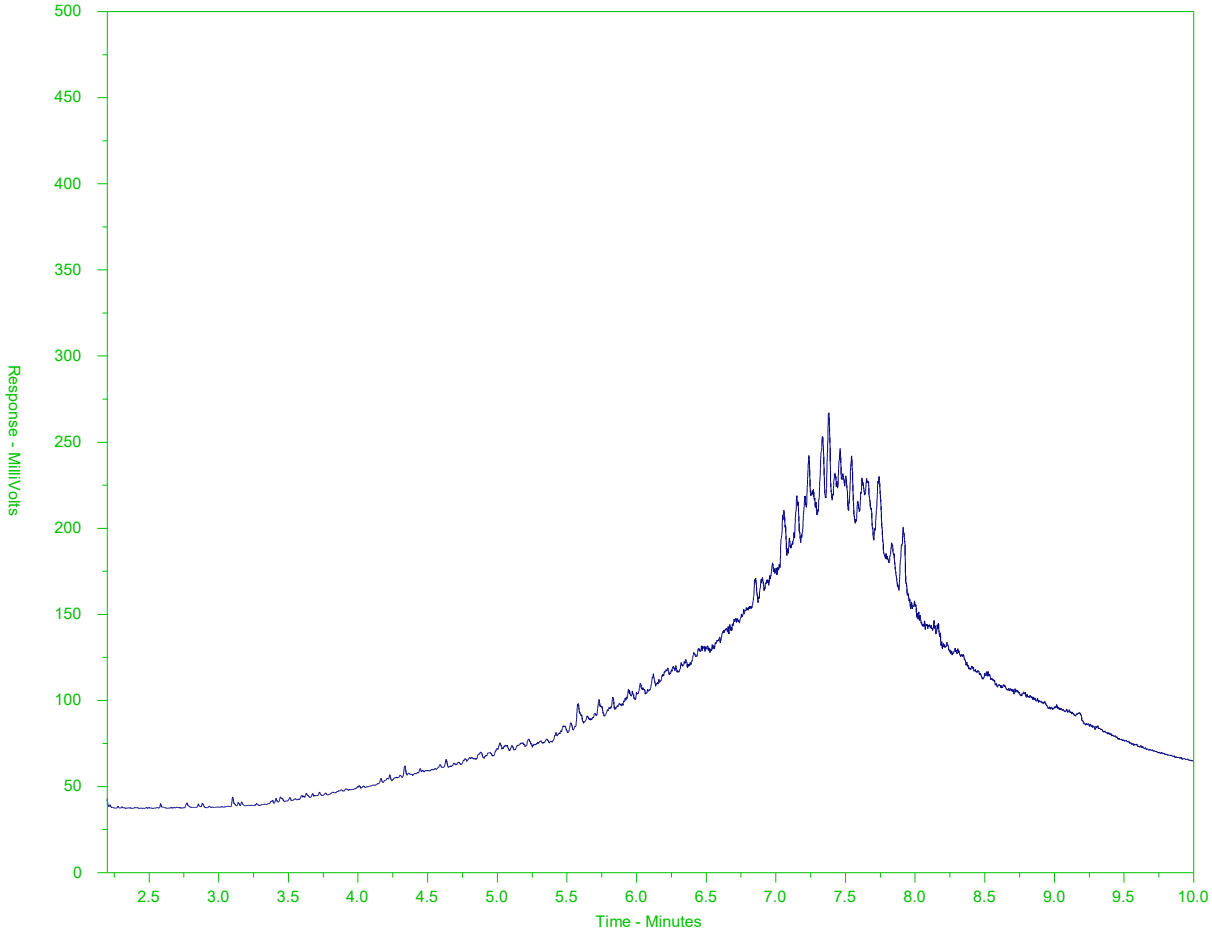
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-13
Client Sample ID: BH133-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

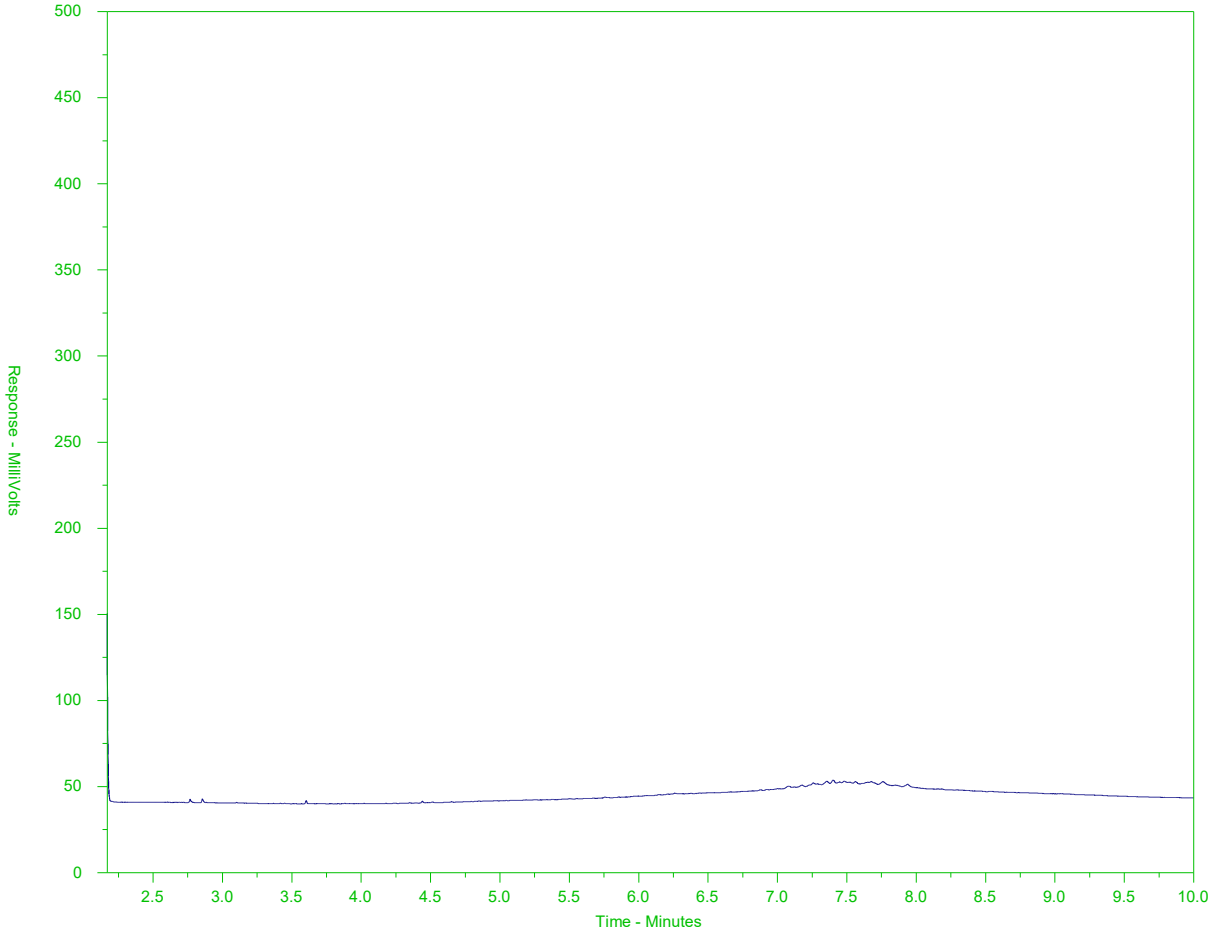
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-14
Client Sample ID: BH133-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

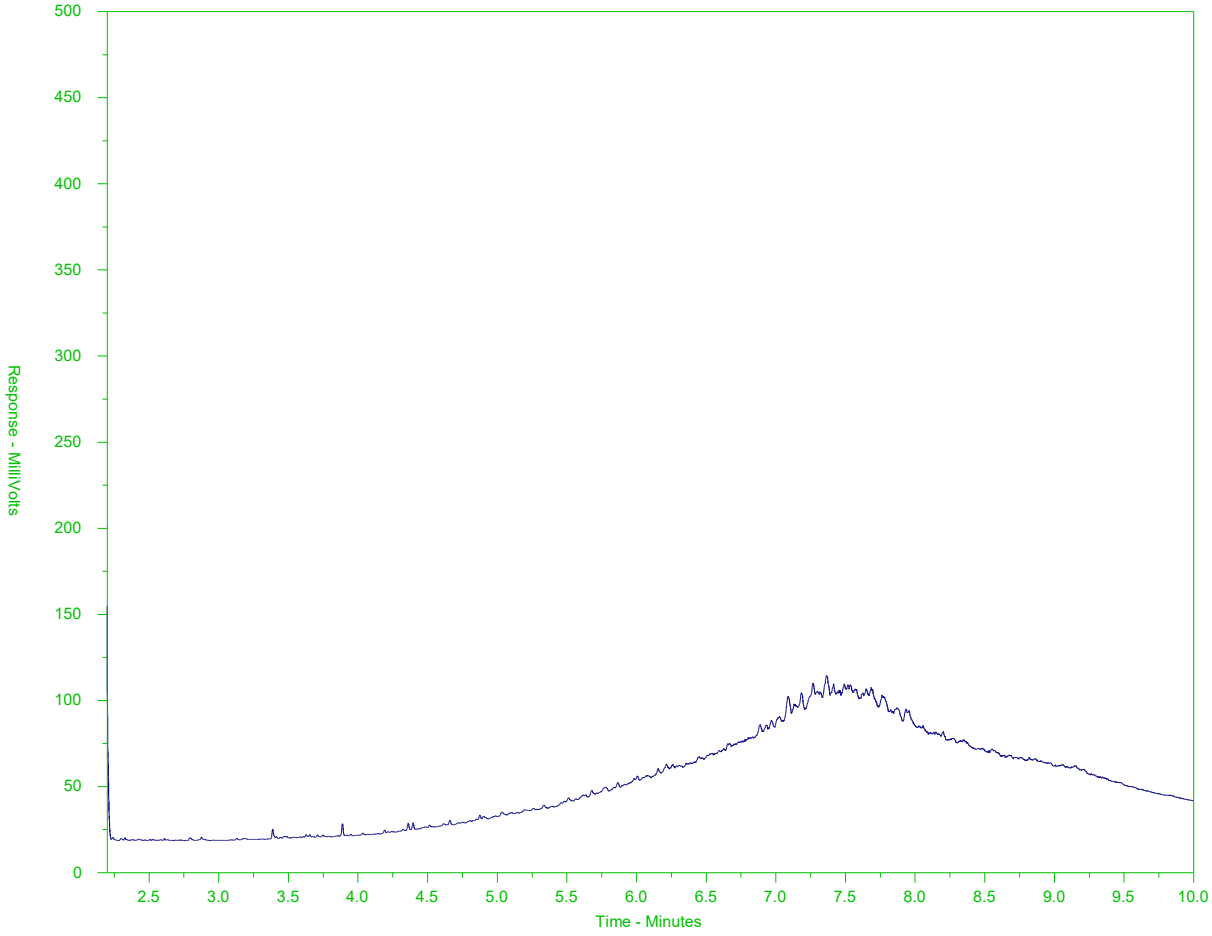
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-15
Client Sample ID: BH134M-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

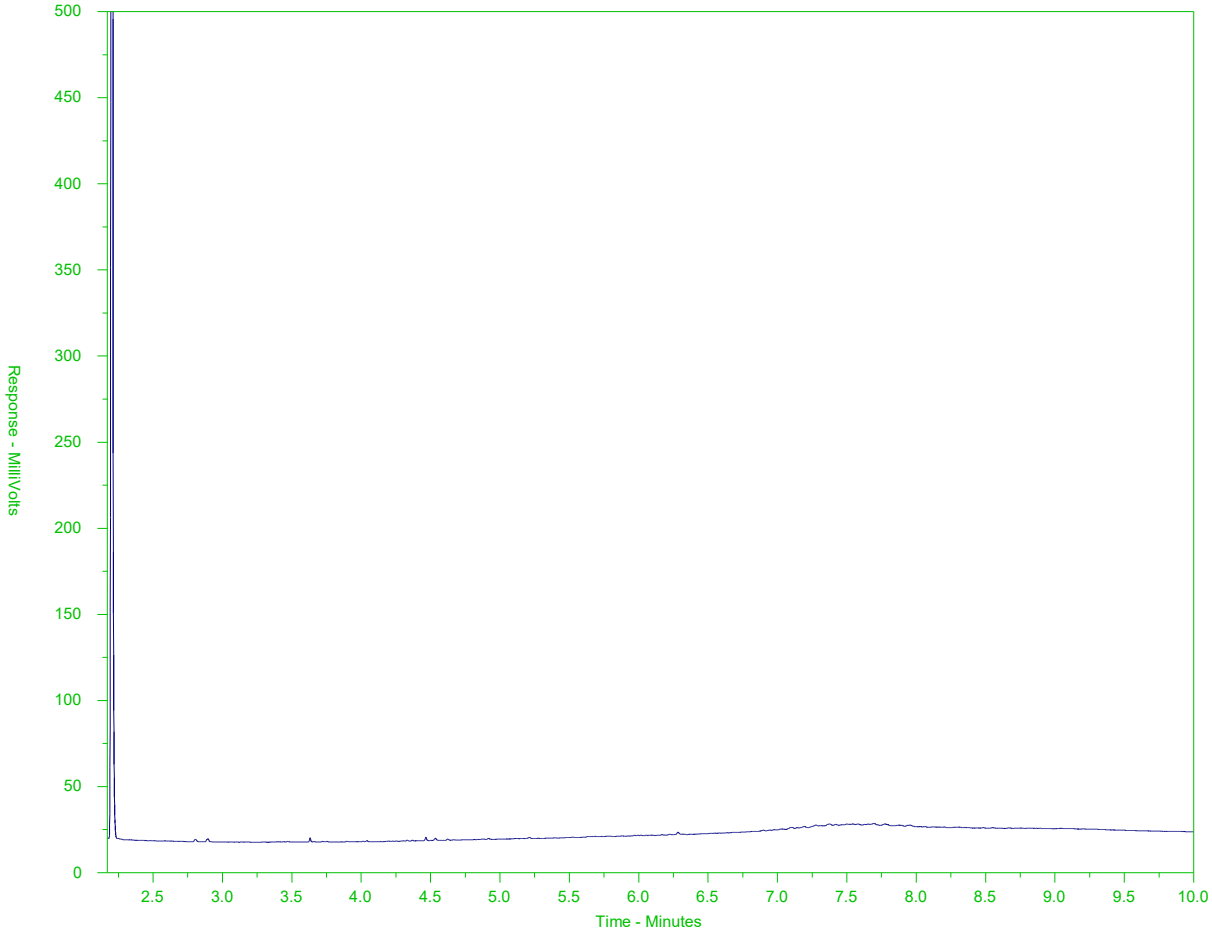
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-16
Client Sample ID: BH134M-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

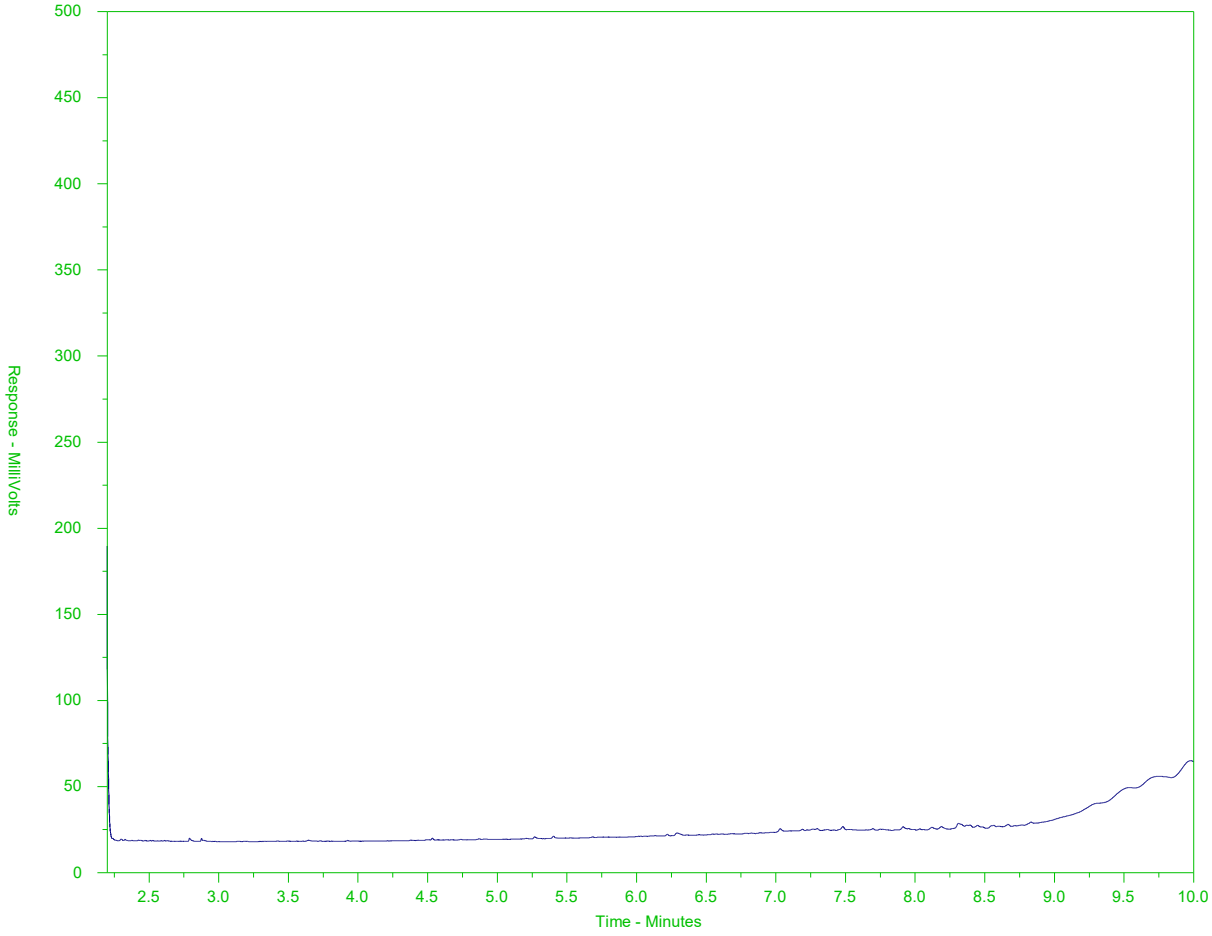
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

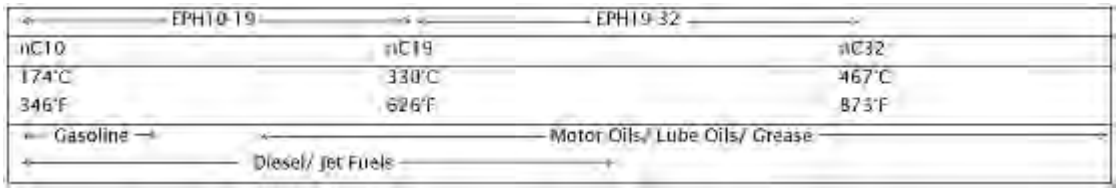
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-21
Client Sample ID: BH135-01





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

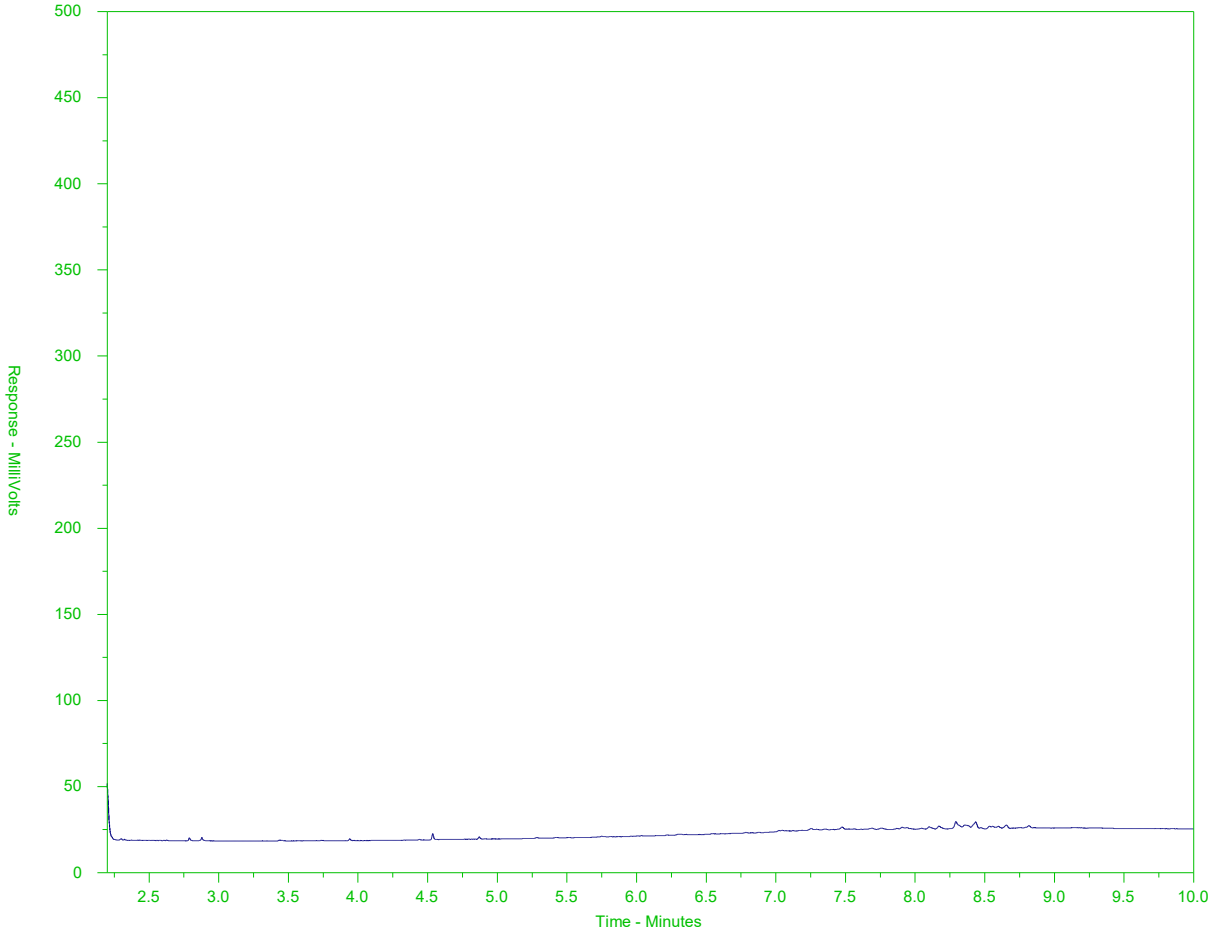
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

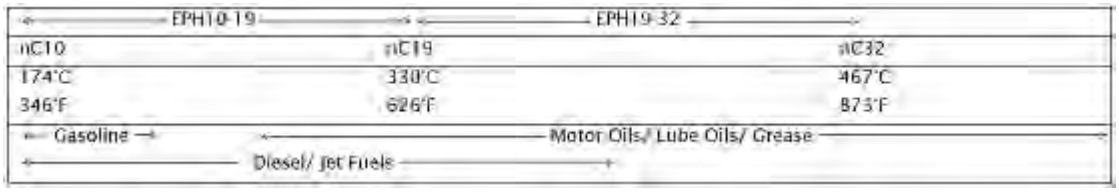
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-22
Client Sample ID: Z112





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

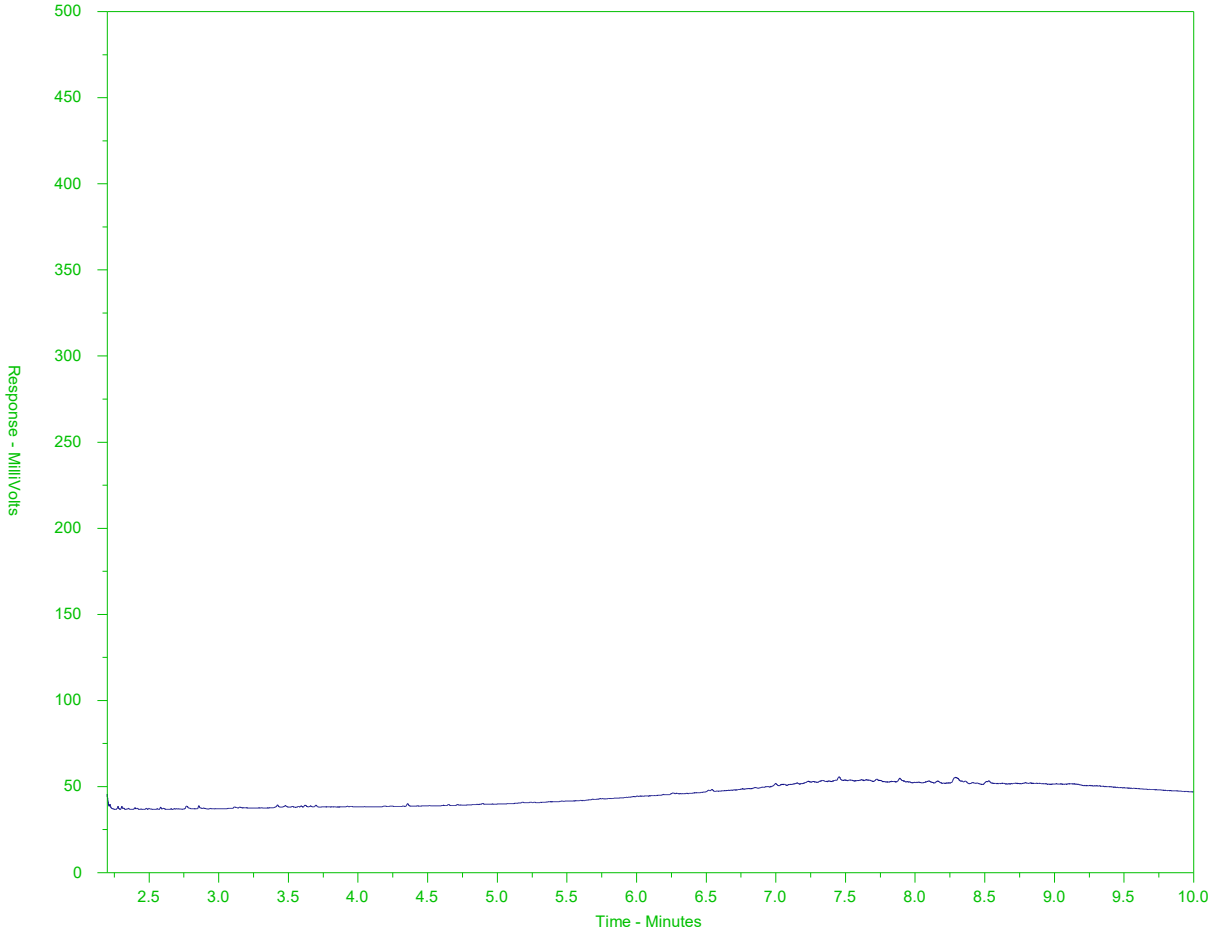
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

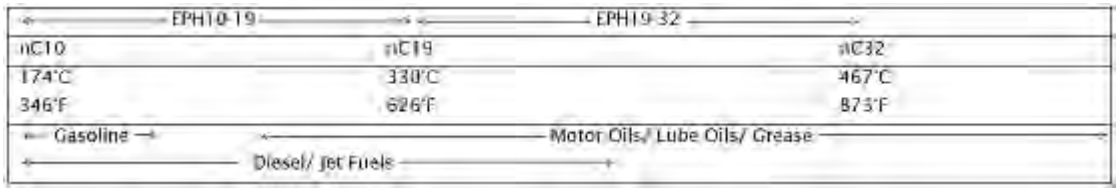
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-29
Client Sample ID: BH136-01





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

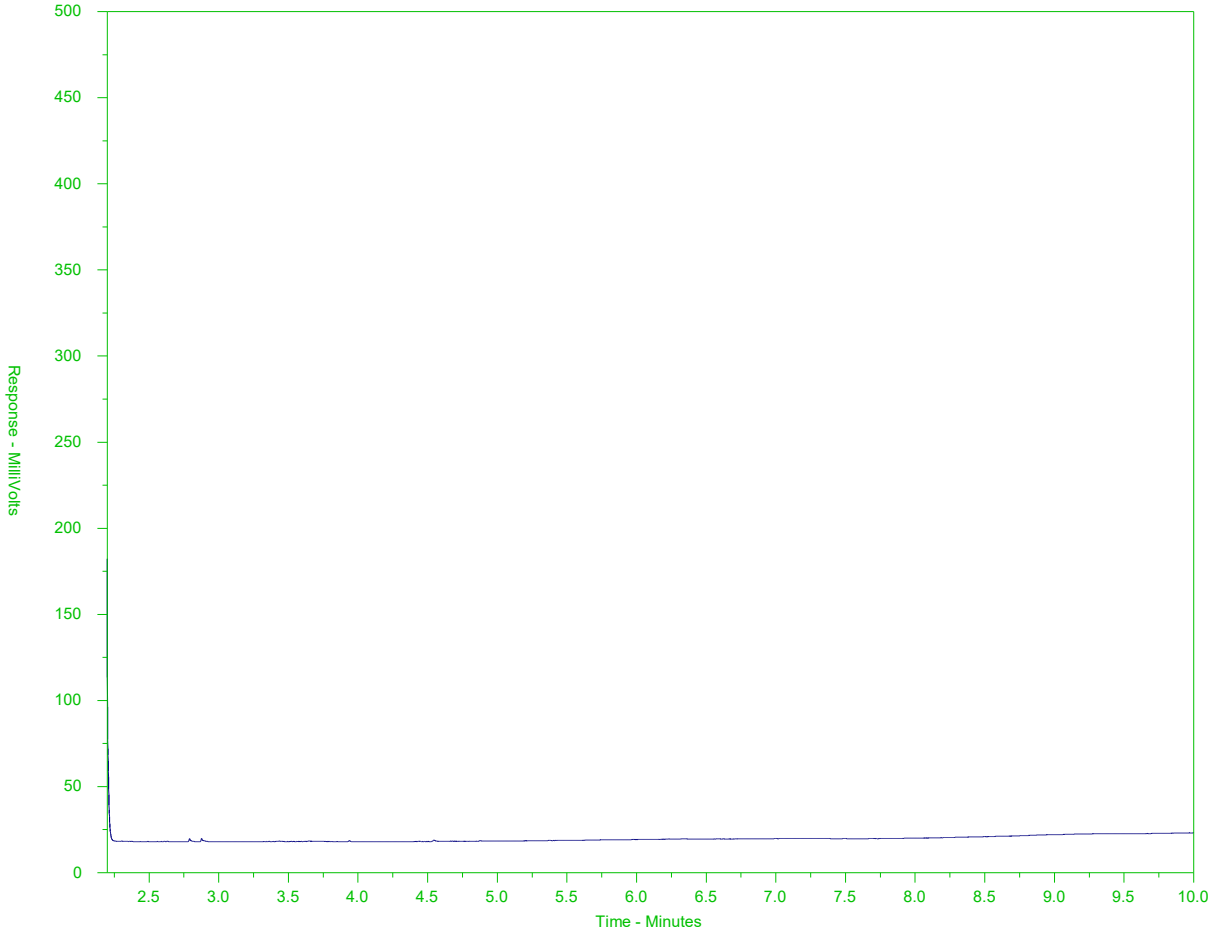
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

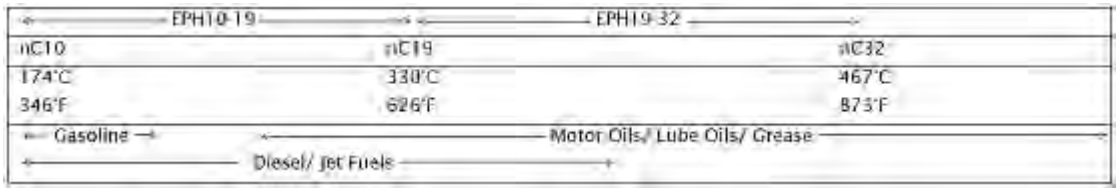
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2094442-30
Client Sample ID: BH136-02





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2094442-COFC

COC Number: 15 - 609550

Page 1 of 3

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply
Company:	PGL Environmental	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4] ☐ / 3 day [P3] ☐ / 2 day [P2] ☐ — EMERGENCY: 1 Business day [E1] ☐ / Same Day, Weekend or Statutory holiday [E0] ☐
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Street:	1500 - 1185 W Georgia	Email 1 or Fax: Zmohamed@pggroup.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Vancouver BC	Email 2: Sbart@pggroup.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	V6T 2E6	Email 3: ariviers@pggroup.com	
Invoice To	Same as Report To ☑ YES ☐ NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: B. Mack	Sampler: A. Riviers

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	metals	L/H/P	VOC/VPH	NaCl (Soil paste)	Number of Containers
1	BH131M-01	10 May 18		Soil					2
2	BH131M-02	↓		↓	X	X			2
3	BH131M-03								3
4	BH131M-04				X				3
5	BH131M-05								2
6	BH131M-06				X				2
7	BH132-01				.				3
8	BH132-02				X	X	X	X	3
9	BH132-03								3
10	BH132-04								3
11	BH132-05								2
12	BH132-06	↓		↓	X			X	2

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice Packs	☑	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			6	8	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Amelia R	14 May 2018	900				JC	5/14/18	11:31

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

B

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2094442-COFC

COC Number: 15 - 609552

Report To	Contact and company name below will appear on the final report
Company:	PGL Environmental
Contact:	Tayed Mohamed
Phone:	604 682 3707
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	
Email 3	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	
Job #:	5355-01.01
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact:

Sampler:

Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4] ☐		1 Business day [E1] ☐
	3 day [P3] ☐		Same Day, Weekend or Statutory holiday [E0] ☐
	2 day [P2] ☐		

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	metals	4/14/P	VOC/VPH	NaCl (Soil Powder)	Number of Containers
13	BH133-01	10 May 18		Soil					3
14	BH133-02				X	X	X		3
15	BH134M-01								3
16	BH134M-02				X	X	X		3
17	BH134M-03								3
18	BH134M-04				X	X	X		3
19	BH134M-05								2
20	BH134M-06								2
21	BH135-01								3
22	Z112								3
23	BH135-02				X	X	X		3
24	BH135-03							X	3

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human drinking water use? ☐ YES ☐ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			6	8	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	14 May 2018	900				JC	5/14/18	11:31

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

B

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2094442-COFC

COC Number: 15 - 609540

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply
Company:	PGL Environmental	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamad	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4] ☐ / 3 day [P3] ☐ / 2 day [P2] ☐
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E1] ☐ / Same Day, Weekend or Statutory holiday [E0] ☐
Company address below will appear on the final report		Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3 See P. 1	
Invoice To	Same as Report To ☐ YES ☐ NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	metals	L/H/P	VOC/VPH	Na Cl (Soil Paste)	Number of Containers
25	BH135-04	10 May 18		Soil					3
26	BH135-05								2
27	BH135-06								2
28	BH135-07				X			X	2
29	BH136-01								
30	BH136-02								

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			6.6	8.1	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Andrew R	14 May 2018	900				JC	5/14/18	11:31

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 17-MAY-18
Report Date: 09-JUL-18 14:27 (MT)
Version: FINAL REV. 3

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2096509

Project P.O. #:	NOT SUBMITTED
Job Reference:	5355-01.01
C of C Numbers:	17-692290, 17-692291, 17-692292, 17-692367
Legal Site Desc:	

Comments: This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-1	L2096509-2	L2096509-3	L2096509-4	L2096509-5
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH139-01	BH139-02	BH139-03	BH139-04	BH139-05
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	9.21	8.26	13.6		18.5
pH (1:2 soil:water) (pH)	8.10	8.15	8.01	7.71	8.26
Saturated Paste Extractables Chloride (Cl) (mg/kg)					
% Saturation (%)					
Sodium (Na) (mg/kg)					
Metals Aluminum (Al) (mg/kg)	16500	13900	11300	10800	19600
Antimony (Sb) (mg/kg)	0.42	1.80	0.25	0.22	0.36
Arsenic (As) (mg/kg)	11.2	9.14	1.99	1.66	6.88
Barium (Ba) (mg/kg)	67.2	405	58.3	47.7	61.2
Beryllium (Be) (mg/kg)	0.22	0.32	0.15	0.15	0.22
Boron (B) (mg/kg)	<5.0	48.7	<5.0	<5.0	6.8
Cadmium (Cd) (mg/kg)	0.188	0.404	0.086	0.053	0.067
Chromium (Cr) (mg/kg)	19.9	44.1	16.7	16.2	38.2
Cobalt (Co) (mg/kg)	7.79	7.53	5.25	4.63	10.7
Copper (Cu) (mg/kg)	22.2	91.3	39.2	14.9	24.5
Iron (Fe) (mg/kg)	20500	28300	15700	14600	23300
Lead (Pb) (mg/kg)	5.70	147	7.10	4.01	4.99
Lithium (Li) (mg/kg)	7.3	12.3	5.4	5.0	18.4
Manganese (Mn) (mg/kg)	380	547	201	202	295
Mercury (Hg) (mg/kg)	0.0276	0.919	0.0294	0.0213	0.0198
Molybdenum (Mo) (mg/kg)	0.66	1.80	0.38	0.20	3.17
Nickel (Ni) (mg/kg)	16.6	35.8	9.42	7.75	23.3
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium (Sr) (mg/kg)	53.7	425	37.5	29.0	34.3
Thallium (Tl) (mg/kg)	0.053	<0.050	<0.050	<0.050	0.083
Tin (Sn) (mg/kg)	<2.0	7.0	<2.0	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	0.79	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.667	0.941	0.453	0.306	1.01
Vanadium (V) (mg/kg)	52.6	59.8	40.0	42.1	72.9
Zinc (Zn) (mg/kg)	72.7	206	84.9	35.5	48.9
TCLP Metals 1st Preliminary pH (pH)	8.90	9.02			
2nd Preliminary pH (pH)	4.10	2.12			
Final pH (pH)	7.39	5.15			
Extraction Solution Initial pH (pH)	4.93	4.93			
Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0			
Arsenic (As)-Leachable (mg/L)	<1.0	<1.0			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-7	L2096509-9	L2096509-10	L2096509-12	L2096509-13
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH140-01	BH140-02	BH140-03	BH140-05	BH140-06
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)					36.6
pH (1:2 soil:water) (pH)	7.47	7.00	6.71	6.52	8.24
Saturated Paste Extractables Chloride (Cl) (mg/kg)					
% Saturation (%)					
Sodium (Na) (mg/kg)					
Metals Aluminum (Al) (mg/kg)	21800	10500	10400	11300	15400
Antimony (Sb) (mg/kg)	0.49	2.05	0.88	1.18	0.38
Arsenic (As) (mg/kg)	6.67	5.29	2.30	2.62	8.71
Barium (Ba) (mg/kg)	105	67.8	64.4	112	46.5
Beryllium (Be) (mg/kg)	0.29	0.17	0.15	0.18	0.32
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	6.0	11.7
Cadmium (Cd) (mg/kg)	0.106	0.622	3.25	2.64	0.303
Chromium (Cr) (mg/kg)	25.7	24.7	10.6	14.6	29.9
Cobalt (Co) (mg/kg)	11.1	6.98	4.74	4.86	10.0
Copper (Cu) (mg/kg)	24.5	38.2	393	388	30.0
Iron (Fe) (mg/kg)	25000	18000	12000	13600	25300
Lead (Pb) (mg/kg)	16.2	50.2	14.9	43.4	9.09
Lithium (Li) (mg/kg)	10.1	7.2	5.9	5.8	17.3
Manganese (Mn) (mg/kg)	387	355	205	199	275
Mercury (Hg) (mg/kg)	0.0402	0.0791	0.0240	0.0423	0.0550
Molybdenum (Mo) (mg/kg)	0.76	0.96	0.32	0.57	3.04
Nickel (Ni) (mg/kg)	17.7	26.2	11.3	13.1	28.0
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	0.47
Silver (Ag) (mg/kg)	<0.10	<0.10	0.11	0.23	0.12
Strontium (Sr) (mg/kg)	39.0	32.2	38.4	71.0	41.7
Thallium (Tl) (mg/kg)	0.080	0.057	<0.050	<0.050	0.144
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.505	0.329	0.322	0.391	2.98
Vanadium (V) (mg/kg)	64.3	41.9	37.8	41.6	48.9
Zinc (Zn) (mg/kg)	74.3	134	294	279	59.5
TCLP Metals 1st Preliminary pH (pH)	8.04				
2nd Preliminary pH (pH)	1.67				
Final pH (pH)	4.96				
Extraction Solution Initial pH (pH)	4.93				
Antimony (Sb)-Leachable (mg/L)	<1.0				
Arsenic (As)-Leachable (mg/L)	<1.0				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-16	L2096509-18	L2096509-21	L2096509-23	L2096509-24
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH141-02	BH141-04	BH141-07	BH142-02	Z118
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)				7.44	8.65
pH (1:2 soil:water) (pH)	7.87	7.54	8.13	7.56	7.51
Saturated Paste Extractables Chloride (Cl) (mg/kg)					
% Saturation (%)					
Sodium (Na) (mg/kg)					
Metals Aluminum (Al) (mg/kg)	13900	12600	17300	10900	11100
Antimony (Sb) (mg/kg)	0.55	0.35	0.57	0.16	0.12
Arsenic (As) (mg/kg)	2.91	2.05	16.5	1.93	1.78
Barium (Ba) (mg/kg)	75.0	60.6	50.3	56.1	46.8
Beryllium (Be) (mg/kg)	0.18	0.17	0.45	0.13	0.14
Boron (B) (mg/kg)	<5.0	<5.0	13.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.103	0.070	0.452	0.044	0.041
Chromium (Cr) (mg/kg)	20.3	15.6	40.0	12.4	12.4
Cobalt (Co) (mg/kg)	6.21	6.48	12.2	4.73	4.91
Copper (Cu) (mg/kg)	24.4	19.6	33.4	13.6	13.7
Iron (Fe) (mg/kg)	19200	17800	35800	15000	15500
Lead (Pb) (mg/kg)	56.8	5.07	9.78	4.95	3.20
Lithium (Li) (mg/kg)	6.4	5.4	22.3	4.5	4.5
Manganese (Mn) (mg/kg)	284	199	342	196	207
Mercury (Hg) (mg/kg)	0.164	0.0143	0.0591	0.0116	0.0137
Molybdenum (Mo) (mg/kg)	0.46	0.32	4.04	0.29	0.28
Nickel (Ni) (mg/kg)	18.4	13.0	38.1	8.78	8.81
Selenium (Se) (mg/kg)	<0.20	<0.20	0.65	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	0.17	<0.10	<0.10
Strontium (Sr) (mg/kg)	41.1	48.9	46.3	29.1	25.3
Thallium (Tl) (mg/kg)	<0.050	<0.050	0.174	<0.050	<0.050
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.357	0.389	4.65	0.310	0.306
Vanadium (V) (mg/kg)	50.9	49.9	58.4	45.0	48.2
Zinc (Zn) (mg/kg)	49.3	47.6	77.3	26.1	25.9
TCLP Metals 1st Preliminary pH (pH)					
2nd Preliminary pH (pH)					
Final pH (pH)					
Extraction Solution Initial pH (pH)					
Antimony (Sb)-Leachable (mg/L)					
Arsenic (As)-Leachable (mg/L)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-25	L2096509-26	L2096509-28	L2096509-31	L2096509-32
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH142-03	Z119	BH142-05	BH145-01	BH145-02
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)					9.44
pH (1:2 soil:water) (pH)	7.49	7.49	7.24	6.98	6.88
Saturated Paste Extractables Chloride (Cl) (mg/kg)					
% Saturation (%)					
Sodium (Na) (mg/kg)					
Metals Aluminum (Al) (mg/kg)	9040	11300	12200	15100	15000
Antimony (Sb) (mg/kg)	<0.10	0.15	0.15	0.20	7.88
Arsenic (As) (mg/kg)	1.53	1.65	1.92	4.36	6.98
Barium (Ba) (mg/kg)	32.0	46.7	50.1	69.3	77.9
Beryllium (Be) (mg/kg)	<0.10	0.13	0.14	0.22	0.23
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.039	0.041	0.043	0.049	0.354
Chromium (Cr) (mg/kg)	10.7	14.3	13.9	16.5	57.3
Cobalt (Co) (mg/kg)	4.06	4.97	4.96	10.1	8.20
Copper (Cu) (mg/kg)	10.5	13.3	14.3	16.3	39.5
Iron (Fe) (mg/kg)	12900	16500	16100	18500	25900
Lead (Pb) (mg/kg)	1.79	2.58	2.73	3.64	401
Lithium (Li) (mg/kg)	4.6	5.7	4.9	8.3	11.9
Manganese (Mn) (mg/kg)	202	227	199	286	325
Mercury (Hg) (mg/kg)	0.0070	0.0106	0.0113	0.0151	0.0491
Molybdenum (Mo) (mg/kg)	0.29	0.20	0.21	0.65	1.09
Nickel (Ni) (mg/kg)	6.93	9.08	8.94	11.6	41.2
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium (Sr) (mg/kg)	23.2	28.9	37.2	28.6	24.5
Thallium (Tl) (mg/kg)	<0.050	<0.050	<0.050	0.069	0.067
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	2.1
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.255	0.291	0.319	0.324	0.269
Vanadium (V) (mg/kg)	35.4	47.1	50.0	49.8	59.6
Zinc (Zn) (mg/kg)	23.9	27.4	26.5	47.7	98.2
TCLP Metals 1st Preliminary pH (pH)				7.19	
2nd Preliminary pH (pH)				1.56	
Final pH (pH)				4.94	
Extraction Solution Initial pH (pH)				4.93	
Antimony (Sb)-Leachable (mg/L)				<1.0	
Arsenic (As)-Leachable (mg/L)				<1.0	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-34	L2096509-35	L2096509-36	L2096509-38	L2096509-39
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH145-04	BH145-05	BH145-06	BH150-01	BH150-02
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	16.9				4.67
pH (1:2 soil:water) (pH)	8.16	8.04	7.62	7.52	6.83
Saturated Paste Extractables Chloride (Cl) (mg/kg)					
% Saturation (%)					
Sodium (Na) (mg/kg)					
Metals Aluminum (Al) (mg/kg)	12800	15000	12200	14200	11800
Antimony (Sb) (mg/kg)	0.51	0.95	1.23	1.71	0.57
Arsenic (As) (mg/kg)	3.34	4.75	9.29	5.00	2.38
Barium (Ba) (mg/kg)	64.7	332	41.3	87.9	53.9
Beryllium (Be) (mg/kg)	0.20	0.26	0.22	0.21	0.13
Boron (B) (mg/kg)	<5.0	8.4	7.3	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.084	0.093	0.332	0.293	0.154
Chromium (Cr) (mg/kg)	12.8	18.1	21.4	26.8	10.6
Cobalt (Co) (mg/kg)	5.85	7.24	8.17	7.97	5.88
Copper (Cu) (mg/kg)	31.0	1510	21.4	33.0	60.1
Iron (Fe) (mg/kg)	18200	23200	22100	21000	17200
Lead (Pb) (mg/kg)	31.3	225	163	41.6	11.0
Lithium (Li) (mg/kg)	5.1	7.8	13.7	7.4	5.4
Manganese (Mn) (mg/kg)	275	272	247	373	229
Mercury (Hg) (mg/kg)	0.115	0.186	0.0534	0.0647	0.0182
Molybdenum (Mo) (mg/kg)	0.40	0.61	3.87	0.75	0.50
Nickel (Ni) (mg/kg)	9.37	12.6	23.0	27.1	11.2
Selenium (Se) (mg/kg)	<0.20	<0.20	0.42	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	0.20	0.11	<0.10	<0.10
Strontium (Sr) (mg/kg)	34.1	64.4	34.3	47.4	25.9
Thallium (Tl) (mg/kg)	0.062	0.065	0.117	0.055	<0.050
Tin (Sn) (mg/kg)	5.0	43.8	163	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.411	0.538	3.11	0.346	0.306
Vanadium (V) (mg/kg)	45.8	50.2	39.4	49.8	40.7
Zinc (Zn) (mg/kg)	52.5	86.0	52.7	81.1	152
TCLP Metals 1st Preliminary pH (pH)	8.39		8.87		
2nd Preliminary pH (pH)	1.62		1.61		
Final pH (pH)	5.01		4.98		
Extraction Solution Initial pH (pH)	4.91		4.93		
Antimony (Sb)-Leachable (mg/L)	<1.0		<1.0		
Arsenic (As)-Leachable (mg/L)	<1.0		<1.0		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L2096509-40 Soil 15-MAY-18 BH150-03	L2096509-41 Soil 15-MAY-18 BH150-04	L2096509-42 Soil 15-MAY-18 BH150-05	L2096509-45 Soil 15-MAY-18 Z120	
SOIL							
Physical Tests	Moisture (%)						
	pH (1:2 soil:water) (pH)		6.91	6.94	6.90		
Saturated Paste Extractables	Chloride (Cl) (mg/kg)		2.44			2.49	
	% Saturation (%)		22.9			24.0	
	Sodium (Na) (mg/kg)		2.5			3.0	
Metals	Aluminum (Al) (mg/kg)		13500	12100	14300		
	Antimony (Sb) (mg/kg)		0.27	0.22	0.32		
	Arsenic (As) (mg/kg)		2.23	2.28	2.61		
	Barium (Ba) (mg/kg)		51.3	55.2	61.8		
	Beryllium (Be) (mg/kg)		0.16	0.15	0.17		
	Boron (B) (mg/kg)		<5.0	<5.0	<5.0		
	Cadmium (Cd) (mg/kg)		0.053	0.053	0.070		
	Chromium (Cr) (mg/kg)		14.7	21.8	14.6		
	Cobalt (Co) (mg/kg)		5.51	5.32	6.09		
	Copper (Cu) (mg/kg)		15.8	15.8	17.9		
	Iron (Fe) (mg/kg)		15800	15600	17300		
	Lead (Pb) (mg/kg)		4.10	3.30	6.58		
	Lithium (Li) (mg/kg)		6.6	5.8	6.1		
	Manganese (Mn) (mg/kg)		236	217	250		
	Mercury (Hg) (mg/kg)		0.0150	0.0130	0.0155		
	Molybdenum (Mo) (mg/kg)		0.29	0.21	0.26		
	Nickel (Ni) (mg/kg)		9.93	9.74	12.9		
	Selenium (Se) (mg/kg)		<0.20	<0.20	<0.20		
	Silver (Ag) (mg/kg)		<0.10	<0.10	<0.10		
	Strontium (Sr) (mg/kg)		26.3	26.9	37.3		
	Thallium (Tl) (mg/kg)		<0.050	0.052	<0.050		
	Tin (Sn) (mg/kg)		<2.0	<2.0	<2.0		
	Tungsten (W) (mg/kg)		<0.50	<0.50	<0.50		
	Uranium (U) (mg/kg)		0.308	0.362	0.342		
	Vanadium (V) (mg/kg)		42.1	41.9	47.7		
	Zinc (Zn) (mg/kg)		31.3	30.0	35.4		
TCLP Metals	1st Preliminary pH (pH)						
	2nd Preliminary pH (pH)						
	Final pH (pH)						
	Extraction Solution Initial pH (pH)						
	Antimony (Sb)-Leachable (mg/L)						
	Arsenic (As)-Leachable (mg/L)						

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2096509-1 Soil 15-MAY-18 BH139-01	L2096509-2 Soil 15-MAY-18 BH139-02	L2096509-3 Soil 15-MAY-18 BH139-03	L2096509-4 Soil 15-MAY-18 BH139-04	L2096509-5 Soil 15-MAY-18 BH139-05
SOIL						
TCLP Metals	Barium (Ba)-Leachable (mg/L)	<2.5	<2.5			
	Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025			
	Boron (B)-Leachable (mg/L)	<0.50	<0.50			
	Cadmium (Cd)-Leachable (mg/L)	<0.050	<0.050			
	Calcium (Ca)-Leachable (mg/L)	763	198			
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25			
	Cobalt (Co)-Leachable (mg/L)	<0.050	<0.050			
	Copper (Cu)-Leachable (mg/L)	<0.050	0.124			
	Iron (Fe)-Leachable (mg/L)	<5.0	<5.0			
	Lead (Pb)-Leachable (mg/L)	<0.25	0.28			
	Magnesium (Mg)-Leachable (mg/L)	8.24	5.70			
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010			
	Nickel (Ni)-Leachable (mg/L)	<0.25	<0.25			
	Selenium (Se)-Leachable (mg/L)	<1.0	<1.0			
	Silver (Ag)-Leachable (mg/L)	<0.050	<0.050			
	Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0			
	Vanadium (V)-Leachable (mg/L)	<0.15	<0.15			
	Zinc (Zn)-Leachable (mg/L)	<0.50	0.61			
Volatile Organic Compounds	VOC Sample Container		Field MeOH	Field MeOH		
	Benzene (mg/kg)		0.0689	<0.0050		
	Bromodichloromethane (mg/kg)		<0.050	<0.050		
	Bromoform (mg/kg)		<0.050	<0.050		
	Carbon Tetrachloride (mg/kg)		<0.050	<0.050		
	Chlorobenzene (mg/kg)		<0.050	<0.050		
	Dibromochloromethane (mg/kg)		<0.050	<0.050		
	Chloroethane (mg/kg)		<0.10	<0.10		
	Chloroform (mg/kg)		<0.10	<0.10		
	Chloromethane (mg/kg)		<0.10	<0.10		
	1,2-Dichlorobenzene (mg/kg)		0.152	<0.050		
	1,3-Dichlorobenzene (mg/kg)		<0.050	<0.050		
	1,4-Dichlorobenzene (mg/kg)		0.050	<0.050		
	1,1-Dichloroethane (mg/kg)		<0.050	<0.050		
	1,2-Dichloroethane (mg/kg)		<0.050	<0.050		
	1,1-Dichloroethylene (mg/kg)		<0.050	<0.050		
	cis-1,2-Dichloroethylene (mg/kg)		<0.050	<0.050		
	trans-1,2-Dichloroethylene (mg/kg)		<0.050	<0.050		
	Dichloromethane (mg/kg)		<0.30	<0.30		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-7	L2096509-9	L2096509-10	L2096509-12	L2096509-13
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH140-01	BH140-02	BH140-03	BH140-05	BH140-06
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Barium (Ba)-Leachable (mg/L)	<2.5				
Beryllium (Be)-Leachable (mg/L)	<0.025				
Boron (B)-Leachable (mg/L)	<0.50				
Cadmium (Cd)-Leachable (mg/L)	<0.050				
Calcium (Ca)-Leachable (mg/L)	39.1				
Chromium (Cr)-Leachable (mg/L)	<0.25				
Cobalt (Co)-Leachable (mg/L)	<0.050				
Copper (Cu)-Leachable (mg/L)	<0.050				
Iron (Fe)-Leachable (mg/L)	<5.0				
Lead (Pb)-Leachable (mg/L)	<0.25				
Magnesium (Mg)-Leachable (mg/L)	4.22				
Mercury (Hg)-Leachable (mg/L)	<0.0010				
Nickel (Ni)-Leachable (mg/L)	<0.25				
Selenium (Se)-Leachable (mg/L)	<1.0				
Silver (Ag)-Leachable (mg/L)	<0.050				
Thallium (Tl)-Leachable (mg/L)	<1.0				
Vanadium (V)-Leachable (mg/L)	<0.15				
Zinc (Zn)-Leachable (mg/L)	<0.50				
Volatile Organic Compounds					
VOC Sample Container					
Benzene (mg/kg)					
Bromodichloromethane (mg/kg)					
Bromoform (mg/kg)					
Carbon Tetrachloride (mg/kg)					
Chlorobenzene (mg/kg)					
Dibromochloromethane (mg/kg)					
Chloroethane (mg/kg)					
Chloroform (mg/kg)					
Chloromethane (mg/kg)					
1,2-Dichlorobenzene (mg/kg)					
1,3-Dichlorobenzene (mg/kg)					
1,4-Dichlorobenzene (mg/kg)					
1,1-Dichloroethane (mg/kg)					
1,2-Dichloroethane (mg/kg)					
1,1-Dichloroethylene (mg/kg)					
cis-1,2-Dichloroethylene (mg/kg)					
trans-1,2-Dichloroethylene (mg/kg)					
Dichloromethane (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2096509-16	L2096509-18	L2096509-21	L2096509-23	L2096509-24
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
	Sampled Time					
	Client ID	BH141-02	BH141-04	BH141-07	BH142-02	Z118
Grouping	**Analyte**					
SOIL						
TCLP Metals	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					
	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					
Volatile Organic Compounds	VOC Sample Container					
	Benzene (mg/kg)					
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					
	trans-1,2-Dichloroethylene (mg/kg)					
	Dichloromethane (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2096509-25 Soil 15-MAY-18 BH142-03	L2096509-26 Soil 15-MAY-18 Z119	L2096509-28 Soil 15-MAY-18 BH142-05	L2096509-31 Soil 15-MAY-18 BH145-01	L2096509-32 Soil 15-MAY-18 BH145-02
SOIL						
TCLP Metals	Barium (Ba)-Leachable (mg/L)				<2.5	
	Beryllium (Be)-Leachable (mg/L)				<0.025	
	Boron (B)-Leachable (mg/L)				<0.50	
	Cadmium (Cd)-Leachable (mg/L)				<0.050	
	Calcium (Ca)-Leachable (mg/L)				26.9	
	Chromium (Cr)-Leachable (mg/L)				<0.25	
	Cobalt (Co)-Leachable (mg/L)				<0.050	
	Copper (Cu)-Leachable (mg/L)				<0.050	
	Iron (Fe)-Leachable (mg/L)				<5.0	
	Lead (Pb)-Leachable (mg/L)				<0.25	
	Magnesium (Mg)-Leachable (mg/L)				4.03	
	Mercury (Hg)-Leachable (mg/L)				<0.0010	
	Nickel (Ni)-Leachable (mg/L)				<0.25	
	Selenium (Se)-Leachable (mg/L)				<1.0	
	Silver (Ag)-Leachable (mg/L)				<0.050	
	Thallium (Tl)-Leachable (mg/L)				<1.0	
	Vanadium (V)-Leachable (mg/L)				<0.15	
	Zinc (Zn)-Leachable (mg/L)				<0.50	
Volatile Organic Compounds	VOC Sample Container					
	Benzene (mg/kg)					
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					
	trans-1,2-Dichloroethylene (mg/kg)					
	Dichloromethane (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-34	L2096509-35	L2096509-36	L2096509-38	L2096509-39
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH145-04	BH145-05	BH145-06	BH150-01	BH150-02
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Barium (Ba)-Leachable (mg/L)	<2.5		<2.5		
Beryllium (Be)-Leachable (mg/L)	<0.025		<0.025		
Boron (B)-Leachable (mg/L)	<0.50		<0.50		
Cadmium (Cd)-Leachable (mg/L)	<0.050		<0.050		
Calcium (Ca)-Leachable (mg/L)	75.9		32.8		
Chromium (Cr)-Leachable (mg/L)	<0.25		<0.25		
Cobalt (Co)-Leachable (mg/L)	<0.050		<0.050		
Copper (Cu)-Leachable (mg/L)	<0.050		<0.050		
Iron (Fe)-Leachable (mg/L)	19.4		<5.0		
Lead (Pb)-Leachable (mg/L)	<0.25		<0.25		
Magnesium (Mg)-Leachable (mg/L)	2.27		19.0		
Mercury (Hg)-Leachable (mg/L)	<0.0010		<0.0010		
Nickel (Ni)-Leachable (mg/L)	<0.25		<0.25		
Selenium (Se)-Leachable (mg/L)	<1.0		<1.0		
Silver (Ag)-Leachable (mg/L)	<0.050		<0.050		
Thallium (Tl)-Leachable (mg/L)	<1.0		<1.0		
Vanadium (V)-Leachable (mg/L)	<0.15		<0.15		
Zinc (Zn)-Leachable (mg/L)	<0.50		<0.50		
Volatile Organic Compounds					
VOC Sample Container	Field MeOH				
Benzene (mg/kg)	0.0082				
Bromodichloromethane (mg/kg)					
Bromoform (mg/kg)					
Carbon Tetrachloride (mg/kg)					
Chlorobenzene (mg/kg)					
Dibromochloromethane (mg/kg)					
Chloroethane (mg/kg)					
Chloroform (mg/kg)					
Chloromethane (mg/kg)					
1,2-Dichlorobenzene (mg/kg)					
1,3-Dichlorobenzene (mg/kg)					
1,4-Dichlorobenzene (mg/kg)					
1,1-Dichloroethane (mg/kg)					
1,2-Dichloroethane (mg/kg)					
1,1-Dichloroethylene (mg/kg)					
cis-1,2-Dichloroethylene (mg/kg)					
trans-1,2-Dichloroethylene (mg/kg)					
Dichloromethane (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-40	L2096509-41	L2096509-42	L2096509-45	
Description	Soil	Soil	Soil	Soil	
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	
Sampled Time					
Client ID	BH150-03	BH150-04	BH150-05	Z120	
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Barium (Ba)-Leachable (mg/L)					
Beryllium (Be)-Leachable (mg/L)					
Boron (B)-Leachable (mg/L)					
Cadmium (Cd)-Leachable (mg/L)					
Calcium (Ca)-Leachable (mg/L)					
Chromium (Cr)-Leachable (mg/L)					
Cobalt (Co)-Leachable (mg/L)					
Copper (Cu)-Leachable (mg/L)					
Iron (Fe)-Leachable (mg/L)					
Lead (Pb)-Leachable (mg/L)					
Magnesium (Mg)-Leachable (mg/L)					
Mercury (Hg)-Leachable (mg/L)					
Nickel (Ni)-Leachable (mg/L)					
Selenium (Se)-Leachable (mg/L)					
Silver (Ag)-Leachable (mg/L)					
Thallium (TI)-Leachable (mg/L)					
Vanadium (V)-Leachable (mg/L)					
Zinc (Zn)-Leachable (mg/L)					
Volatile Organic Compounds					
VOC Sample Container					
Benzene (mg/kg)					
Bromodichloromethane (mg/kg)					
Bromoform (mg/kg)					
Carbon Tetrachloride (mg/kg)					
Chlorobenzene (mg/kg)					
Dibromochloromethane (mg/kg)					
Chloroethane (mg/kg)					
Chloroform (mg/kg)					
Chloromethane (mg/kg)					
1,2-Dichlorobenzene (mg/kg)					
1,3-Dichlorobenzene (mg/kg)					
1,4-Dichlorobenzene (mg/kg)					
1,1-Dichloroethane (mg/kg)					
1,2-Dichloroethane (mg/kg)					
1,1-Dichloroethylene (mg/kg)					
cis-1,2-Dichloroethylene (mg/kg)					
trans-1,2-Dichloroethylene (mg/kg)					
Dichloromethane (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-1	L2096509-2	L2096509-3	L2096509-4	L2096509-5
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH139-01	BH139-02	BH139-03	BH139-04	BH139-05
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,2-Dichloropropane (mg/kg)		<0.050	<0.050		
cis-1,3-Dichloropropylene (mg/kg)		<0.050	<0.050		
trans-1,3-Dichloropropylene (mg/kg)		<0.050	<0.050		
1,3-Dichloropropene (cis & trans) (mg/kg)		<0.10	<0.10		
Ethylbenzene (mg/kg)		0.214	<0.015		
Methyl t-butyl ether (MTBE) (mg/kg)		<0.20	<0.20		
Styrene (mg/kg)		<0.050	<0.050		
1,1,1,2-Tetrachloroethane (mg/kg)		<0.050	<0.050		
1,1,2,2-Tetrachloroethane (mg/kg)		<0.050	<0.050		
Tetrachloroethylene (mg/kg)		<0.050	<0.050		
Toluene (mg/kg)		0.227	<0.050		
1,1,1-Trichloroethane (mg/kg)		<0.050	<0.050		
1,1,2-Trichloroethane (mg/kg)		<0.050	<0.050		
Trichloroethylene (mg/kg)		<0.010	<0.010		
Trichlorofluoromethane (mg/kg)		<0.10	<0.10		
Vinyl Chloride (mg/kg)		<0.10	<0.10		
ortho-Xylene (mg/kg)		0.270	<0.050		
meta- & para-Xylene (mg/kg)		0.802	<0.050		
Xylenes (mg/kg)		1.07	<0.075		
Surrogate: 4-Bromofluorobenzene (SS) (%)		83.3	SURR-ND 130.3		
Surrogate: 1,4-Difluorobenzene (SS) (%)		89.2	122.4		
Hydrocarbons					
EPH10-19 (mg/kg)	<200	<200	<200		<200
EPH19-32 (mg/kg)	<200	470	<200		<200
LEPH (mg/kg)		<200	<200		<200
HEPH (mg/kg)		470	<200		<200
Volatile Hydrocarbons (VH6-10) (mg/kg)		<100	<100		
VPH (C6-C10) (mg/kg)		<100	<100		
Surrogate: 2-Bromobenzotrifluoride (%)	83.4	87.8	87.3		91.2
Surrogate: 3,4-Dichlorotoluene (SS) (%)		SMI Not Reportable	SURR-ND 172.1		
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)		DLCI <0.020	<0.0050		<0.0050
Acenaphthylene (mg/kg)		DLCI <0.020	<0.0050		<0.0050
Anthracene (mg/kg)		0.0413	<0.0040		<0.0040
Benz(a)anthracene (mg/kg)		DLCI <0.050	<0.010		<0.010
Benzo(a)pyrene (mg/kg)		0.053	<0.010		<0.010
Benzo(b&j)fluoranthene (mg/kg)		0.089	<0.010		<0.010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-7	L2096509-9	L2096509-10	L2096509-12	L2096509-13
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH140-01	BH140-02	BH140-03	BH140-05	BH140-06
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,2-Dichloropropane (mg/kg)					
cis-1,3-Dichloropropylene (mg/kg)					
trans-1,3-Dichloropropylene (mg/kg)					
1,3-Dichloropropene (cis & trans) (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)					
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					
Surrogate: 4-Bromofluorobenzene (SS) (%)					
Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons					
EPH10-19 (mg/kg)					<200
EPH19-32 (mg/kg)					<200
LEPH (mg/kg)					<200
HEPH (mg/kg)					<200
Volatile Hydrocarbons (VH6-10) (mg/kg)					
VPH (C6-C10) (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)					88.6
Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)					<0.0050
Acenaphthylene (mg/kg)					<0.0050
Anthracene (mg/kg)					<0.0070 DLQ
Benz(a)anthracene (mg/kg)					0.021
Benzo(a)pyrene (mg/kg)					0.021
Benzo(b&j)fluoranthene (mg/kg)					0.028

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-16	L2096509-18	L2096509-21	L2096509-23	L2096509-24
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH141-02	BH141-04	BH141-07	BH142-02	Z118
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,2-Dichloropropane (mg/kg)					
cis-1,3-Dichloropropylene (mg/kg)					
trans-1,3-Dichloropropylene (mg/kg)					
1,3-Dichloropropene (cis & trans) (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)					
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					
Surrogate: 4-Bromofluorobenzene (SS) (%)					
Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons					
EPH10-19 (mg/kg)				<200	<200
EPH19-32 (mg/kg)				<200	<200
LEPH (mg/kg)				<200	<200
HEPH (mg/kg)				<200	<200
Volatile Hydrocarbons (VH6-10) (mg/kg)					
VPH (C6-C10) (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)				85.8	86.1
Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)				<0.0050	0.0142
Acenaphthylene (mg/kg)				<0.0050	<0.0050
Anthracene (mg/kg)				<0.0040	0.0282
Benz(a)anthracene (mg/kg)				<0.010	0.047
Benzo(a)pyrene (mg/kg)				<0.010	0.039
Benzo(b&j)fluoranthene (mg/kg)				<0.010	0.047

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-25	L2096509-26	L2096509-28	L2096509-31	L2096509-32
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH142-03	Z119	BH142-05	BH145-01	BH145-02
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds / 1,2-Dichloropropane (mg/kg)					
cis-1,3-Dichloropropylene (mg/kg)					
trans-1,3-Dichloropropylene (mg/kg)					
1,3-Dichloropropene (cis & trans) (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)					
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					
Surrogate: 4-Bromofluorobenzene (SS) (%)					
Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons / EPH10-19 (mg/kg)					<200
EPH19-32 (mg/kg)					<200
LEPH (mg/kg)					<200
HEPH (mg/kg)					<200
Volatile Hydrocarbons (VH6-10) (mg/kg)					
VPH (C6-C10) (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)					86.9
Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/kg)					0.0264
Acenaphthylene (mg/kg)					0.0490
Anthracene (mg/kg)					0.269
Benz(a)anthracene (mg/kg)					1.13
Benzo(a)pyrene (mg/kg)					1.08
Benzo(b&j)fluoranthene (mg/kg)					1.71

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-34	L2096509-35	L2096509-36	L2096509-38	L2096509-39
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH145-04	BH145-05	BH145-06	BH150-01	BH150-02
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,2-Dichloropropane (mg/kg)					
cis-1,3-Dichloropropylene (mg/kg)					
trans-1,3-Dichloropropylene (mg/kg)					
1,3-Dichloropropene (cis & trans) (mg/kg)					
Ethylbenzene (mg/kg)	<0.015				
Methyl t-butyl ether (MTBE) (mg/kg)	<0.20				
Styrene (mg/kg)	<0.050				
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)	<0.050				
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)	<0.050				
meta- & para-Xylene (mg/kg)	<0.050				
Xylenes (mg/kg)	<0.075				
Surrogate: 4-Bromofluorobenzene (SS) (%)	122.6				
Surrogate: 1,4-Difluorobenzene (SS) (%)	114.0				
Hydrocarbons					
EPH10-19 (mg/kg)	<200				<200
EPH19-32 (mg/kg)	230				<200
LEPH (mg/kg)	<200				<200
HEPH (mg/kg)	220				<200
Volatile Hydrocarbons (VH6-10) (mg/kg)	<100				
VPH (C6-C10) (mg/kg)	<100				
Surrogate: 2-Bromobenzotrifluoride (%)	90.4				88.0
Surrogate: 3,4-Dichlorotoluene (SS) (%)	174.4 SURR-ND				
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	1.27				0.0057
Acenaphthylene (mg/kg)	0.147				<0.0050
Anthracene (mg/kg)	0.870				0.0168
Benz(a)anthracene (mg/kg)	1.37				0.032
Benzo(a)pyrene (mg/kg)	1.26				0.033
Benzo(b&j)fluoranthene (mg/kg)	1.81				0.058

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-40	L2096509-41	L2096509-42	L2096509-45	
Description	Soil	Soil	Soil	Soil	
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	
Sampled Time					
Client ID	BH150-03	BH150-04	BH150-05	Z120	
Grouping	**Analyte**				
SOIL					
Volatile Organic Compounds	1,2-Dichloropropane (mg/kg)				
	cis-1,3-Dichloropropylene (mg/kg)				
	trans-1,3-Dichloropropylene (mg/kg)				
	1,3-Dichloropropene (cis & trans) (mg/kg)				
	Ethylbenzene (mg/kg)				
	Methyl t-butyl ether (MTBE) (mg/kg)				
	Styrene (mg/kg)				
	1,1,1,2-Tetrachloroethane (mg/kg)				
	1,1,2,2-Tetrachloroethane (mg/kg)				
	Tetrachloroethylene (mg/kg)				
	Toluene (mg/kg)				
	1,1,1-Trichloroethane (mg/kg)				
	1,1,2-Trichloroethane (mg/kg)				
	Trichloroethylene (mg/kg)				
	Trichlorofluoromethane (mg/kg)				
	Vinyl Chloride (mg/kg)				
	ortho-Xylene (mg/kg)				
	meta- & para-Xylene (mg/kg)				
	Xylenes (mg/kg)				
	Surrogate: 4-Bromofluorobenzene (SS) (%)				
	Surrogate: 1,4-Difluorobenzene (SS) (%)				
Hydrocarbons	EPH10-19 (mg/kg)				
	EPH19-32 (mg/kg)				
	LEPH (mg/kg)				
	HEPH (mg/kg)				
	Volatile Hydrocarbons (VH6-10) (mg/kg)				
	VPH (C6-C10) (mg/kg)				
	Surrogate: 2-Bromobenzotrifluoride (%)				
	Surrogate: 3,4-Dichlorotoluene (SS) (%)				
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)				
	Acenaphthylene (mg/kg)				
	Anthracene (mg/kg)				
	Benz(a)anthracene (mg/kg)				
	Benzo(a)pyrene (mg/kg)				
	Benzo(b&j)fluoranthene (mg/kg)				

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-1	L2096509-2	L2096509-3	L2096509-4	L2096509-5
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH139-01	BH139-02	BH139-03	BH139-04	BH139-05
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Benzo(b+j+k)fluoranthene (mg/kg)		0.125	<0.015		<0.015
Benzo(g,h,i)perylene (mg/kg)		0.070	<0.010		<0.010
Benzo(k)fluoranthene (mg/kg)		0.036	<0.010		<0.010
Chrysene (mg/kg)		<0.060 DLCI	<0.010		<0.010
Dibenz(a,h)anthracene (mg/kg)		<0.030 DLQ	<0.0050		<0.0050
Fluoranthene (mg/kg)		0.092	<0.010		<0.010
Fluorene (mg/kg)		<0.040 DLQ	<0.010		<0.010
Indeno(1,2,3-c,d)pyrene (mg/kg)		0.056	<0.010		<0.010
1-Methylnaphthalene (mg/kg)		0.405	<0.050		<0.050
2-Methylnaphthalene (mg/kg)		0.578	0.030		<0.010
Naphthalene (mg/kg)		0.429	0.023		<0.010
Phenanthrene (mg/kg)		0.159	<0.010		<0.010
Pyrene (mg/kg)		0.104	<0.010		<0.010
Quinoline (mg/kg)		<0.050	<0.050		<0.050
Surrogate: Acenaphthene d10 (%)		102.3	99.8		112.9
Surrogate: Chrysene d12 (%)		68.8	105.1		112.7
Surrogate: Naphthalene d8 (%)		91.4	102.2		112.3
Surrogate: Phenanthrene d10 (%)		95.8	106.9		118.3
B(a)P Total Potency Equivalent (mg/kg)		0.090	<0.020		<0.020
IACR (CCME) (mg/kg)		1.11	<0.15		<0.15
Phenolics					
4-Chloro-3-methylphenol (mg/kg)					
2-Chlorophenol (mg/kg)					
3-Chlorophenol (mg/kg)					
4-Chlorophenol (mg/kg)					
2,3-Dichlorophenol (mg/kg)					
2,4 & 2,5-Dichlorophenol (mg/kg)					
2,6-Dichlorophenol (mg/kg)					
3,4-Dichlorophenol (mg/kg)					
3,5-Dichlorophenol (mg/kg)					
2,4-Dimethylphenol (mg/kg)					
o-Cresol (mg/kg)					
m-Cresol (mg/kg)					
p-Cresol (mg/kg)					
Pentachlorophenol (mg/kg)					
Phenol (mg/kg)					
2,3,4,5-Tetrachlorophenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-7	L2096509-9	L2096509-10	L2096509-12	L2096509-13
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH140-01	BH140-02	BH140-03	BH140-05	BH140-06
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Benzo(b+j+k)fluoranthene (mg/kg)					0.041
Benzo(g,h,i)perylene (mg/kg)					0.016
Benzo(k)fluoranthene (mg/kg)					0.012
Chrysene (mg/kg)					0.019
Dibenz(a,h)anthracene (mg/kg)					<0.0050
Fluoranthene (mg/kg)					0.036
Fluorene (mg/kg)					<0.010
Indeno(1,2,3-c,d)pyrene (mg/kg)					0.014
1-Methylnaphthalene (mg/kg)					<0.050
2-Methylnaphthalene (mg/kg)					0.012
Naphthalene (mg/kg)					0.015
Phenanthrene (mg/kg)					0.017
Pyrene (mg/kg)					0.037
Quinoline (mg/kg)					<0.050
Surrogate: Acenaphthene d10 (%)					102.7
Surrogate: Chrysene d12 (%)					108.2
Surrogate: Naphthalene d8 (%)					99.7
Surrogate: Phenanthrene d10 (%)					116.1
B(a)P Total Potency Equivalent (mg/kg)					0.031
IACR (CCME) (mg/kg)					0.40
Phenolics					
4-Chloro-3-methylphenol (mg/kg)					<0.020
2-Chlorophenol (mg/kg)					<0.020
3-Chlorophenol (mg/kg)					<0.020
4-Chlorophenol (mg/kg)					<0.020
2,3-Dichlorophenol (mg/kg)					<0.020
2,4 & 2,5-Dichlorophenol (mg/kg)					<0.020
2,6-Dichlorophenol (mg/kg)					<0.020
3,4-Dichlorophenol (mg/kg)					<0.020
3,5-Dichlorophenol (mg/kg)					<0.020
2,4-Dimethylphenol (mg/kg)					<0.020
o-Cresol (mg/kg)					<0.040 DLB
m-Cresol (mg/kg)					<0.020
p-Cresol (mg/kg)					<0.040 DLCI
Pentachlorophenol (mg/kg)					<0.020
Phenol (mg/kg)					<0.020
2,3,4,5-Tetrachlorophenol (mg/kg)					<0.020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-16	L2096509-18	L2096509-21	L2096509-23	L2096509-24
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH141-02	BH141-04	BH141-07	BH142-02	Z118
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Benzo(b+j+k)fluoranthene (mg/kg)				<0.015	0.064
Benzo(g,h,i)perylene (mg/kg)				<0.010	0.023
Benzo(k)fluoranthene (mg/kg)				<0.010	0.016
Chrysene (mg/kg)				<0.010	0.048
Dibenz(a,h)anthracene (mg/kg)				<0.0050	0.0058
Fluoranthene (mg/kg)				<0.010	0.092
Fluorene (mg/kg)				<0.010	<0.010
Indeno(1,2,3-c,d)pyrene (mg/kg)				<0.010	0.022
1-Methylnaphthalene (mg/kg)				<0.050	<0.050
2-Methylnaphthalene (mg/kg)				<0.010	<0.010
Naphthalene (mg/kg)				<0.010	<0.010
Phenanthrene (mg/kg)				<0.010	0.129
Pyrene (mg/kg)				<0.010	0.126
Quinoline (mg/kg)				<0.050	<0.050
Surrogate: Acenaphthene d10 (%)				99.4	97.4
Surrogate: Chrysene d12 (%)				110.2	106.6
Surrogate: Naphthalene d8 (%)				102.8	98.1
Surrogate: Phenanthrene d10 (%)				108.5	103.7
B(a)P Total Potency Equivalent (mg/kg)				<0.020	0.059
IACR (CCME) (mg/kg)				<0.15	0.71
Phenolics					
4-Chloro-3-methylphenol (mg/kg)					
2-Chlorophenol (mg/kg)					
3-Chlorophenol (mg/kg)					
4-Chlorophenol (mg/kg)					
2,3-Dichlorophenol (mg/kg)					
2,4 & 2,5-Dichlorophenol (mg/kg)					
2,6-Dichlorophenol (mg/kg)					
3,4-Dichlorophenol (mg/kg)					
3,5-Dichlorophenol (mg/kg)					
2,4-Dimethylphenol (mg/kg)					
o-Cresol (mg/kg)					
m-Cresol (mg/kg)					
p-Cresol (mg/kg)					
Pentachlorophenol (mg/kg)					
Phenol (mg/kg)					
2,3,4,5-Tetrachlorophenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-25	L2096509-26	L2096509-28	L2096509-31	L2096509-32
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH142-03	Z119	BH142-05	BH145-01	BH145-02
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Benzo(b+j+k)fluoranthene (mg/kg)					2.36
Benzo(g,h,i)perylene (mg/kg)					0.850
Benzo(k)fluoranthene (mg/kg)					0.654
Chrysene (mg/kg)					1.06
Dibenz(a,h)anthracene (mg/kg)					0.173
Fluoranthene (mg/kg)					2.58
Fluorene (mg/kg)					0.018
Indeno(1,2,3-c,d)pyrene (mg/kg)					0.855
1-Methylnaphthalene (mg/kg)					<0.050
2-Methylnaphthalene (mg/kg)					0.014
Naphthalene (mg/kg)					0.022
Phenanthrene (mg/kg)					0.200
Pyrene (mg/kg)					2.26
Quinoline (mg/kg)					<0.050
Surrogate: Acenaphthene d10 (%)					119.9
Surrogate: Chrysene d12 (%)					117.2
Surrogate: Naphthalene d8 (%)					95.8
Surrogate: Phenanthrene d10 (%)					122.9
B(a)P Total Potency Equivalent (mg/kg)					1.71
IACR (CCME) (mg/kg)					22.8
Phenolics					
4-Chloro-3-methylphenol (mg/kg)					
2-Chlorophenol (mg/kg)					
3-Chlorophenol (mg/kg)					
4-Chlorophenol (mg/kg)					
2,3-Dichlorophenol (mg/kg)					
2,4 & 2,5-Dichlorophenol (mg/kg)					
2,6-Dichlorophenol (mg/kg)					
3,4-Dichlorophenol (mg/kg)					
3,5-Dichlorophenol (mg/kg)					
2,4-Dimethylphenol (mg/kg)					
o-Cresol (mg/kg)					
m-Cresol (mg/kg)					
p-Cresol (mg/kg)					
Pentachlorophenol (mg/kg)					
Phenol (mg/kg)					
2,3,4,5-Tetrachlorophenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L2096509-34 Soil 15-MAY-18 BH145-04	L2096509-35 Soil 15-MAY-18 BH145-05	L2096509-36 Soil 15-MAY-18 BH145-06	L2096509-38 Soil 15-MAY-18 BH150-01	L2096509-39 Soil 15-MAY-18 BH150-02
SOIL							
Polycyclic Aromatic Hydrocarbons	Benzo(b+j+k)fluoranthene (mg/kg)		2.56				0.078
	Benzo(g,h,i)perylene (mg/kg)		0.818				0.036
	Benzo(k)fluoranthene (mg/kg)		0.745				0.020
	Chrysene (mg/kg)		1.28				0.040
	Dibenz(a,h)anthracene (mg/kg)		0.180				0.0069
	Fluoranthene (mg/kg)		4.22				0.071
	Fluorene (mg/kg)		0.965				<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)		0.894				0.032
	1-Methylnaphthalene (mg/kg)		0.132				<0.050
	2-Methylnaphthalene (mg/kg)		0.104				<0.010
	Naphthalene (mg/kg)		0.173				0.015
	Phenanthrene (mg/kg)		4.73				0.070
	Pyrene (mg/kg)		3.58				0.076
	Quinoline (mg/kg)		<0.050				<0.050
	Surrogate: Acenaphthene d10 (%)		100.4				99.3
	Surrogate: Chrysene d12 (%)		94.4				114.8
	Surrogate: Naphthalene d8 (%)		92.9				91.3
	Surrogate: Phenanthrene d10 (%)		103.9				116.3
	B(a)P Total Potency Equivalent (mg/kg)		1.94				0.055
	IACR (CCME) (mg/kg)		25.4				0.74
Phenolics	4-Chloro-3-methylphenol (mg/kg)						
	2-Chlorophenol (mg/kg)						
	3-Chlorophenol (mg/kg)						
	4-Chlorophenol (mg/kg)						
	2,3-Dichlorophenol (mg/kg)						
	2,4 & 2,5-Dichlorophenol (mg/kg)						
	2,6-Dichlorophenol (mg/kg)						
	3,4-Dichlorophenol (mg/kg)						
	3,5-Dichlorophenol (mg/kg)						
	2,4-Dimethylphenol (mg/kg)						
	o-Cresol (mg/kg)						
	m-Cresol (mg/kg)						
	p-Cresol (mg/kg)						
	Pentachlorophenol (mg/kg)						
	Phenol (mg/kg)						
	2,3,4,5-Tetrachlorophenol (mg/kg)						

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-40	L2096509-41	L2096509-42	L2096509-45	
Description	Soil	Soil	Soil	Soil	
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	
Sampled Time					
Client ID	BH150-03	BH150-04	BH150-05	Z120	
Grouping	**Analyte**				
SOIL					
Polycyclic Aromatic Hydrocarbons	Benzo(b+j+k)fluoranthene (mg/kg)				
	Benzo(g,h,i)perylene (mg/kg)				
	Benzo(k)fluoranthene (mg/kg)				
	Chrysene (mg/kg)				
	Dibenz(a,h)anthracene (mg/kg)				
	Fluoranthene (mg/kg)				
	Fluorene (mg/kg)				
	Indeno(1,2,3-c,d)pyrene (mg/kg)				
	1-Methylnaphthalene (mg/kg)				
	2-Methylnaphthalene (mg/kg)				
	Naphthalene (mg/kg)				
	Phenanthrene (mg/kg)				
	Pyrene (mg/kg)				
	Quinoline (mg/kg)				
	Surrogate: Acenaphthene d10 (%)				
	Surrogate: Chrysene d12 (%)				
	Surrogate: Naphthalene d8 (%)				
	Surrogate: Phenanthrene d10 (%)				
	B(a)P Total Potency Equivalent (mg/kg)				
	IACR (CCME) (mg/kg)				
Phenolics	4-Chloro-3-methylphenol (mg/kg)				
	2-Chlorophenol (mg/kg)				
	3-Chlorophenol (mg/kg)				
	4-Chlorophenol (mg/kg)				
	2,3-Dichlorophenol (mg/kg)				
	2,4 & 2,5-Dichlorophenol (mg/kg)				
	2,6-Dichlorophenol (mg/kg)				
	3,4-Dichlorophenol (mg/kg)				
	3,5-Dichlorophenol (mg/kg)				
	2,4-Dimethylphenol (mg/kg)				
	o-Cresol (mg/kg)				
	m-Cresol (mg/kg)				
	p-Cresol (mg/kg)				
	Pentachlorophenol (mg/kg)				
	Phenol (mg/kg)				
	2,3,4,5-Tetrachlorophenol (mg/kg)				

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2096509-1	L2096509-2	L2096509-3	L2096509-4	L2096509-5
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
	Sampled Time					
	Client ID	BH139-01	BH139-02	BH139-03	BH139-04	BH139-05
Grouping	**Analyte**					
SOIL						
Phenolics	2,3,4,6-Tetrachlorophenol (mg/kg)					
	2,3,5,6-Tetrachlorophenol (mg/kg)					
	2,3,4-Trichlorophenol (mg/kg)					
	2,3,5-Trichlorophenol (mg/kg)					
	2,3,6-Trichlorophenol (mg/kg)					
	2,4,5-Trichlorophenol (mg/kg)					
	2,4,6-Trichlorophenol (mg/kg)					
	3,4,5-Trichlorophenol (mg/kg)					
	Surrogate: 2-Chlorophenol-d4 (%)					
	Surrogate: 2,4-Dichlorophenol-d3 (%)					
	Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)					
	2,6-Dimethylphenol (mg/kg)					
	3,4-Dimethylphenol (mg/kg)					
	Hydroquinone (mg/kg)					
	2-Phenylphenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2096509-7 Soil 15-MAY-18 BH140-01	L2096509-9 Soil 15-MAY-18 BH140-02	L2096509-10 Soil 15-MAY-18 BH140-03	L2096509-12 Soil 15-MAY-18 BH140-05	L2096509-13 Soil 15-MAY-18 BH140-06
Sample ID / Description / Sampled Date / Sampled Time / Client ID						
SOIL						
Phenolics	2,3,4,6-Tetrachlorophenol (mg/kg)					<0.020
	2,3,5,6-Tetrachlorophenol (mg/kg)					<0.020
	2,3,4-Trichlorophenol (mg/kg)					<0.020
	2,3,5-Trichlorophenol (mg/kg)					<0.020
	2,3,6-Trichlorophenol (mg/kg)					<0.020
	2,4,5-Trichlorophenol (mg/kg)					<0.020
	2,4,6-Trichlorophenol (mg/kg)					<0.020
	3,4,5-Trichlorophenol (mg/kg)					<0.020
	Surrogate: 2-Chlorophenol-d4 (%)					90.6
	Surrogate: 2,4-Dichlorophenol-d3 (%)					90.3
	Surrogate: 2,4,6-Tribromophenol (%)					96.6
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)					<0.20
	2,6-Dimethylphenol (mg/kg)					<0.020
	3,4-Dimethylphenol (mg/kg)					<0.020
	Hydroquinone (mg/kg)					<0.20
	2-Phenylphenol (mg/kg)					<0.60

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-16	L2096509-18	L2096509-21	L2096509-23	L2096509-24
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH141-02	BH141-04	BH141-07	BH142-02	Z118
Grouping / **Analyte**					
SOIL					
Phenolics					
2,3,4,6-Tetrachlorophenol (mg/kg)					
2,3,5,6-Tetrachlorophenol (mg/kg)					
2,3,4-Trichlorophenol (mg/kg)					
2,3,5-Trichlorophenol (mg/kg)					
2,3,6-Trichlorophenol (mg/kg)					
2,4,5-Trichlorophenol (mg/kg)					
2,4,6-Trichlorophenol (mg/kg)					
3,4,5-Trichlorophenol (mg/kg)					
Surrogate: 2-Chlorophenol-d4 (%)					
Surrogate: 2,4-Dichlorophenol-d3 (%)					
Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics					
Butylated Hydroxytoluene (mg/kg)					
2,6-Dimethylphenol (mg/kg)					
3,4-Dimethylphenol (mg/kg)					
Hydroquinone (mg/kg)					
2-Phenylphenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID Description Sampled Date Sampled Time Client ID	L2096509-25 Soil 15-MAY-18 BH142-03	L2096509-26 Soil 15-MAY-18 Z119	L2096509-28 Soil 15-MAY-18 BH142-05	L2096509-31 Soil 15-MAY-18 BH145-01	L2096509-32 Soil 15-MAY-18 BH145-02
SOIL							
Phenolics	2,3,4,6-Tetrachlorophenol (mg/kg)						
	2,3,5,6-Tetrachlorophenol (mg/kg)						
	2,3,4-Trichlorophenol (mg/kg)						
	2,3,5-Trichlorophenol (mg/kg)						
	2,3,6-Trichlorophenol (mg/kg)						
	2,4,5-Trichlorophenol (mg/kg)						
	2,4,6-Trichlorophenol (mg/kg)						
	3,4,5-Trichlorophenol (mg/kg)						
	Surrogate: 2-Chlorophenol-d4 (%)						
	Surrogate: 2,4-Dichlorophenol-d3 (%)						
	Surrogate: 2,4,6-Tribromophenol (%)						
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)						
	2,6-Dimethylphenol (mg/kg)						
	3,4-Dimethylphenol (mg/kg)						
	Hydroquinone (mg/kg)						
	2-Phenylphenol (mg/kg)						

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-34	L2096509-35	L2096509-36	L2096509-38	L2096509-39
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18
Sampled Time					
Client ID	BH145-04	BH145-05	BH145-06	BH150-01	BH150-02
Grouping / **Analyte**					
SOIL					
Phenolics					
2,3,4,6-Tetrachlorophenol (mg/kg)					
2,3,5,6-Tetrachlorophenol (mg/kg)					
2,3,4-Trichlorophenol (mg/kg)					
2,3,5-Trichlorophenol (mg/kg)					
2,3,6-Trichlorophenol (mg/kg)					
2,4,5-Trichlorophenol (mg/kg)					
2,4,6-Trichlorophenol (mg/kg)					
3,4,5-Trichlorophenol (mg/kg)					
Surrogate: 2-Chlorophenol-d4 (%)					
Surrogate: 2,4-Dichlorophenol-d3 (%)					
Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics					
Butylated Hydroxytoluene (mg/kg)					
2,6-Dimethylphenol (mg/kg)					
3,4-Dimethylphenol (mg/kg)					
Hydroquinone (mg/kg)					
2-Phenylphenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2096509-40	L2096509-41	L2096509-42	L2096509-45	
Description	Soil	Soil	Soil	Soil	
Sampled Date	15-MAY-18	15-MAY-18	15-MAY-18	15-MAY-18	
Sampled Time					
Client ID	BH150-03	BH150-04	BH150-05	Z120	
Grouping	**Analyte**				
SOIL					
Phenolics	2,3,4,6-Tetrachlorophenol (mg/kg)				
	2,3,5,6-Tetrachlorophenol (mg/kg)				
	2,3,4-Trichlorophenol (mg/kg)				
	2,3,5-Trichlorophenol (mg/kg)				
	2,3,6-Trichlorophenol (mg/kg)				
	2,4,5-Trichlorophenol (mg/kg)				
	2,4,6-Trichlorophenol (mg/kg)				
	3,4,5-Trichlorophenol (mg/kg)				
	Surrogate: 2-Chlorophenol-d4 (%)				
	Surrogate: 2,4-Dichlorophenol-d3 (%)				
	Surrogate: 2,4,6-Tribromophenol (%)				
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)				
	2,6-Dimethylphenol (mg/kg)				
	3,4-Dimethylphenol (mg/kg)				
	Hydroquinone (mg/kg)				
	2-Phenylphenol (mg/kg)				

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Chromium (Cr)	DUP-H	L2096509-40
Duplicate	Molybdenum (Mo)	DUP-H	L2096509-13, -23, -24, -32, -34, -39
Duplicate	Uranium (U)	DUP-H	L2096509-13, -23, -24, -32, -34, -39
Matrix Spike	Benzo(a)pyrene	E	L2096509-13, -2, -23, -24, -3, -32, -34, -39, -5
Matrix Spike	Benzo(g,h,i)perylene	E	L2096509-13, -2, -23, -24, -3, -32, -34, -39, -5
Matrix Spike	Dibenz(a,h)anthracene	E	L2096509-13, -2, -23, -24, -3, -32, -34, -39, -5
Matrix Spike	Indeno(1,2,3-c,d)pyrene	E	L2096509-13, -2, -23, -24, -3, -32, -34, -39, -5
Certified Reference Material	Lead (Pb)	MES	L2096509-10, -12, -16, -18, -2, -21, -25, -26, -3, -4, -41, -42, -5, -9
Matrix Spike	Calcium (Ca)-Leachable	MS-B	L2096509-1, -2, -31, -36, -7
Matrix Spike	1-Methylnaphthalene	MS-B	L2096509-13, -2, -23, -24, -3, -32, -34, -39, -5
Matrix Spike	2-Methylnaphthalene	MS-B	L2096509-13, -2, -23, -24, -3, -32, -34, -39, -5
Matrix Spike	Naphthalene	MS-B	L2096509-13, -2, -23, -24, -3, -32, -34, -39, -5

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLB	Detection Limit Raised. Analyte detected at comparable level in Method Blank.
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
E	Matrix Spike recovery outside ALS DQO due to heterogeneous analyte background in sample.
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
SMI	Surrogate recovery could not be measured due to sample matrix interference.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CL-PASTE-IC-VA	Soil	Chloride in Soil (Paste) by IC	Carter-CSSS / EPA 300.1 (modified)

A soil extract produced by the saturated paste extraction procedure is analyzed for chloride by Ion Chromatography with conductivity detection.

CLPHEN-TMB-MS-VA	Soil	Chlorinated Phenols by Tumbler/GCMS	EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

HG-TCLP-CVAFS-VA	Soil	Mercury by CVAAS (TCLP)	EPA 1311/245.7

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 245.7).

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHs = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

Reference Information

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

MET-PASTE-ICP-VA Soil Metals in Soil (Paste) by ICPOES Carter-CSSS / EPA 6010B (modified)

A soil extract produced by the saturated paste extraction procedure is analyzed for Sodium, Calcium, and Magnesium by ICPOES as per "Soil Sampling and Methods of Analysis" by M. Carter.

MET-TCLP-ICP-VA Soil Metals by ICPOES (TCLP) EPA 1311/6010B

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MOISTURE-VA Soil Moisture content CWS for PHC in Soil - Tier 1

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA Soil PAH - Rotary Extraction (Hexane/Acetone) EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3570 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

PH-1:2-VA Soil pH in Soil (1:2 Soil:Water Extraction) BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

PHEN-M-TMB-MS-VA Soil Misc. Phenolics in Soil EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

PHEN-TMB-MS-VA Soil Phenolics by Tumbler/GC-MS EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

SAT-PCNT-VA Soil Saturation Percentage Carter-CSSS

Saturation Percentage (SP) is the total volume of water present in a saturated paste (in mL) divided by the dry weight of the sample (in grams), expressed as a percentage, as described in "Soil Sampling and Methods of Analysis" by M. Carter.

VH-HSFID-VA Soil VH in soil by Headspace GCFID BC Env. Lab Manual (VH in Solids)

This analysis involves the extraction of a subsample of the sediment/soil with methanol. Aliquots of the methanol extract are then added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999).

VH-SURR-FID-VA Soil VH Surrogates for Soils BC Env. Lab Manual (VH in Solids)

VOC-HSMS-VA Soil VOCs in soil by Headspace GCMS EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7-L-HSMS-VA Soil VOCs in soil by Headspace GCMS EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA Soil VOC7 and/or VOC Surrogates for Soils EPA 5035A/5021A/8260C

VPH-CALC-VA Soil VPH is VH minus select aromatics BC MOE VPH

VPHs measures Volatile Petroleum Hydrocarbons in soil. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure.
VPHs = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene

Reference Information

XYLENES-CALC-VA	Soil	Sum of Xylene Isomer Concentrations	EPA 8260B & 524.2

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-692290 17-692291 17-692292 17-692367

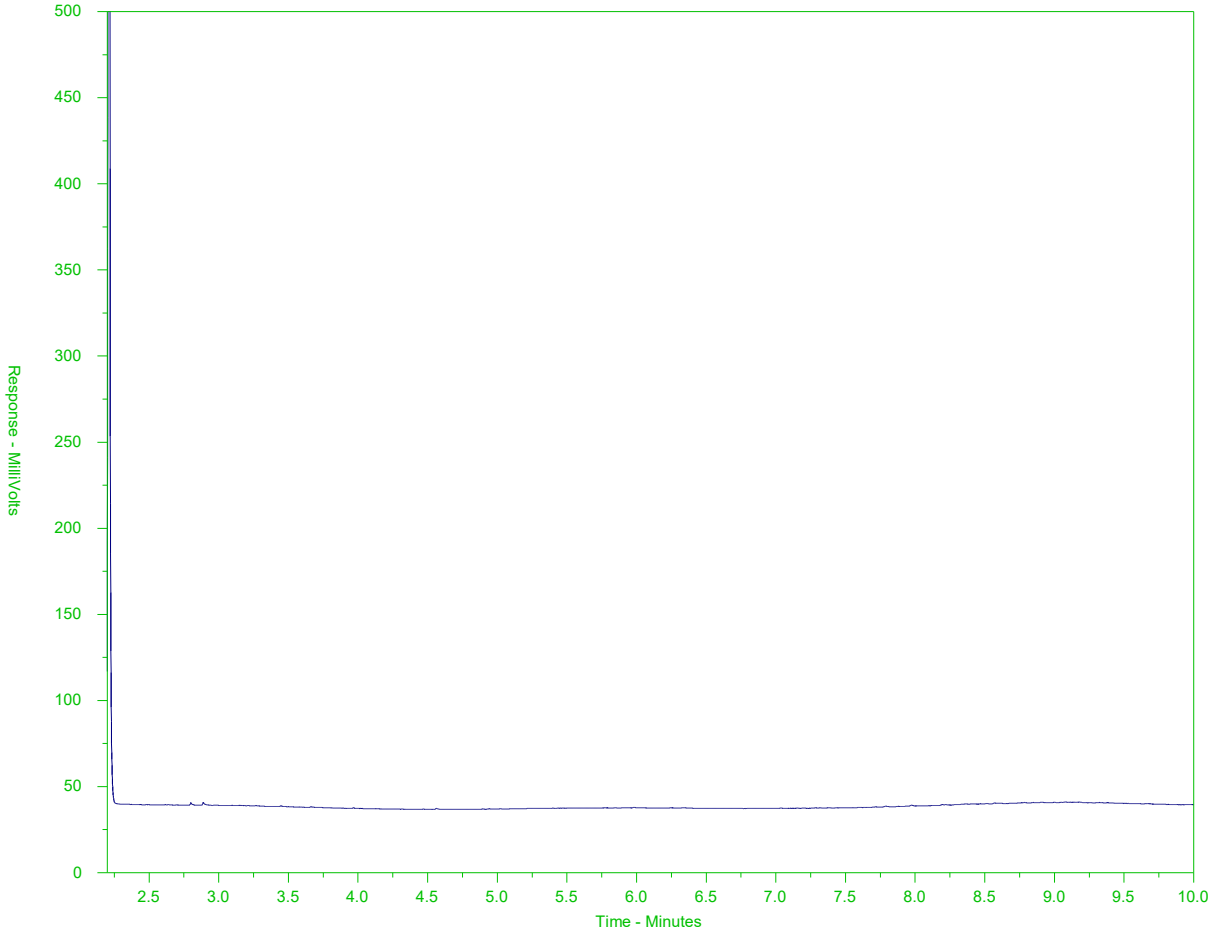
GLOSSARY OF REPORT TERMS

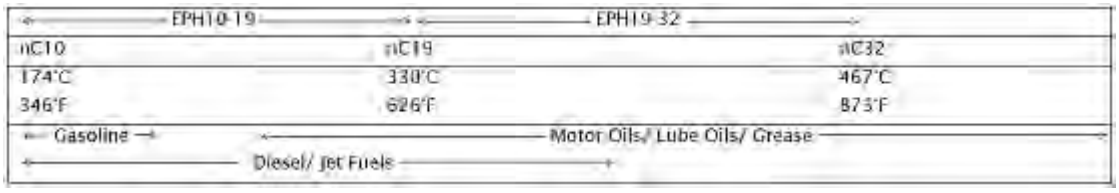
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-1
Client Sample ID: BH139-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

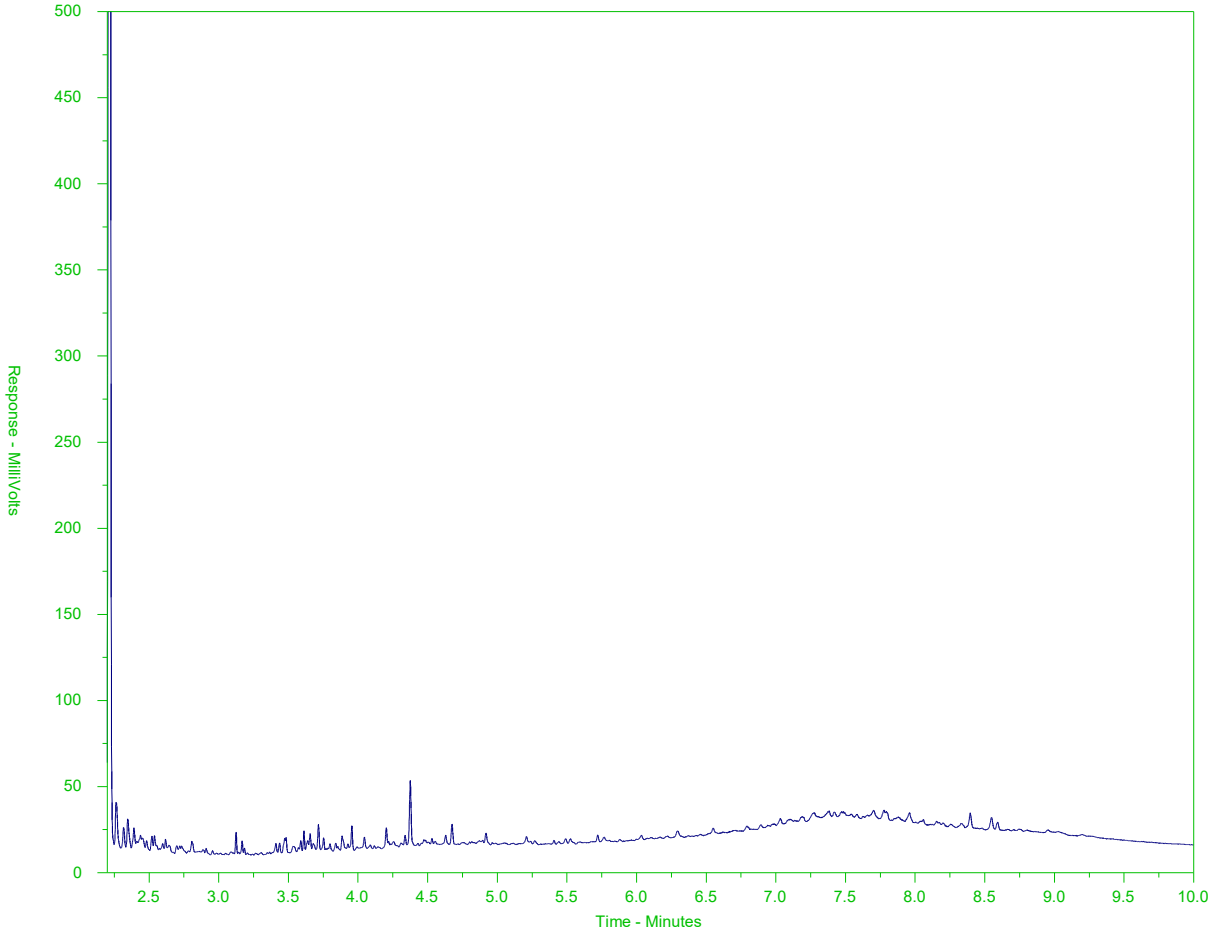
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

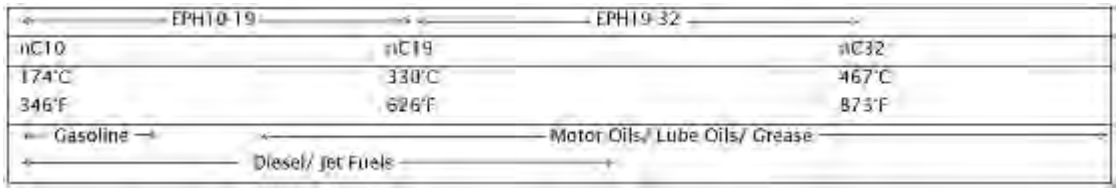
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-2
Client Sample ID: BH139-02





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

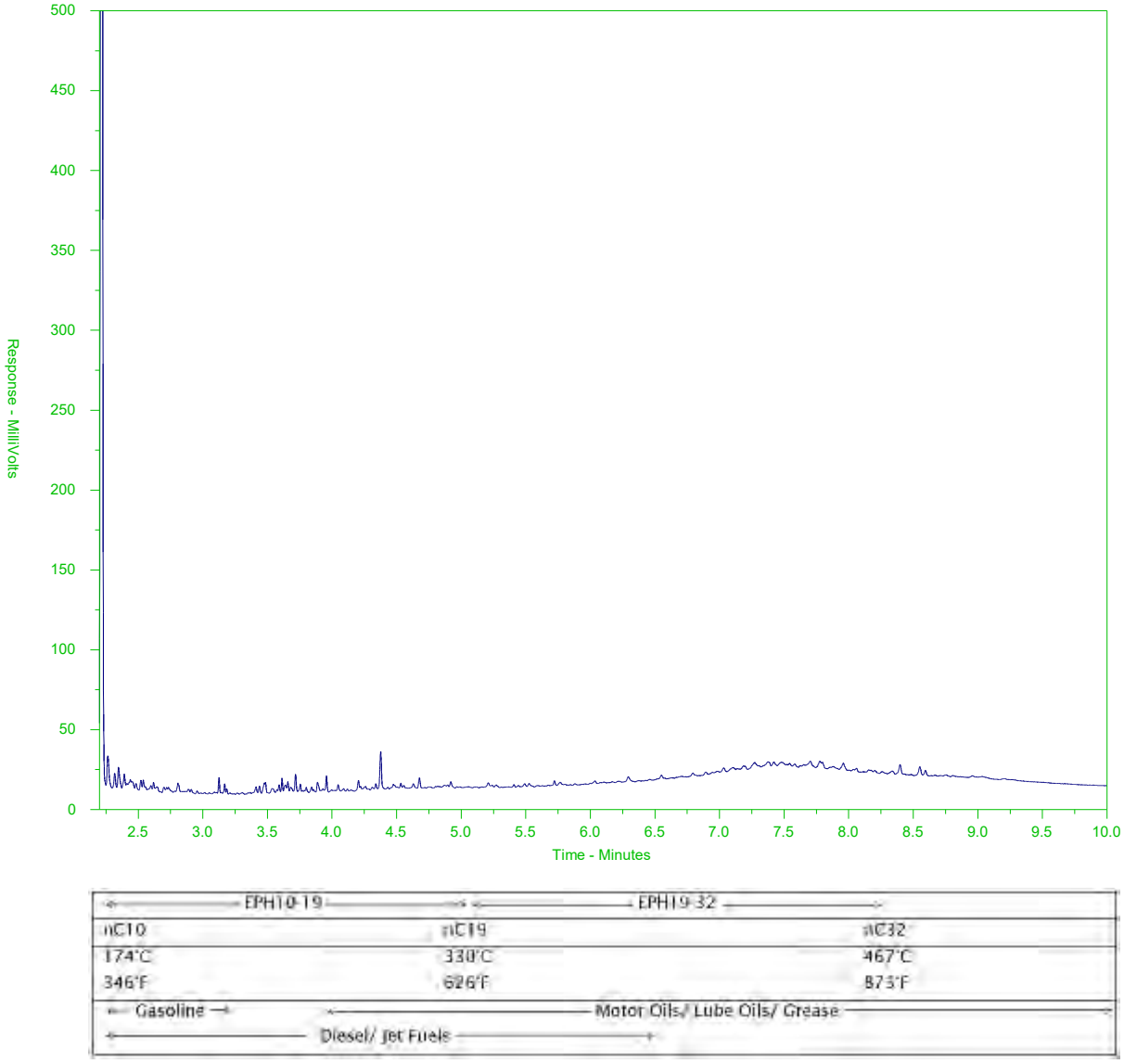
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG2777770-3#L2096509-2
Client Sample ID: BH139-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

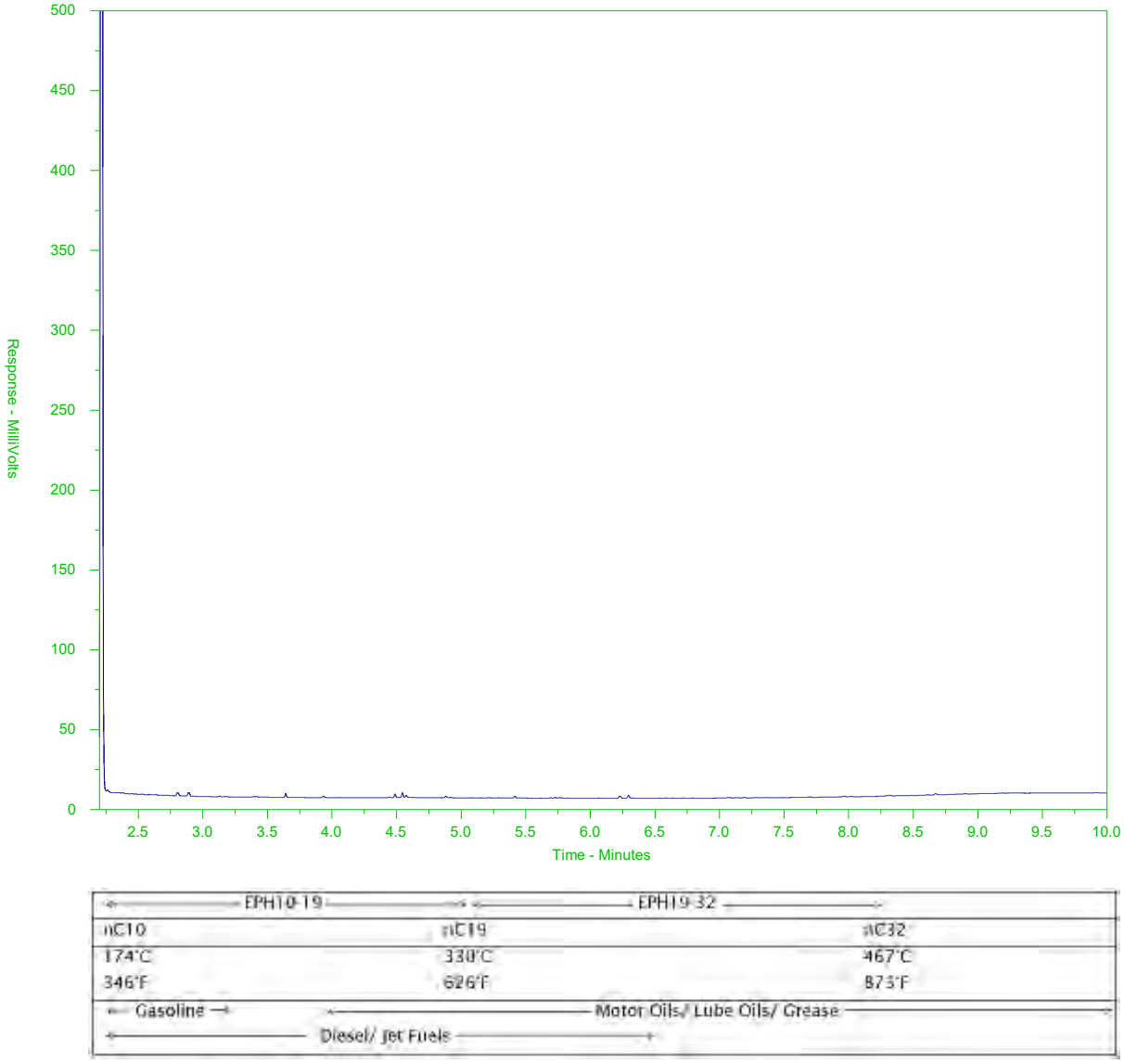
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-3
Client Sample ID: BH139-03



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

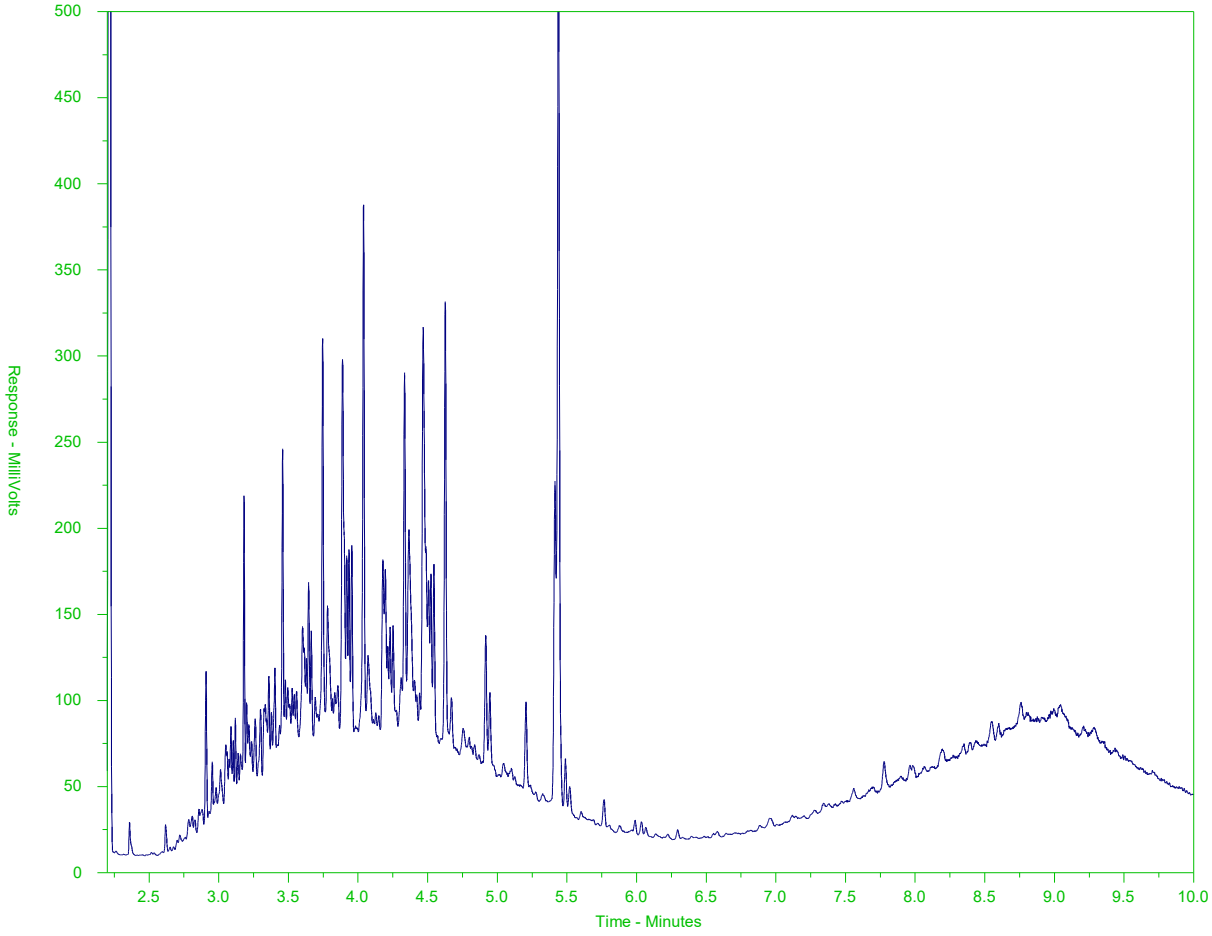
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG2777770-6#L2096509-3
Client Sample ID: BH139-03



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

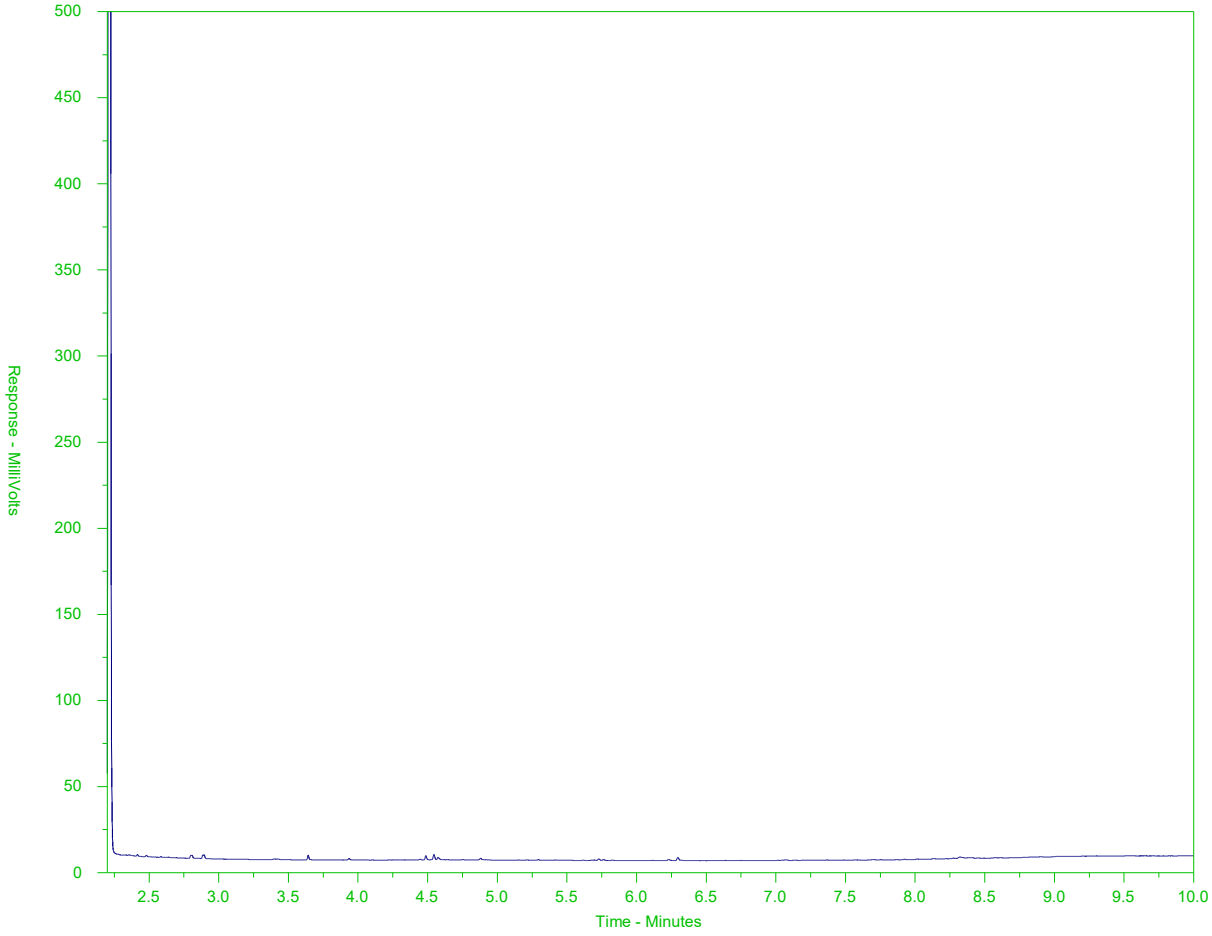
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

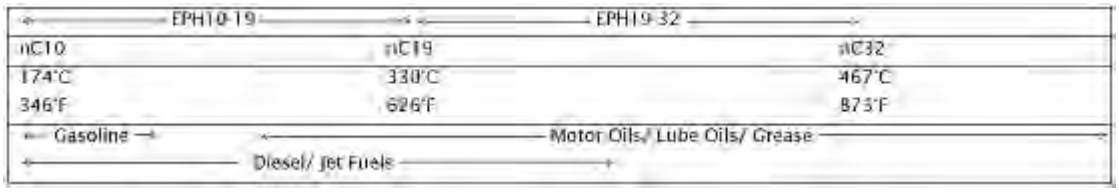
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-5
Client Sample ID: BH139-05





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

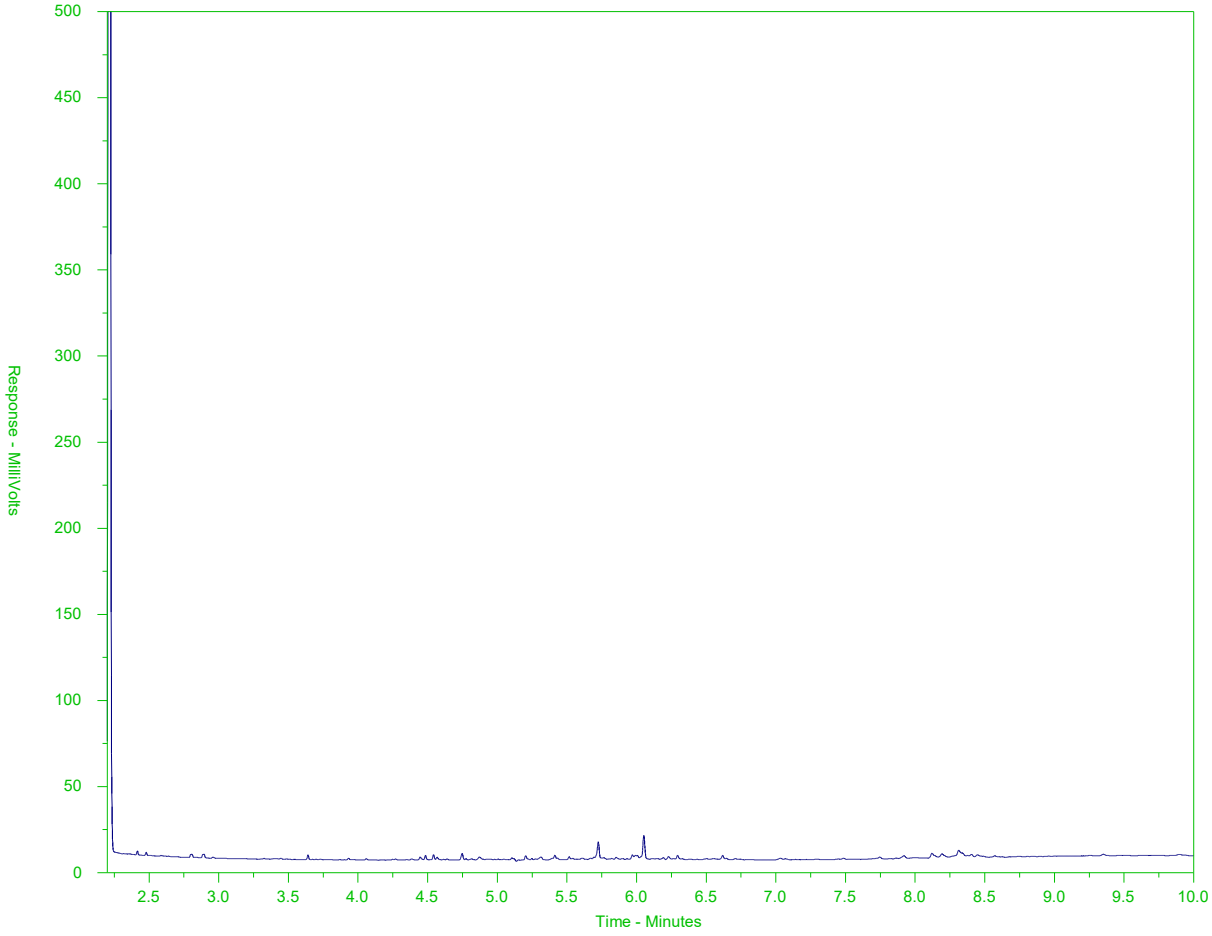
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

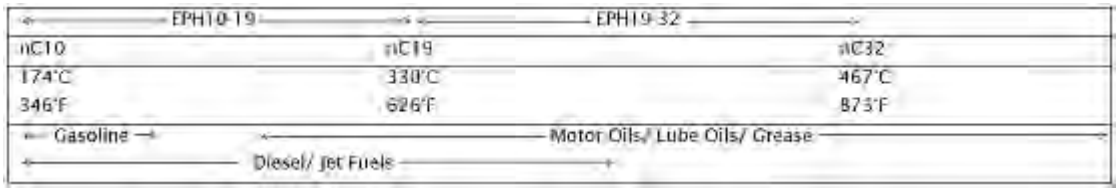
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-13
Client Sample ID: BH140-06





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

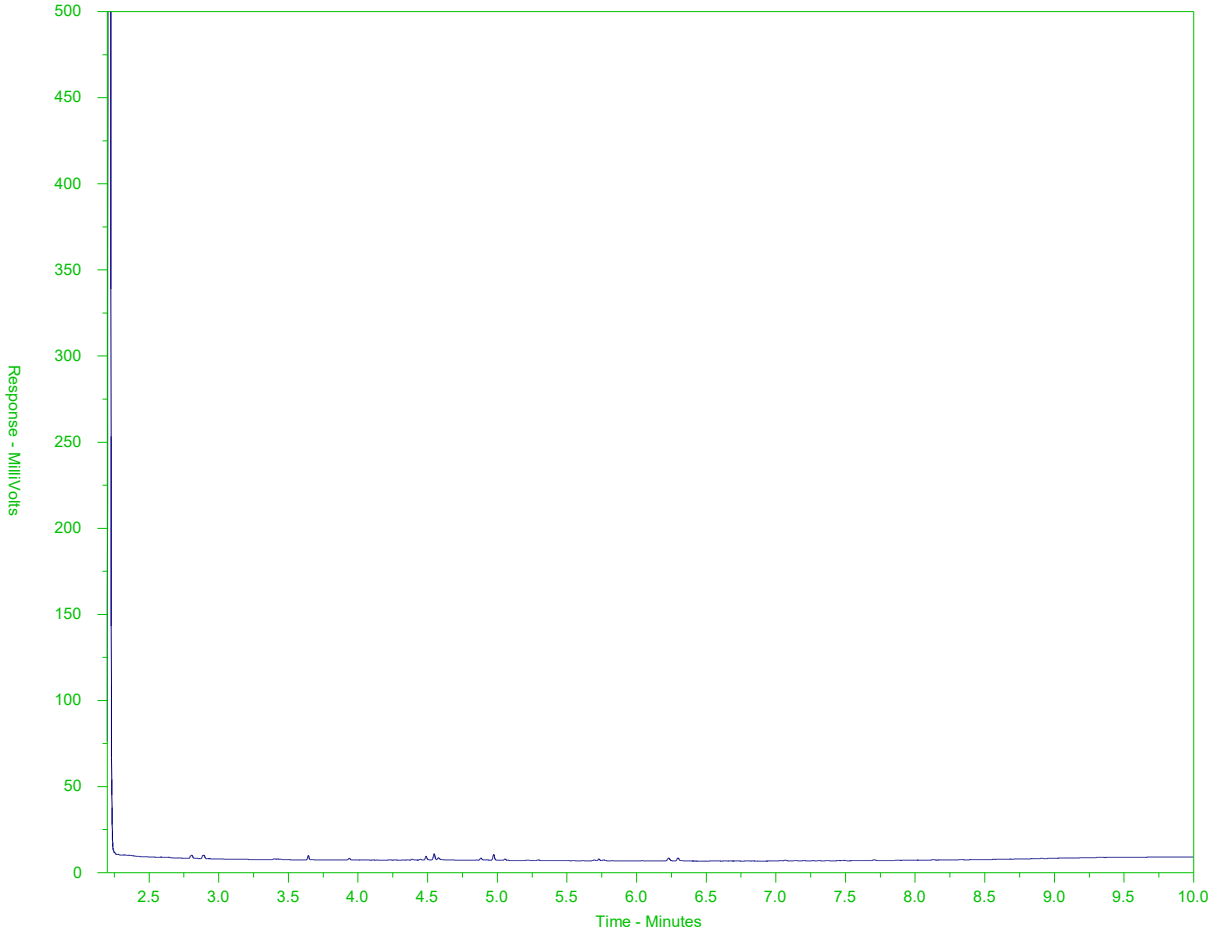
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

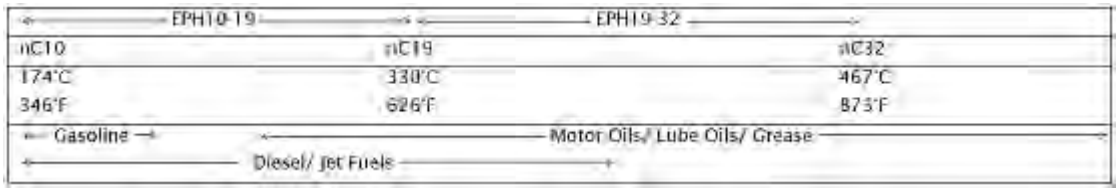
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-23
Client Sample ID: BH142-02





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

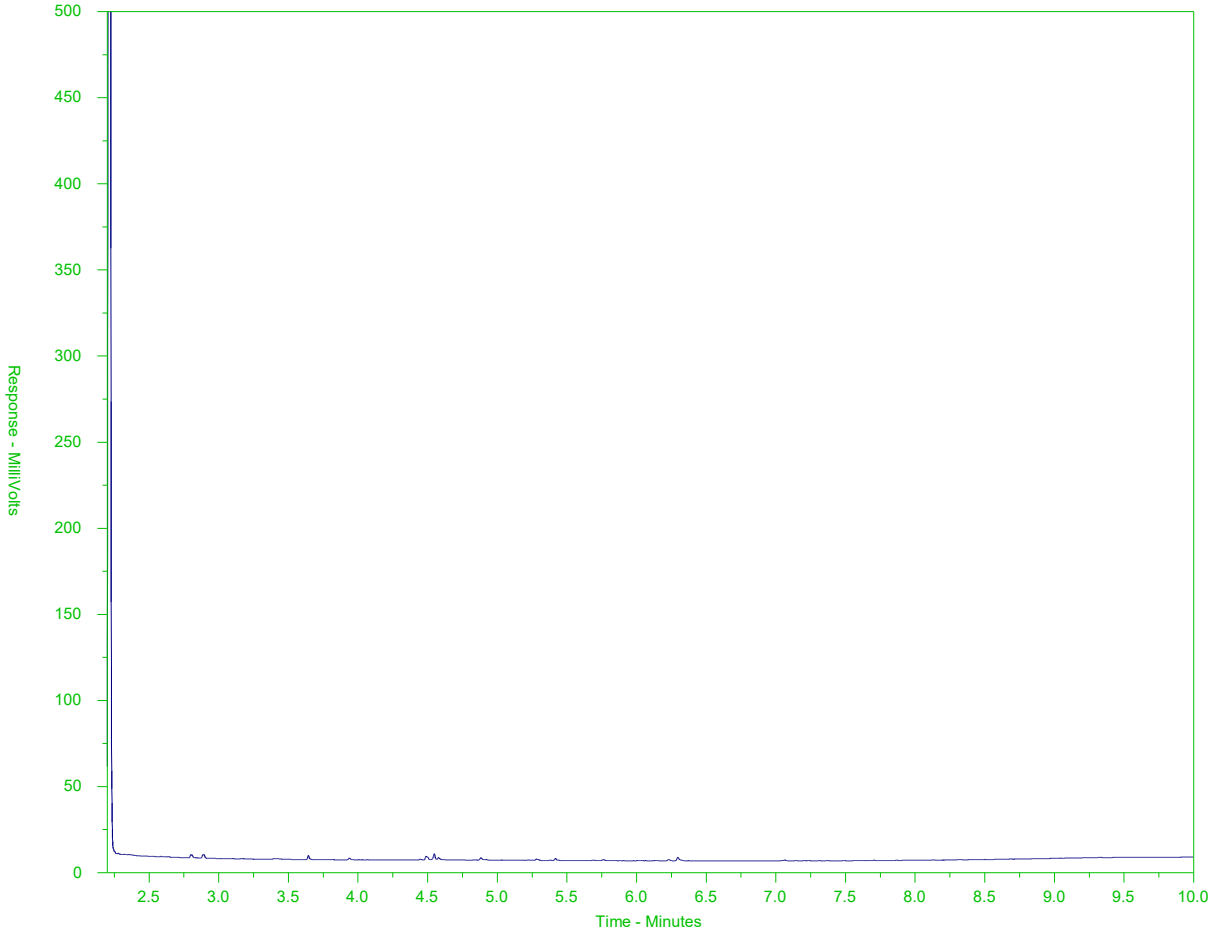
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

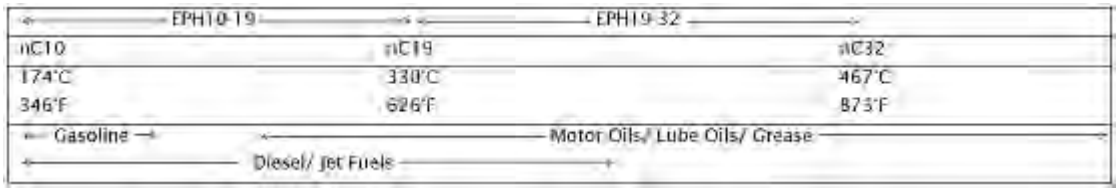
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-24
Client Sample ID: Z118





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

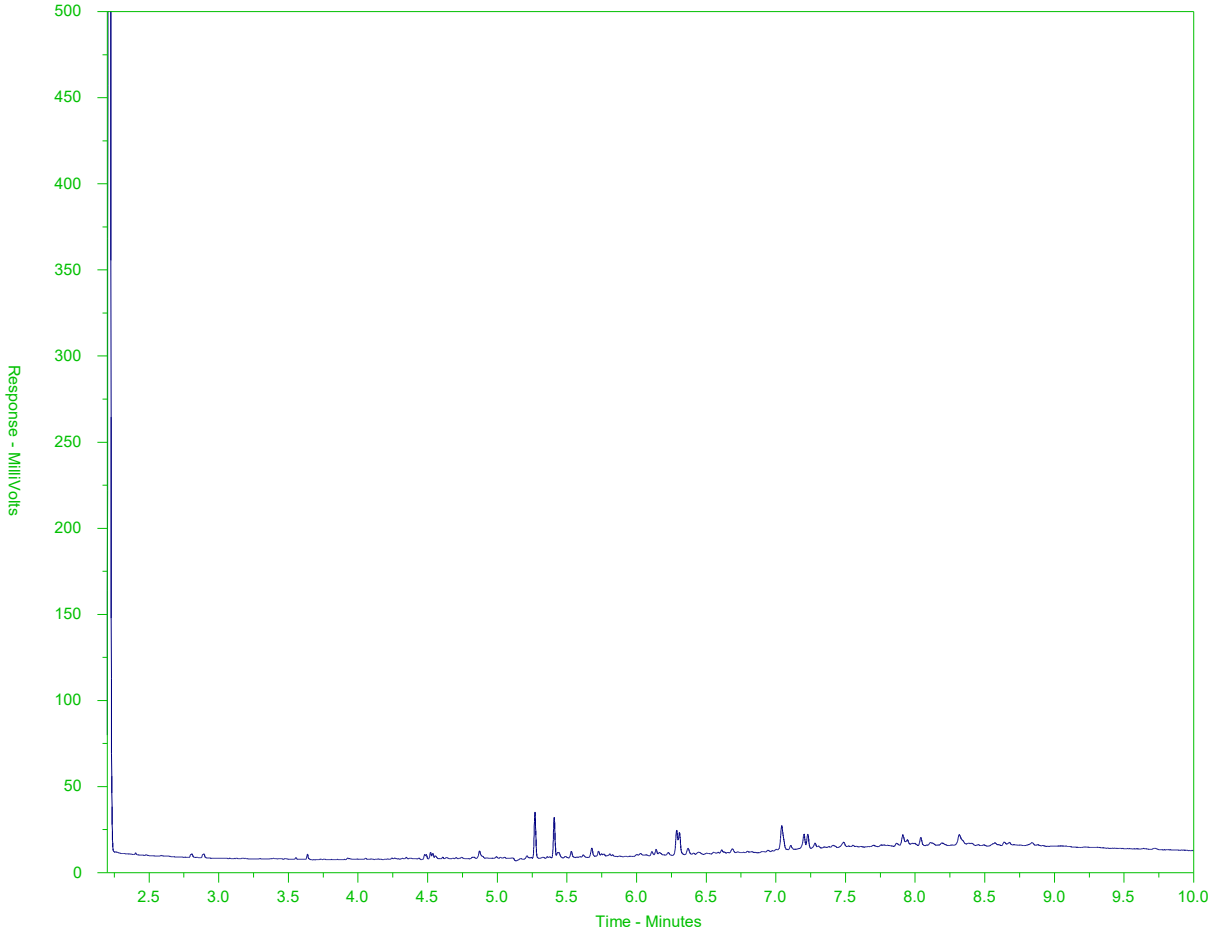
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-32
Client Sample ID: BH145-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

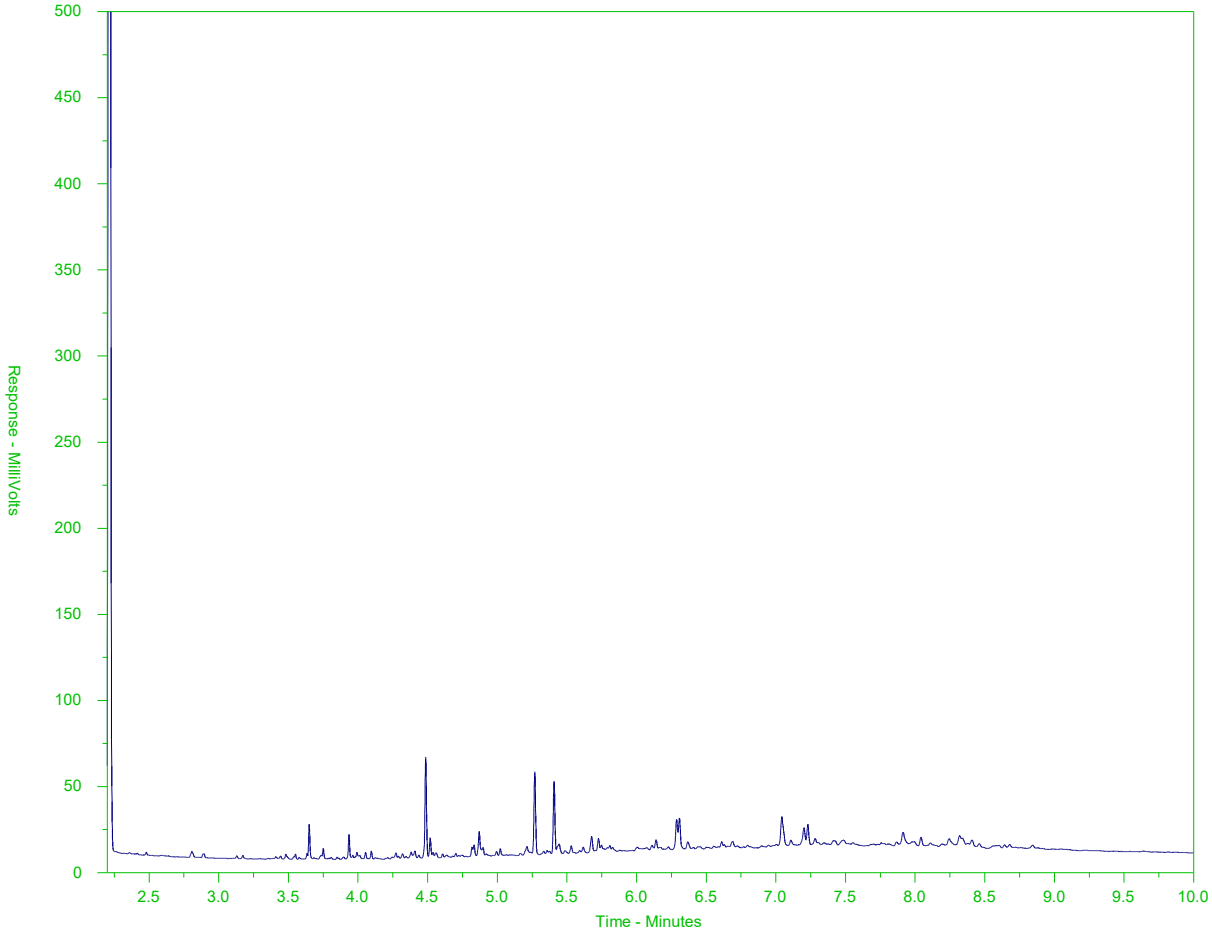
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-34
Client Sample ID: BH145-04



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

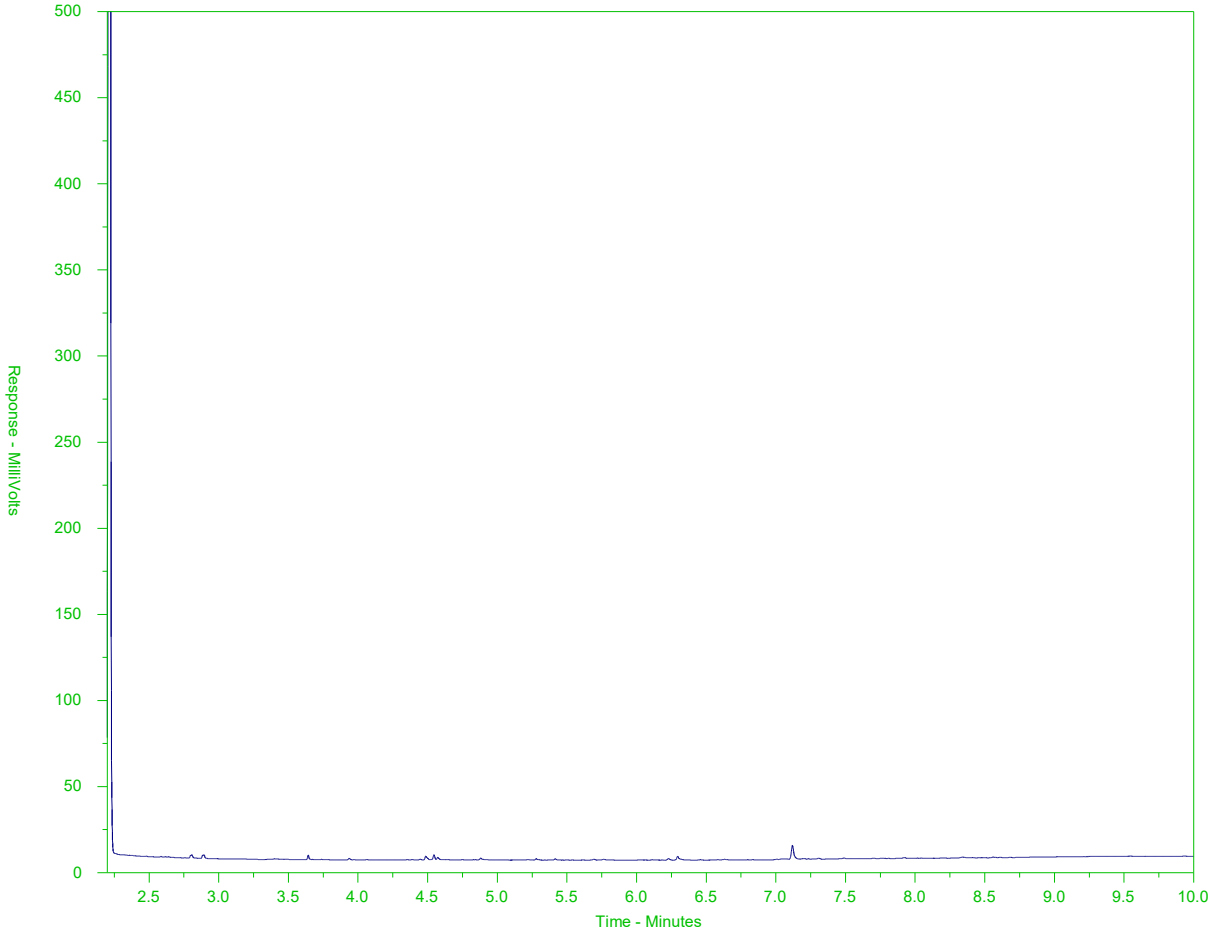
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2096509-39
Client Sample ID: BH150-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2096509-COFC

COC Number: 17 - 692367

Page 1 of 4

Report To	Contact and company name below will appear on the final report	Report Format	Turnaround Time (TAT) Requested - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL Environmental	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	604 682 3707	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:		Email 1 or Fax zmohamed@pglenvp.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver	Email 2 sbarr@pglenvp.com	
Postal Code:	V	Email 3 arwiers@pglenvp.com	
Invoice To	Same as Report To ☐ YES ☐ NO	**Invoice Distribution**	
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	3355-01.01	Major/Minor Code	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: B. Mack	Sampler: A. Ewiers

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PGT100-METALS-VA	L/H CSR-VA	MET-TCLP-VA	VOC+VPH+MTBE-VA	Soluble NaCl (Sat P)	Phen-cl-full-va	Phen-trend-va	Phen-im-tmb-ms-va	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH139-01	15 May 18		Soil											5
	BH139-02				X	X		X							5
	BH139-03				X	X		X							5
	BH139-04				X										5
	BH139-05				X	X									5
	BH139-06														3
	BH140-01														3
	Z117														3
	BH140-02				X										3
	BH140-03				X										3
	BH140-04														3
	BH140-05				X										3

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐	SIF Observations	Yes ☐	No ☐		
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			12				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	17 May 2018	10:00				LA	5/17	10:50

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2096509-COFC

COC Number: 17 - 692290

Report To	Contact and company name below will appear on the final report	Report Format
Company:	PGL Environmental	Select Report Format: PDF EXCEL EDD (DIGITAL)
Contact:	Zayd Mohamed	Quality Control (QC) Report with Report YES NO
Phone:		Compare Results to Criteria on Report - provide details below if box checked
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX
Street:		Email 1 or Fax
City/Province:		Email 2
Postal Code:		Email 3
Invoice To	Same as Report To YES NO	Invoice Distribution
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#:
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Turnaround Time (TAT) Requested - Contact your AM to confirm all E&P TATs (surcharges may apply)

Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PotTOO-Metals-VA	LiH CER-VA	MET TCLP VA	VOC+VPH+MTBE VA	Soluble NaCl (Sat'd)	Phen-Cl-full-VA	Phen-nonCl-VA	Phen-in tub-ms-VA	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH140-06	15 May 18		Soil	X	X				X	X	X			3
	BH140-07														3
	BH141-01														3
	BH141-02				X										3
	BH141-03														3
	BH141-04				X										3
	BH141-05														3
	BH141-06														3
	BH141-07				X										3
	BH142-01														
	BH142-02				X	X									
	Z118				X	X									

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			10				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	17 May 18	10 00				HA	5/17	1015 am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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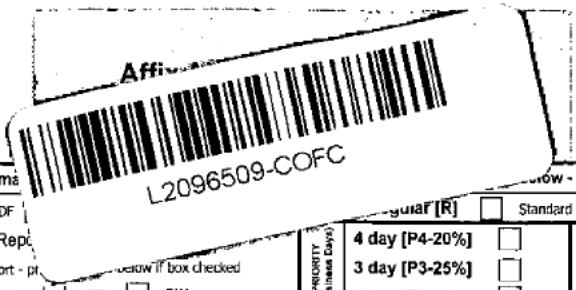
Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878



COC Number: 17 - 692291

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Service Level Specifier (lab use only)
Company:	PGL Environmental	Select Report Format: ☐ PDF	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:		☐ Compare Results to Criteria on Report - pl... below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3	

Invoice To		Invoice Distribution
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ YES ☐ NO	
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Pot 100 -Metals-VA	L/H CSR -VA	MET TCLP-VA	VOC+VPH+MTBE VA	Soluble NaCl (Sat'd)	BTEX + VPH VA	Pcon-Cl-full-VA	Pcon-Hard-VA	Pcon-Inds-ms-VA	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH142-03	15 May 18		Soil	X											5
	~~BH142-04~~ Z119				X											~~5~~
	~~BH142-05~~ BH142-04															3
	BH142-05															3
	BH142-06															3
	BH142-07															3
	BH145-01															3
	BH145-02				X	X										3
	BH145-03															5
	BH145-04				X	X	X			X						5
	BH145-05															3
	BH145-06															3

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			10				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: HA	Date: 5/17	Time: 10:15am

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2096509-COFC

COC Number: 17 - 692292

Report To	Contact and company name below will appear on the final report
Company:	P&L Environmental
Contact:	Zayad Mohamed
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	

Report Format / Distribution	
Select Report Format:	☐ PDF ☐ EXCEL | | EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL | | MAIL ☐ FAX
Email 1 or Fax	
Email 2	
Email 3	

- Contact your AM to confirm all E&P TATs (surcharges may apply)

rd TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4-20%] ☐		1 Business day [E-100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☐		

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Analysis Request: Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below — PST 100 Metals-VA	B/H CSR-VA	MET-TCLP-VA	Soluble Na Cl (Salt F)	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH145-07	15 May 18		Soil							3
	BH150-01										3
	BH150-02				X	X					3
	BH150-03				X			X			5
	BH150-04				X						5
	BH150-05				X						3
	BH150-06										3
	BH150-07										3
											3

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? | | YES | | NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			10				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: HA	Date: 5/17	Time: 10:52am

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 18-MAY-18
Report Date: 06-JUL-18 16:56 (MT)
Version: FINAL REV. 3

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2097353

Project P.O. #:	NOT SUBMITTED
Job Reference:	5355-01.01
C of C Numbers:	15-609545, 15-609546, 15-609547, 15-609548
Legal Site Desc:	

Comments: ADDITIONAL 28-JUN-18 17:59

6-JUL-2018 This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-1	L2097353-2	L2097353-3	L2097353-4	L2097353-5
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH151-01	Z123	BH151-02	BH151-03	BH152-01
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)					4.88
pH (1:2 soil:water) (pH)	7.32	7.33	7.42	6.42	
Metals Aluminum (Al) (mg/kg)	16500	16700	19700	13500	
Antimony (Sb) (mg/kg)	1.15	0.76	0.34	0.21	
Arsenic (As) (mg/kg)	3.65	3.11	3.36	1.78	
Barium (Ba) (mg/kg)	87.6	79.9	95.6	64.9	
Beryllium (Be) (mg/kg)	0.21	0.21	0.26	0.17	
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	
Cadmium (Cd) (mg/kg)	0.161	0.113	0.065	0.060	
Chromium (Cr) (mg/kg)	20.8	20.8	22.8	16.2	
Cobalt (Co) (mg/kg)	7.68	7.79	8.13	6.05	
Copper (Cu) (mg/kg)	34.2	26.2	25.8	17.3	
Iron (Fe) (mg/kg)	22400	21100	23100	17600	
Lead (Pb) (mg/kg)	36.8	16.6	4.68	3.45	
Lithium (Li) (mg/kg)	7.5	7.1	7.5	5.3	
Manganese (Mn) (mg/kg)	347	338	274	214	
Mercury (Hg) (mg/kg)	0.0363	0.0289	0.0224	0.0129	
Molybdenum (Mo) (mg/kg)	0.43	0.49	0.39	0.22	
Nickel (Ni) (mg/kg)	15.6	14.9	15.7	10.6	
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	
Strontium (Sr) (mg/kg)	37.7	37.0	34.7	35.9	
Thallium (Tl) (mg/kg)	0.057	0.057	0.064	<0.050	
Tin (Sn) (mg/kg)	2.2	<2.0	<2.0	<2.0	
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	
Uranium (U) (mg/kg)	0.452	0.490	0.513	0.399	
Vanadium (V) (mg/kg)	58.8	59.2	65.1	53.0	
Zinc (Zn) (mg/kg)	82.5	61.6	41.3	41.7	
TCLP Metals 1st Preliminary pH (pH)					
2nd Preliminary pH (pH)					
Final pH (pH)					
Extraction Solution Initial pH (pH)					
Antimony (Sb)-Leachable (mg/L)					
Arsenic (As)-Leachable (mg/L)					
Barium (Ba)-Leachable (mg/L)					
Beryllium (Be)-Leachable (mg/L)					
Boron (B)-Leachable (mg/L)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-6	L2097353-7	L2097353-8	L2097353-9	L2097353-10
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH152-02	BH152-03	Z124	BH152-04	BH152-05
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)					
pH (1:2 soil:water) (pH)	6.95	7.19	7.25	7.23	7.09
Metals Aluminum (Al) (mg/kg)	14900	13100	12500	7930	12100
Antimony (Sb) (mg/kg)	0.68	0.16	0.15	0.10	0.17
Arsenic (As) (mg/kg)	2.96	2.02	1.86	1.07	1.77
Barium (Ba) (mg/kg)	77.7	52.5	49.4	31.7	48.0
Beryllium (Be) (mg/kg)	0.19	0.16	0.16	<0.10	0.14
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.105	0.047	0.047	0.028	0.053
Chromium (Cr) (mg/kg)	16.9	15.3	14.9	9.64	13.3
Cobalt (Co) (mg/kg)	6.76	5.71	5.46	3.78	5.16
Copper (Cu) (mg/kg)	25.1	15.3	14.0	17.5	15.1
Iron (Fe) (mg/kg)	19500	16600	16500	13300	15800
Lead (Pb) (mg/kg)	43.4	3.24	2.34	1.86	4.40
Lithium (Li) (mg/kg)	6.4	5.4	5.0	3.8	5.0
Manganese (Mn) (mg/kg)	279	272	257	166	219
Mercury (Hg) (mg/kg)	0.0233	0.0119	0.0119	0.0093	0.0125
Molybdenum (Mo) (mg/kg)	0.49	0.21	0.20	0.12	0.23
Nickel (Ni) (mg/kg)	11.4	10.1	9.68	6.36	8.71
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium (Sr) (mg/kg)	38.0	39.8	40.8	25.7	33.7
Thallium (Tl) (mg/kg)	0.052	<0.050	<0.050	<0.050	<0.050
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.385	0.352	0.377	0.223	0.292
Vanadium (V) (mg/kg)	56.0	49.4	49.5	43.5	47.0
Zinc (Zn) (mg/kg)	62.0	30.3	28.4	21.6	29.8
TCLP Metals 1st Preliminary pH (pH)					
2nd Preliminary pH (pH)					
Final pH (pH)					
Extraction Solution Initial pH (pH)					
Antimony (Sb)-Leachable (mg/L)					
Arsenic (As)-Leachable (mg/L)					
Barium (Ba)-Leachable (mg/L)					
Beryllium (Be)-Leachable (mg/L)					
Boron (B)-Leachable (mg/L)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2097353-11 SOIL 17-MAY-18 BH153-01	L2097353-12 SOIL 17-MAY-18 BH153-02	L2097353-13 SOIL 17-MAY-18 BH153-03	L2097353-14 SOIL 17-MAY-18 BH154-01	L2097353-15 SOIL 17-MAY-18 BH154-02
SOIL						
Physical Tests	Moisture (%)	6.67	19.6	18.1	10.3	7.96
	pH (1:2 soil:water) (pH)	7.20	6.31	6.30	8.01	7.91
Metals	Aluminum (Al) (mg/kg)	11200	16900	15700	16100	15300
	Antimony (Sb) (mg/kg)	0.33	0.20	0.17	0.32	0.29
	Arsenic (As) (mg/kg)	2.06	2.42	2.32	4.10	3.59
	Barium (Ba) (mg/kg)	53.5	72.9	65.9	80.7	81.6
	Beryllium (Be) (mg/kg)	0.13	0.23	0.18	0.23	0.18
	Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
	Cadmium (Cd) (mg/kg)	0.078	0.062	0.049	0.109	0.088
	Chromium (Cr) (mg/kg)	15.0	19.5	17.5	21.0	17.7
	Cobalt (Co) (mg/kg)	5.28	7.08	7.40	8.69	6.93
	Copper (Cu) (mg/kg)	15.2	19.8	17.9	28.2	28.8
	Iron (Fe) (mg/kg)	16100	19800	19200	23200	19800
	Lead (Pb) (mg/kg)	8.20	4.61	3.05	17.0	9.00
	Lithium (Li) (mg/kg)	4.3	6.4	5.7	6.9	7.0
	Manganese (Mn) (mg/kg)	205	269	247	399	296
	Mercury (Hg) (mg/kg)	0.0132	0.0181	0.0138	0.0215	0.0181
	Molybdenum (Mo) (mg/kg)	0.42	0.25	0.21	0.52	0.48
	Nickel (Ni) (mg/kg)	8.77	13.0	11.7	14.7	12.7
	Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
	Strontium (Sr) (mg/kg)	26.5	41.8	47.1	52.5	31.6
	Thallium (Tl) (mg/kg)	<0.050	0.051	<0.050	0.061	0.065
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Uranium (U) (mg/kg)	0.308	0.407	0.410	0.459	0.402
	Vanadium (V) (mg/kg)	50.1	57.5	57.1	61.4	54.4
	Zinc (Zn) (mg/kg)	43.7	40.3	33.0	52.5	45.2
TCLP Metals	1st Preliminary pH (pH)					8.62
	2nd Preliminary pH (pH)					1.59
	Final pH (pH)					4.98
	Extraction Solution Initial pH (pH)					4.90
	Antimony (Sb)-Leachable (mg/L)					<1.0
	Arsenic (As)-Leachable (mg/L)					<1.0
	Barium (Ba)-Leachable (mg/L)					<2.5
	Beryllium (Be)-Leachable (mg/L)					<0.025
	Boron (B)-Leachable (mg/L)					<0.50

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-16	L2097353-17	L2097353-18	L2097353-20	L2097353-21
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH154-03	Z121	BH154-04	BH154-06	BH154-07
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	17.2	15.4	17.5		
pH (1:2 soil:water) (pH)	8.09	8.14	7.33	8.19	8.28
Metals Aluminum (Al) (mg/kg)	22500	21000	15800	14100	12900
Antimony (Sb) (mg/kg)	3.67	5.38	0.53	1.14	0.97
Arsenic (As) (mg/kg)	8.39	8.56	3.57	3.80	3.34
Barium (Ba) (mg/kg)	565	531	115	179	160
Beryllium (Be) (mg/kg)	0.44	0.41	0.19	0.19	0.19
Boron (B) (mg/kg)	53.1	54.8	9.9	28.5	21.5
Cadmium (Cd) (mg/kg)	0.228	0.183	0.121	0.122	0.091
Chromium (Cr) (mg/kg)	29.1	26.4	14.9	16.9	18.8
Cobalt (Co) (mg/kg)	10.7	9.48	5.81	6.33	6.34
Copper (Cu) (mg/kg)	107	101	24.9	30.2	35.8
Iron (Fe) (mg/kg)	31200	28700	18400	19700	19100
Lead (Pb) (mg/kg)	681	507	69.6	121	87.5
Lithium (Li) (mg/kg)	13.1	13.2	7.1	8.4	8.4
Manganese (Mn) (mg/kg)	388	377	322	299	307
Mercury (Hg) (mg/kg)	0.0238	0.0254	0.130	0.206	0.155
Molybdenum (Mo) (mg/kg)	2.01	1.75	0.58	0.72	0.80
Nickel (Ni) (mg/kg)	22.3	19.9	10.3	12.8	12.6
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	0.84	0.43	0.10	0.24	<0.10
Strontium (Sr) (mg/kg)	340	326	64.4	125	119
Thallium (Tl) (mg/kg)	0.066	0.066	0.056	<0.050	<0.050
Tin (Sn) (mg/kg)	164	154	8.7	30.8	16.9
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.698	0.633	0.434	0.377	0.372
Vanadium (V) (mg/kg)	69.1	64.2	51.2	52.9	51.5
Zinc (Zn) (mg/kg)	191	189	63.2	73.8	64.5
TCLP Metals 1st Preliminary pH (pH)	9.08	9.14	7.73	8.79	
2nd Preliminary pH (pH)	5.03	4.20	1.67	1.89	
Final pH (pH)	4.45	4.51	4.94	5.09	
Extraction Solution Initial pH (pH)	2.85	2.85	4.90	4.90	
Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	
Arsenic (As)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	
Barium (Ba)-Leachable (mg/L)	4.1	4.1	<2.5	<2.5	
Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	
Boron (B)-Leachable (mg/L)	0.53	0.58	<0.50	<0.50	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2097353-23 SOIL 17-MAY-18 BH155-01	L2097353-24 SOIL 17-MAY-18 BH155-02	L2097353-25 SOIL 17-MAY-18 BH155-03	L2097353-26 SOIL 17-MAY-18 BH155-04	L2097353-27 SOIL 17-MAY-18 BH155-05
SOIL						
Physical Tests	Moisture (%)	7.71	12.6	14.2		
	pH (1:2 soil:water) (pH)	7.91	7.10	7.08	6.25	7.50
Metals	Aluminum (Al) (mg/kg)	15100	20800	19200	21700	16600
	Antimony (Sb) (mg/kg)	17.3	1.40	1.11	0.48	0.34
	Arsenic (As) (mg/kg)	14.6	3.40	3.21	2.70	10.5
	Barium (Ba) (mg/kg)	120	86.9	75.2	91.6	42.7
	Beryllium (Be) (mg/kg)	0.19	0.25	0.23	0.28	0.24
	Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	5.9
	Cadmium (Cd) (mg/kg)	0.728	0.110	0.101	0.069	0.154
	Chromium (Cr) (mg/kg)	42.3	21.0	19.1	22.3	29.8
	Cobalt (Co) (mg/kg)	9.89	7.78	7.26	7.12	7.76
	Copper (Cu) (mg/kg)	84.8	25.0	23.6	22.7	18.7
	Iron (Fe) (mg/kg)	27500	20900	19600	20500	22100
	Lead (Pb) (mg/kg)	191	18.1	15.0	7.79	5.70
	Lithium (Li) (mg/kg)	8.2	7.1	6.7	6.5	15.2
	Manganese (Mn) (mg/kg)	442	296	268	283	262
	Mercury (Hg) (mg/kg)	0.0736	0.0252	0.0232	0.0176	0.0286
	Molybdenum (Mo) (mg/kg)	2.46	0.50	0.45	0.34	2.91
	Nickel (Ni) (mg/kg)	28.4	14.1	14.2	12.9	18.3
	Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	0.32
	Silver (Ag) (mg/kg)	0.14	<0.10	<0.10	<0.10	<0.10
	Strontium (Sr) (mg/kg)	47.4	45.4	36.4	39.3	35.2
	Thallium (Tl) (mg/kg)	0.068	0.056	0.052	0.058	0.099
	Tin (Sn) (mg/kg)	6.8	<2.0	<2.0	<2.0	<2.0
	Tungsten (W) (mg/kg)	0.56	<0.50	<0.50	<0.50	<0.50
	Uranium (U) (mg/kg)	0.544	0.455	0.503	0.450	1.79
	Vanadium (V) (mg/kg)	58.3	58.0	57.4	62.5	62.0
	Zinc (Zn) (mg/kg)	232	48.5	43.6	43.4	40.8
TCLP Metals	1st Preliminary pH (pH)	8.54	7.34	7.23	7.08	
	2nd Preliminary pH (pH)	1.70	1.56	1.59	1.58	
	Final pH (pH)	4.96	4.93	4.91	4.91	
	Extraction Solution Initial pH (pH)	4.90	4.90	4.90	4.90	
	Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Arsenic (As)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Barium (Ba)-Leachable (mg/L)	<2.5	<2.5	<2.5	<2.5	
	Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	
	Boron (B)-Leachable (mg/L)	<0.50	<0.50	<0.50	<0.50	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-28	L2097353-29	L2097353-31	L2097353-32	L2097353-33
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH156-01	BH156-02	BH156-04	BH156-05	BH157-01
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	12.4	6.73	15.8	21.1	5.14
pH (1:2 soil:water) (pH)	7.55	7.49	7.93	6.93	7.72
Metals Aluminum (Al) (mg/kg)	14100	16100	16400	21200	14900
Antimony (Sb) (mg/kg)	29.1	2.88	8.76	0.54	3.53
Arsenic (As) (mg/kg)	27.3	4.78	13.6	5.84	4.18
Barium (Ba) (mg/kg)	529	97.8	330	71.6	139
Beryllium (Be) (mg/kg)	0.71	0.24	0.45	0.34	0.17
Boron (B) (mg/kg)	14.3	<5.0	47.5	9.8	5.0
Cadmium (Cd) (mg/kg)	4.67	0.482	1.26	0.341	0.522
Chromium (Cr) (mg/kg)	102	17.0	46.5	25.1	44.9
Cobalt (Co) (mg/kg)	17.1	7.13	12.0	13.3	8.34
Copper (Cu) (mg/kg)	710	63.1	198	40.5	70.5
Iron (Fe) (mg/kg)	113000	28400	46400	31500	24900
Lead (Pb) (mg/kg)	960	90.5	264	29.5	215
Lithium (Li) (mg/kg)	7.3	8.8	9.3	12.4	10.7
Manganese (Mn) (mg/kg)	1140	412	506	374	365
Mercury (Hg) (mg/kg)	1.05	0.0849	0.305	0.0632	0.0545
Molybdenum (Mo) (mg/kg)	8.48	0.64	6.45	1.38	1.41
Nickel (Ni) (mg/kg)	91.6	20.1	50.5	23.6	17.3
Selenium (Se) (mg/kg)	0.65	<0.20	0.32	0.26	<0.20
Silver (Ag) (mg/kg)	0.55	<0.10	0.32	<0.10	<0.10
Strontium (Sr) (mg/kg)	313	33.7	210	47.7	56.1
Thallium (Tl) (mg/kg)	0.114	0.060	0.092	0.097	0.071
Tin (Sn) (mg/kg)	82.6	6.2	71.2	55.1	10.8
Tungsten (W) (mg/kg)	5.89	<0.50	1.27	<0.50	<0.50
Uranium (U) (mg/kg)	0.507	0.367	0.505	1.07	0.682
Vanadium (V) (mg/kg)	59.4	49.9	61.3	66.5	64.8
Zinc (Zn) (mg/kg)	3240	646	1020	88.7	150
TCLP Metals 1st Preliminary pH (pH)	8.26	7.49	8.90	8.57	8.18
2nd Preliminary pH (pH)	1.85	1.59	1.91	1.65	1.64
Final pH (pH)	5.27	4.93	5.16	4.92	4.94
Extraction Solution Initial pH (pH)	4.90	4.90	4.90	4.90	4.90
Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Barium (Ba)-Leachable (mg/L)	<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.025
Boron (B)-Leachable (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-34	L2097353-35	L2097353-36	L2097353-37	L2097353-38
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH157-02	BH157-03	BH157-04	BH157-05	BH158-01
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	7.58	15.1	14.9	18.4	7.06
pH (1:2 soil:water) (pH)	7.71	6.73	7.04	8.54	7.92
Metals Aluminum (Al) (mg/kg)	14100	10900	11200	22000	15100
Antimony (Sb) (mg/kg)	0.27	0.17	0.14	0.34	4.56
Arsenic (As) (mg/kg)	2.29	1.42	1.83	4.65	7.47
Barium (Ba) (mg/kg)	60.3	42.2	45.6	63.7	140
Beryllium (Be) (mg/kg)	0.17	0.13	0.12	0.35	0.18
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	7.8	5.1
Cadmium (Cd) (mg/kg)	0.072	0.046	0.043	0.112	0.762
Chromium (Cr) (mg/kg)	15.7	13.9	12.5	42.0	62.8
Cobalt (Co) (mg/kg)	5.97	4.81	4.85	12.5	10.7
Copper (Cu) (mg/kg)	18.4	12.3	13.1	33.9	116
Iron (Fe) (mg/kg)	17600	14500	15200	30000	47900
Lead (Pb) (mg/kg)	9.72	3.93	2.69	7.32	258
Lithium (Li) (mg/kg)	6.5	4.3	4.8	16.8	10.0
Manganese (Mn) (mg/kg)	296	200	212	321	674
Mercury (Hg) (mg/kg)	0.0143	0.0096	0.0112	0.0523	0.118
Molybdenum (Mo) (mg/kg)	0.37	0.18	0.20	1.10	3.80
Nickel (Ni) (mg/kg)	10.1	8.30	8.03	28.9	33.2
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	0.11
Strontium (Sr) (mg/kg)	33.8	34.3	29.9	48.8	50.2
Thallium (Tl) (mg/kg)	0.051	<0.050	<0.050	0.126	0.068
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	24.4
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	0.63
Uranium (U) (mg/kg)	0.317	0.300	0.278	1.23	0.615
Vanadium (V) (mg/kg)	46.6	47.9	48.0	78.9	67.2
Zinc (Zn) (mg/kg)	38.3	26.3	27.1	61.6	262
TCLP Metals 1st Preliminary pH (pH)	8.32	6.52	7.60	9.68	8.66
2nd Preliminary pH (pH)	1.54	1.48	1.51	1.62	1.61
Final pH (pH)	4.93	4.93	4.95	4.97	4.98
Extraction Solution Initial pH (pH)	4.95	4.95	4.95	4.95	4.95
Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Barium (Ba)-Leachable (mg/L)	<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.025
Boron (B)-Leachable (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-39	L2097353-40	L2097353-41	L2097353-42	L2097353-43
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH158-02	BH158-03	Z122	BH158-04	BH158-05
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	6.40	13.5	10.8	14.6	
pH (1:2 soil:water) (pH)	7.92	7.07	7.26	7.20	7.17
Metals Aluminum (Al) (mg/kg)	14200	15000	13900	10400	9710
Antimony (Sb) (mg/kg)	0.73	0.23	0.32	0.17	0.15
Arsenic (As) (mg/kg)	2.66	2.10	2.18	1.85	1.45
Barium (Ba) (mg/kg)	73.4	61.2	66.3	40.5	48.2
Beryllium (Be) (mg/kg)	0.16	0.17	0.17	0.13	0.12
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.127	0.062	0.082	0.052	0.050
Chromium (Cr) (mg/kg)	18.5	17.1	16.8	11.6	11.4
Cobalt (Co) (mg/kg)	6.15	5.87	5.97	4.55	4.22
Copper (Cu) (mg/kg)	25.9	17.5	20.2	14.2	14.3
Iron (Fe) (mg/kg)	17800	17500	17500	15600	11500
Lead (Pb) (mg/kg)	28.4	10.2	17.2	5.45	4.80
Lithium (Li) (mg/kg)	6.3	5.8	5.6	4.6	5.5
Manganese (Mn) (mg/kg)	269	249	249	194	185
Mercury (Hg) (mg/kg)	0.0194	0.0180	0.0163	0.0099	0.0093
Molybdenum (Mo) (mg/kg)	0.67	0.33	0.52	0.21	0.20
Nickel (Ni) (mg/kg)	12.7	10.3	10.9	7.94	8.40
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium (Sr) (mg/kg)	32.8	34.5	32.5	26.3	20.8
Thallium (Tl) (mg/kg)	0.055	<0.050	<0.050	<0.050	<0.050
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.299	0.329	0.321	0.222	0.247
Vanadium (V) (mg/kg)	49.1	50.1	47.1	46.1	35.6
Zinc (Zn) (mg/kg)	63.9	38.9	43.7	28.1	28.0
TCLP Metals 1st Preliminary pH (pH)	8.45	7.34	7.71	6.96	7.21
2nd Preliminary pH (pH)	1.54	1.54	1.53	1.49	1.52
Final pH (pH)	4.94	4.93	4.93	4.94	4.91
Extraction Solution Initial pH (pH)	4.95	4.95	4.95	4.95	4.95
Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Barium (Ba)-Leachable (mg/L)	<2.5	<2.5	<2.5	<2.5	<2.5
Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025	<0.025	<0.025	<0.025
Boron (B)-Leachable (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-44	L2097353-45			
Description	SOIL	SOIL			
Sampled Date	17-MAY-18	17-MAY-18			
Sampled Time					
Client ID	BH158-06	Z125			
Grouping / **Analyte**					
SOIL					
Physical Tests					
Moisture (%)					
pH (1:2 soil:water) (pH)	8.42				
Metals					
Aluminum (Al) (mg/kg)	22700				
Antimony (Sb) (mg/kg)	0.49				
Arsenic (As) (mg/kg)	3.01				
Barium (Ba) (mg/kg)	69.8				
Beryllium (Be) (mg/kg)	0.40				
Boron (B) (mg/kg)	6.6				
Cadmium (Cd) (mg/kg)	0.119				
Chromium (Cr) (mg/kg)	43.3				
Cobalt (Co) (mg/kg)	13.8				
Copper (Cu) (mg/kg)	43.2				
Iron (Fe) (mg/kg)	32000				
Lead (Pb) (mg/kg)	5.37				
Lithium (Li) (mg/kg)	14.4				
Manganese (Mn) (mg/kg)	290				
Mercury (Hg) (mg/kg)	0.0332				
Molybdenum (Mo) (mg/kg)	0.45				
Nickel (Ni) (mg/kg)	28.5				
Selenium (Se) (mg/kg)	<0.20				
Silver (Ag) (mg/kg)	<0.10				
Strontium (Sr) (mg/kg)	46.8				
Thallium (Tl) (mg/kg)	0.099				
Tin (Sn) (mg/kg)	<2.0				
Tungsten (W) (mg/kg)	<0.50				
Uranium (U) (mg/kg)	1.12				
Vanadium (V) (mg/kg)	85.2				
Zinc (Zn) (mg/kg)	55.6				
TCLP Metals					
1st Preliminary pH (pH)	9.41	9.49			
2nd Preliminary pH (pH)	1.65	1.63			
Final pH (pH)	4.94	4.94			
Extraction Solution Initial pH (pH)	4.95	4.95			
Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0			
Arsenic (As)-Leachable (mg/L)	<1.0	<1.0			
Barium (Ba)-Leachable (mg/L)	<2.5	<2.5			
Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025			
Boron (B)-Leachable (mg/L)	<0.50	<0.50			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-1	L2097353-2	L2097353-3	L2097353-4	L2097353-5
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
	Sampled Time					
	Client ID	BH151-01	Z123	BH151-02	BH151-03	BH152-01
Grouping	**Analyte**					
SOIL						
TCLP Metals	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					
	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					
Volatile Organic Compounds	VOC Sample Container					
	Benzene (mg/kg)					
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					
	trans-1,2-Dichloroethylene (mg/kg)					
	Dichloromethane (mg/kg)					
	1,2-Dichloropropane (mg/kg)					
	cis-1,3-Dichloropropylene (mg/kg)					
	trans-1,3-Dichloropropylene (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-6	L2097353-7	L2097353-8	L2097353-9	L2097353-10
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
	Sampled Time					
	Client ID	BH152-02	BH152-03	Z124	BH152-04	BH152-05
Grouping	**Analyte**					
SOIL						
TCLP Metals	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					
	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					
Volatile Organic Compounds	VOC Sample Container					
	Benzene (mg/kg)					
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					
	trans-1,2-Dichloroethylene (mg/kg)					
	Dichloromethane (mg/kg)					
	1,2-Dichloropropane (mg/kg)					
	cis-1,3-Dichloropropylene (mg/kg)					
	trans-1,3-Dichloropropylene (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2097353-11 SOIL 17-MAY-18 BH153-01	L2097353-12 SOIL 17-MAY-18 BH153-02	L2097353-13 SOIL 17-MAY-18 BH153-03	L2097353-14 SOIL 17-MAY-18 BH154-01	L2097353-15 SOIL 17-MAY-18 BH154-02
SOIL						
TCLP Metals	Cadmium (Cd)-Leachable (mg/L)					<0.050
	Calcium (Ca)-Leachable (mg/L)					62.5
	Chromium (Cr)-Leachable (mg/L)					<0.25
	Cobalt (Co)-Leachable (mg/L)					<0.050
	Copper (Cu)-Leachable (mg/L)					0.067
	Iron (Fe)-Leachable (mg/L)					<5.0
	Lead (Pb)-Leachable (mg/L)					<0.25
	Magnesium (Mg)-Leachable (mg/L)					6.67
	Mercury (Hg)-Leachable (mg/L)					<0.0010
	Nickel (Ni)-Leachable (mg/L)					<0.25
	Selenium (Se)-Leachable (mg/L)					<1.0
	Silver (Ag)-Leachable (mg/L)					<0.050
	Thallium (Tl)-Leachable (mg/L)					<1.0
	Vanadium (V)-Leachable (mg/L)					<0.15
	Zinc (Zn)-Leachable (mg/L)					<0.50
Volatile Organic Compounds	VOC Sample Container			Field MeOH		
	Benzene (mg/kg)			<0.0050		
	Bromodichloromethane (mg/kg)			<0.050		
	Bromoform (mg/kg)			<0.050		
	Carbon Tetrachloride (mg/kg)			<0.050		
	Chlorobenzene (mg/kg)			<0.050		
	Dibromochloromethane (mg/kg)			<0.050		
	Chloroethane (mg/kg)			<0.10		
	Chloroform (mg/kg)			<0.10		
	Chloromethane (mg/kg)			<0.10		
	1,2-Dichlorobenzene (mg/kg)			<0.050		
	1,3-Dichlorobenzene (mg/kg)			<0.050		
	1,4-Dichlorobenzene (mg/kg)			<0.050		
	1,1-Dichloroethane (mg/kg)			<0.050		
	1,2-Dichloroethane (mg/kg)			<0.050		
	1,1-Dichloroethylene (mg/kg)			<0.050		
	cis-1,2-Dichloroethylene (mg/kg)			<0.050		
	trans-1,2-Dichloroethylene (mg/kg)			<0.050		
	Dichloromethane (mg/kg)			<0.30		
	1,2-Dichloropropane (mg/kg)			<0.050		
	cis-1,3-Dichloropropylene (mg/kg)			<0.050		
	trans-1,3-Dichloropropylene (mg/kg)			<0.050		

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2097353-16 SOIL 17-MAY-18 BH154-03	L2097353-17 SOIL 17-MAY-18 Z121	L2097353-18 SOIL 17-MAY-18 BH154-04	L2097353-20 SOIL 17-MAY-18 BH154-06	L2097353-21 SOIL 17-MAY-18 BH154-07
SOIL						
TCLP Metals	Cadmium (Cd)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Calcium (Ca)-Leachable (mg/L)	766	829	42.2	169	
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	
	Cobalt (Co)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Copper (Cu)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Iron (Fe)-Leachable (mg/L)	103	113	<5.0	<5.0	
	Lead (Pb)-Leachable (mg/L)	5.01	5.75	<0.25	<0.25	
	Magnesium (Mg)-Leachable (mg/L)	17.4	17.6	2.52	10.8	
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
	Nickel (Ni)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	
	Selenium (Se)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Silver (Ag)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	
	Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	
	Vanadium (V)-Leachable (mg/L)	<0.15	<0.15	<0.15	<0.15	
	Zinc (Zn)-Leachable (mg/L)	4.15	3.12	<0.50	0.64	
Volatile Organic Compounds	VOC Sample Container					
	Benzene (mg/kg)					
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					
	trans-1,2-Dichloroethylene (mg/kg)					
	Dichloromethane (mg/kg)					
	1,2-Dichloropropane (mg/kg)					
	cis-1,3-Dichloropropylene (mg/kg)					
	trans-1,3-Dichloropropylene (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-23	L2097353-24	L2097353-25	L2097353-26	L2097353-27
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH155-01	BH155-02	BH155-03	BH155-04	BH155-05
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Cadmium (Cd)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	
Calcium (Ca)-Leachable (mg/L)	59.0	15.0	15.1	13.1	
Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	
Cobalt (Co)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	
Copper (Cu)-Leachable (mg/L)	0.149	<0.050	<0.050	<0.050	
Iron (Fe)-Leachable (mg/L)	7.4	7.8	5.5	<5.0	
Lead (Pb)-Leachable (mg/L)	0.68	<0.25	<0.25	<0.25	
Magnesium (Mg)-Leachable (mg/L)	5.25	2.01	1.77	1.45	
Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Nickel (Ni)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	
Selenium (Se)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	
Silver (Ag)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	
Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	
Vanadium (V)-Leachable (mg/L)	<0.15	<0.15	<0.15	<0.15	
Zinc (Zn)-Leachable (mg/L)	1.15	<0.50	<0.50	<0.50	
Volatile Organic Compounds					
VOC Sample Container					
Benzene (mg/kg)					
Bromodichloromethane (mg/kg)					
Bromoform (mg/kg)					
Carbon Tetrachloride (mg/kg)					
Chlorobenzene (mg/kg)					
Dibromochloromethane (mg/kg)					
Chloroethane (mg/kg)					
Chloroform (mg/kg)					
Chloromethane (mg/kg)					
1,2-Dichlorobenzene (mg/kg)					
1,3-Dichlorobenzene (mg/kg)					
1,4-Dichlorobenzene (mg/kg)					
1,1-Dichloroethane (mg/kg)					
1,2-Dichloroethane (mg/kg)					
1,1-Dichloroethylene (mg/kg)					
cis-1,2-Dichloroethylene (mg/kg)					
trans-1,2-Dichloroethylene (mg/kg)					
Dichloromethane (mg/kg)					
1,2-Dichloropropane (mg/kg)					
cis-1,3-Dichloropropylene (mg/kg)					
trans-1,3-Dichloropropylene (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L2097353-28 SOIL 17-MAY-18 BH156-01	L2097353-29 SOIL 17-MAY-18 BH156-02	L2097353-31 SOIL 17-MAY-18 BH156-04	L2097353-32 SOIL 17-MAY-18 BH156-05	L2097353-33 SOIL 17-MAY-18 BH157-01
SOIL							
TCLP Metals	Cadmium (Cd)-Leachable (mg/L)		0.056	<0.050	<0.050	<0.050	<0.050
	Calcium (Ca)-Leachable (mg/L)		301	20.4	191	16.6	33.8
	Chromium (Cr)-Leachable (mg/L)		<0.25	<0.25	<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)		0.086	<0.050	<0.050	<0.050	<0.050
	Copper (Cu)-Leachable (mg/L)		4.14	0.091	<0.050	0.148	<0.050
	Iron (Fe)-Leachable (mg/L)		<5.0	5.2	62.6	<5.0	15.4
	Lead (Pb)-Leachable (mg/L)		1.38	<0.25	3.00	<0.25	0.64
	Magnesium (Mg)-Leachable (mg/L)		5.89	1.42	4.12	18.0	1.82
	Mercury (Hg)-Leachable (mg/L)		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)		0.32	<0.25	<0.25	<0.25	<0.25
	Selenium (Se)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Silver (Ag)-Leachable (mg/L)		<0.050	<0.050	<0.050	<0.050	<0.050
	Thallium (Tl)-Leachable (mg/L)		<1.0	<1.0	<1.0	<1.0	<1.0
	Vanadium (V)-Leachable (mg/L)		<0.15	<0.15	<0.15	<0.15	<0.15
	Zinc (Zn)-Leachable (mg/L)		38.9	1.98	5.72	<0.50	0.51
Volatile Organic Compounds	VOC Sample Container						Field MeOH
	Benzene (mg/kg)						<0.0050
	Bromodichloromethane (mg/kg)						<0.050
	Bromoform (mg/kg)						<0.050
	Carbon Tetrachloride (mg/kg)						<0.050
	Chlorobenzene (mg/kg)						<0.050
	Dibromochloromethane (mg/kg)						<0.050
	Chloroethane (mg/kg)						<0.10
	Chloroform (mg/kg)						<0.10
	Chloromethane (mg/kg)						<0.10
	1,2-Dichlorobenzene (mg/kg)						<0.050
	1,3-Dichlorobenzene (mg/kg)						<0.050
	1,4-Dichlorobenzene (mg/kg)						<0.050
	1,1-Dichloroethane (mg/kg)						<0.050
	1,2-Dichloroethane (mg/kg)						<0.050
	1,1-Dichloroethylene (mg/kg)						<0.050
	cis-1,2-Dichloroethylene (mg/kg)						<0.050
	trans-1,2-Dichloroethylene (mg/kg)						<0.050
	Dichloromethane (mg/kg)						<0.30
	1,2-Dichloropropane (mg/kg)						<0.050
	cis-1,3-Dichloropropylene (mg/kg)						<0.050
	trans-1,3-Dichloropropylene (mg/kg)						<0.050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-34	L2097353-35	L2097353-36	L2097353-37	L2097353-38
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH157-02	BH157-03	BH157-04	BH157-05	BH158-01
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Cadmium (Cd)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Calcium (Ca)-Leachable (mg/L)	18.8	13.7	10.8	10.8	48.7
Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
Cobalt (Co)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Copper (Cu)-Leachable (mg/L)	<0.050	<0.050	<0.050	0.053	0.150
Iron (Fe)-Leachable (mg/L)	<5.0	<5.0	<5.0	<5.0	6.4
Lead (Pb)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	0.49
Magnesium (Mg)-Leachable (mg/L)	2.28	2.49	1.42	17.4	2.89
Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel (Ni)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
Selenium (Se)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)-Leachable (mg/L)	<0.15	<0.15	<0.15	<0.15	<0.15
Zinc (Zn)-Leachable (mg/L)	<0.50	<0.50	<0.50	<0.50	0.82
Volatile Organic Compounds					
VOC Sample Container	Field MeOH	Field MeOH			
Benzene (mg/kg)	<0.0050	<0.0050			
Bromodichloromethane (mg/kg)	<0.050	<0.050			
Bromoform (mg/kg)	<0.050	<0.050			
Carbon Tetrachloride (mg/kg)	<0.050	<0.050			
Chlorobenzene (mg/kg)	<0.050	<0.050			
Dibromochloromethane (mg/kg)	<0.050	<0.050			
Chloroethane (mg/kg)	<0.10	<0.10			
Chloroform (mg/kg)	<0.10	<0.10			
Chloromethane (mg/kg)	<0.10	<0.10			
1,2-Dichlorobenzene (mg/kg)	<0.050	<0.050			
1,3-Dichlorobenzene (mg/kg)	<0.050	<0.050			
1,4-Dichlorobenzene (mg/kg)	<0.050	<0.050			
1,1-Dichloroethane (mg/kg)	<0.050	<0.050			
1,2-Dichloroethane (mg/kg)	<0.050	<0.050			
1,1-Dichloroethylene (mg/kg)	<0.050	<0.050			
cis-1,2-Dichloroethylene (mg/kg)	<0.050	<0.050			
trans-1,2-Dichloroethylene (mg/kg)	<0.050	<0.050			
Dichloromethane (mg/kg)	<0.30	<0.30			
1,2-Dichloropropane (mg/kg)	<0.050	<0.050			
cis-1,3-Dichloropropylene (mg/kg)	<0.050	<0.050			
trans-1,3-Dichloropropylene (mg/kg)	<0.050	<0.050			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-39	L2097353-40	L2097353-41	L2097353-42	L2097353-43
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH158-02	BH158-03	Z122	BH158-04	BH158-05
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Cadmium (Cd)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Calcium (Ca)-Leachable (mg/L)	23.0	12.7	15.1	7.1	7.5
Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
Cobalt (Co)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Copper (Cu)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Iron (Fe)-Leachable (mg/L)	<5.0	5.1	<5.0	<5.0	<5.0
Lead (Pb)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
Magnesium (Mg)-Leachable (mg/L)	2.17	2.24	2.73	0.84	1.01
Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nickel (Ni)-Leachable (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
Selenium (Se)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)-Leachable (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)-Leachable (mg/L)	<0.15	<0.15	<0.15	<0.15	<0.15
Zinc (Zn)-Leachable (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds					
VOC Sample Container	Field MeOH	Field MeOH	Field MeOH	Field MeOH	
Benzene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	
Bromodichloromethane (mg/kg)		<0.050	<0.050		
Bromoform (mg/kg)		<0.050	<0.050		
Carbon Tetrachloride (mg/kg)		<0.050	<0.050		
Chlorobenzene (mg/kg)		<0.050	<0.050		
Dibromochloromethane (mg/kg)		<0.050	<0.050		
Chloroethane (mg/kg)		<0.10	<0.10		
Chloroform (mg/kg)		<0.10	<0.10		
Chloromethane (mg/kg)		<0.10	<0.10		
1,2-Dichlorobenzene (mg/kg)		<0.050	<0.050		
1,3-Dichlorobenzene (mg/kg)		<0.050	<0.050		
1,4-Dichlorobenzene (mg/kg)		<0.050	<0.050		
1,1-Dichloroethane (mg/kg)		<0.050	<0.050		
1,2-Dichloroethane (mg/kg)		<0.050	<0.050		
1,1-Dichloroethylene (mg/kg)		<0.050	<0.050		
cis-1,2-Dichloroethylene (mg/kg)		<0.050	<0.050		
trans-1,2-Dichloroethylene (mg/kg)		<0.050	<0.050		
Dichloromethane (mg/kg)		<0.30	<0.30		
1,2-Dichloropropane (mg/kg)		<0.050	<0.050		
cis-1,3-Dichloropropylene (mg/kg)		<0.050	<0.050		
trans-1,3-Dichloropropylene (mg/kg)		<0.050	<0.050		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-44	L2097353-45			
	Description	SOIL	SOIL			
	Sampled Date	17-MAY-18	17-MAY-18			
	Sampled Time					
	Client ID	BH158-06	Z125			
Grouping	**Analyte**					
SOIL						
TCLP Metals	Cadmium (Cd)-Leachable (mg/L)	<0.050	<0.050			
	Calcium (Ca)-Leachable (mg/L)	11.1	10.7			
	Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25			
	Cobalt (Co)-Leachable (mg/L)	<0.050	<0.050			
	Copper (Cu)-Leachable (mg/L)	<0.050	<0.050			
	Iron (Fe)-Leachable (mg/L)	13.3	12.8			
	Lead (Pb)-Leachable (mg/L)	<0.25	<0.25			
	Magnesium (Mg)-Leachable (mg/L)	20.2	19.5			
	Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010			
	Nickel (Ni)-Leachable (mg/L)	<0.25	<0.25			
	Selenium (Se)-Leachable (mg/L)	<1.0	<1.0			
	Silver (Ag)-Leachable (mg/L)	<0.050	<0.050			
	Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0			
	Vanadium (V)-Leachable (mg/L)	<0.15	<0.15			
	Zinc (Zn)-Leachable (mg/L)	<0.50	<0.50			
Volatile Organic Compounds	VOC Sample Container					
	Benzene (mg/kg)					
	Bromodichloromethane (mg/kg)					
	Bromoform (mg/kg)					
	Carbon Tetrachloride (mg/kg)					
	Chlorobenzene (mg/kg)					
	Dibromochloromethane (mg/kg)					
	Chloroethane (mg/kg)					
	Chloroform (mg/kg)					
	Chloromethane (mg/kg)					
	1,2-Dichlorobenzene (mg/kg)					
	1,3-Dichlorobenzene (mg/kg)					
	1,4-Dichlorobenzene (mg/kg)					
	1,1-Dichloroethane (mg/kg)					
	1,2-Dichloroethane (mg/kg)					
	1,1-Dichloroethylene (mg/kg)					
	cis-1,2-Dichloroethylene (mg/kg)					
	trans-1,2-Dichloroethylene (mg/kg)					
	Dichloromethane (mg/kg)					
	1,2-Dichloropropane (mg/kg)					
	cis-1,3-Dichloropropylene (mg/kg)					
	trans-1,3-Dichloropropylene (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L2097353-1 SOIL 17-MAY-18 BH151-01	L2097353-2 SOIL 17-MAY-18 Z123	L2097353-3 SOIL 17-MAY-18 BH151-02	L2097353-4 SOIL 17-MAY-18 BH151-03	L2097353-5 SOIL 17-MAY-18 BH152-01
SOIL							
Volatile Organic Compounds	1,3-Dichloropropene (cis & trans) (mg/kg)						
	Ethylbenzene (mg/kg)						
	Methyl t-butyl ether (MTBE) (mg/kg)						
	Styrene (mg/kg)						
	1,1,1,2-Tetrachloroethane (mg/kg)						
	1,1,2,2-Tetrachloroethane (mg/kg)						
	Tetrachloroethylene (mg/kg)						
	Toluene (mg/kg)						
	1,1,1-Trichloroethane (mg/kg)						
	1,1,2-Trichloroethane (mg/kg)						
	Trichloroethylene (mg/kg)						
	Trichlorofluoromethane (mg/kg)						
	Vinyl Chloride (mg/kg)						
	ortho-Xylene (mg/kg)						
	meta- & para-Xylene (mg/kg)						
	Xylenes (mg/kg)						
	Surrogate: 4-Bromofluorobenzene (SS) (%)						
	Surrogate: 1,4-Difluorobenzene (SS) (%)						
Hydrocarbons	EPH10-19 (mg/kg)						<200
	EPH19-32 (mg/kg)						<200
	LEPH (mg/kg)						
	HEPH (mg/kg)						
	Volatile Hydrocarbons (VH6-10) (mg/kg)						
	VPH (C6-C10) (mg/kg)						
	Surrogate: 2-Bromobenzotrifluoride (%)						79.4
	Surrogate: 3,4-Dichlorotoluene (SS) (%)						
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)						
	Acenaphthylene (mg/kg)						
	Anthracene (mg/kg)						
	Benz(a)anthracene (mg/kg)						
	Benzo(a)pyrene (mg/kg)						
	Benzo(b&j)fluoranthene (mg/kg)						
	Benzo(b+j+k)fluoranthene (mg/kg)						
	Benzo(g,h,i)perylene (mg/kg)						
	Benzo(k)fluoranthene (mg/kg)						

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-6	L2097353-7	L2097353-8	L2097353-9	L2097353-10
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH152-02	BH152-03	Z124	BH152-04	BH152-05
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,3-Dichloropropene (cis & trans) (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)					
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					
Surrogate: 4-Bromofluorobenzene (SS) (%)					
Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons					
EPH10-19 (mg/kg)					
EPH19-32 (mg/kg)					
LEPH (mg/kg)					
HEPH (mg/kg)					
Volatile Hydrocarbons (VH6-10) (mg/kg)					
VPH (C6-C10) (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)					
Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)					
Acenaphthylene (mg/kg)					
Anthracene (mg/kg)					
Benz(a)anthracene (mg/kg)					
Benzo(a)pyrene (mg/kg)					
Benzo(b&j)fluoranthene (mg/kg)					
Benzo(b+j+k)fluoranthene (mg/kg)					
Benzo(g,h,i)perylene (mg/kg)					
Benzo(k)fluoranthene (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-11	L2097353-12	L2097353-13	L2097353-14	L2097353-15
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH153-01	BH153-02	BH153-03	BH154-01	BH154-02
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,3-Dichloropropene (cis & trans) (mg/kg)			<0.10		
Ethylbenzene (mg/kg)			<0.015		
Methyl t-butyl ether (MTBE) (mg/kg)			<0.20		
Styrene (mg/kg)			<0.050		
1,1,1,2-Tetrachloroethane (mg/kg)			<0.050		
1,1,2,2-Tetrachloroethane (mg/kg)			<0.050		
Tetrachloroethylene (mg/kg)			<0.050		
Toluene (mg/kg)			<0.050		
1,1,1-Trichloroethane (mg/kg)			<0.050		
1,1,2-Trichloroethane (mg/kg)			<0.050		
Trichloroethylene (mg/kg)			<0.010		
Trichlorofluoromethane (mg/kg)			<0.10		
Vinyl Chloride (mg/kg)			<0.10		
ortho-Xylene (mg/kg)			<0.050		
meta- & para-Xylene (mg/kg)			<0.050		
Xylenes (mg/kg)			<0.075		
Surrogate: 4-Bromofluorobenzene (SS) (%)			103.6		
Surrogate: 1,4-Difluorobenzene (SS) (%)			97.1		
Hydrocarbons					
EPH10-19 (mg/kg)	<200	<200	<200	<200	<200
EPH19-32 (mg/kg)	<200	<200	<200	<200	<200
LEPH (mg/kg)			<200		
HEPH (mg/kg)			<200		
Volatile Hydrocarbons (VH6-10) (mg/kg)			<100		
VPH (C6-C10) (mg/kg)			<100		
Surrogate: 2-Bromobenzotrifluoride (%)	87.5	97.2	90.1	82.1	89.0
Surrogate: 3,4-Dichlorotoluene (SS) (%)			142.2 SMI		
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)			<0.0050		
Acenaphthylene (mg/kg)			<0.0050		
Anthracene (mg/kg)			<0.0040		
Benz(a)anthracene (mg/kg)			<0.010		
Benzo(a)pyrene (mg/kg)			<0.010		
Benzo(b&j)fluoranthene (mg/kg)			<0.010		
Benzo(b+j+k)fluoranthene (mg/kg)			<0.015		
Benzo(g,h,i)perylene (mg/kg)			<0.010		
Benzo(k)fluoranthene (mg/kg)			<0.010		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-16	L2097353-17	L2097353-18	L2097353-20	L2097353-21
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH154-03	Z121	BH154-04	BH154-06	BH154-07
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,3-Dichloropropene (cis & trans) (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)					
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					
Surrogate: 4-Bromofluorobenzene (SS) (%)					
Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons					
EPH10-19 (mg/kg)	<200	<200	<200		
EPH19-32 (mg/kg)	<200	<200	<200		
LEPH (mg/kg)	<200	<200	<200		
HEPH (mg/kg)	<200	<200	<200		
Volatile Hydrocarbons (VH6-10) (mg/kg)					
VPH (C6-C10) (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)	87.4	87.5	92.5		
Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	<0.0050	<0.0050	0.0397		
Acenaphthylene (mg/kg)	<0.0050	<0.0050	0.0612		
Anthracene (mg/kg)	0.0074	0.0098	0.128		
Benz(a)anthracene (mg/kg)	0.013	0.018	0.255		
Benzo(a)pyrene (mg/kg)	0.013	0.019	0.328		
Benzo(b&j)fluoranthene (mg/kg)	0.020	0.024	0.369		
Benzo(b+j+k)fluoranthene (mg/kg)	0.020	0.035	0.540		
Benzo(g,h,i)perylene (mg/kg)	0.011	0.015	0.208		
Benzo(k)fluoranthene (mg/kg)	<0.010	0.011	0.171		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-23	L2097353-24	L2097353-25	L2097353-26	L2097353-27
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH155-01	BH155-02	BH155-03	BH155-04	BH155-05
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,3-Dichloropropene (cis & trans) (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
1,1,1,2-Tetrachloroethane (mg/kg)					
1,1,2,2-Tetrachloroethane (mg/kg)					
Tetrachloroethylene (mg/kg)					
Toluene (mg/kg)					
1,1,1-Trichloroethane (mg/kg)					
1,1,2-Trichloroethane (mg/kg)					
Trichloroethylene (mg/kg)					
Trichlorofluoromethane (mg/kg)					
Vinyl Chloride (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					
Surrogate: 4-Bromofluorobenzene (SS) (%)					
Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons					
EPH10-19 (mg/kg)	<200	<200	<200		
EPH19-32 (mg/kg)	460	<200	<200		
LEPH (mg/kg)	<200	<200	<200		
HEPH (mg/kg)	460	<200	<200		
Volatile Hydrocarbons (VH6-10) (mg/kg)					
VPH (C6-C10) (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)	88.1	88.3	88.4		
Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	<0.025 DLCI	<0.0050	<0.0050		
Acenaphthylene (mg/kg)	<0.025 DLCI	<0.0050	<0.0050		
Anthracene (mg/kg)	<0.025 DLCI	<0.0040	<0.0040		
Benz(a)anthracene (mg/kg)	0.036	<0.010	<0.010		
Benzo(a)pyrene (mg/kg)	0.048	<0.010	<0.010		
Benzo(b&j)fluoranthene (mg/kg)	0.080	0.010	<0.010		
Benzo(b+j+k)fluoranthene (mg/kg)	0.110	<0.015	<0.015		
Benzo(g,h,i)perylene (mg/kg)	0.066	<0.010	<0.010		
Benzo(k)fluoranthene (mg/kg)	0.030	<0.010	<0.010		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-28	L2097353-29	L2097353-31	L2097353-32	L2097353-33
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH156-01	BH156-02	BH156-04	BH156-05	BH157-01
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,3-Dichloropropene (cis & trans) (mg/kg)					<0.10
Ethylbenzene (mg/kg)					<0.015
Methyl t-butyl ether (MTBE) (mg/kg)					<0.20
Styrene (mg/kg)					<0.050
1,1,1,2-Tetrachloroethane (mg/kg)					<0.050
1,1,2,2-Tetrachloroethane (mg/kg)					<0.050
Tetrachloroethylene (mg/kg)					<0.050
Toluene (mg/kg)					<0.050
1,1,1-Trichloroethane (mg/kg)					<0.050
1,1,2-Trichloroethane (mg/kg)					<0.050
Trichloroethylene (mg/kg)					<0.010
Trichlorofluoromethane (mg/kg)					<0.10
Vinyl Chloride (mg/kg)					<0.10
ortho-Xylene (mg/kg)					<0.050
meta- & para-Xylene (mg/kg)					<0.050
Xylenes (mg/kg)					<0.075
Surrogate: 4-Bromofluorobenzene (SS) (%)					93.6
Surrogate: 1,4-Difluorobenzene (SS) (%)					88.1
Hydrocarbons					
EPH10-19 (mg/kg)	<200	<200	<200	<200	660
EPH19-32 (mg/kg)	1260	<200	240	<200	2990
LEPH (mg/kg)	<200	<200	<200	<200	660
HEPH (mg/kg)	1250	<200	230	<200	2990
Volatile Hydrocarbons (VH6-10) (mg/kg)					<100
VPH (C6-C10) (mg/kg)					<100
Surrogate: 2-Bromobenzotrifluoride (%)	86.2	80.3	81.0	82.9	80.5
Surrogate: 3,4-Dichlorotoluene (SS) (%)					99.2
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	0.0613	<0.0050	1.01	0.0056	<0.070 DLCI
Acenaphthylene (mg/kg)	0.138	0.0077	0.0384	<0.0050	<0.040 DLCI
Anthracene (mg/kg)	0.286	0.0166	1.85	0.0072	<0.060 DLCI
Benz(a)anthracene (mg/kg)	0.953	0.047	1.49	0.011	0.069
Benzo(a)pyrene (mg/kg)	1.13	0.054	1.21	<0.010	0.096
Benzo(b&j)fluoranthene (mg/kg)	1.63	0.076	1.44	0.012	<0.20 DLQ
Benzo(b+j+k)fluoranthene (mg/kg)	2.24	0.103	2.02	<0.015	<0.21
Benzo(g,h,i)perylene (mg/kg)	1.16	0.049	0.645	<0.010	<0.10 DLQ
Benzo(k)fluoranthene (mg/kg)	0.611	0.027	0.584	<0.010	<0.050 DLQ

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-34	L2097353-35	L2097353-36	L2097353-37	L2097353-38
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH157-02	BH157-03	BH157-04	BH157-05	BH158-01
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,3-Dichloropropene (cis & trans) (mg/kg)	<0.10	<0.10			
Ethylbenzene (mg/kg)	<0.015	<0.015			
Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20			
Styrene (mg/kg)	<0.050	<0.050			
1,1,1,2-Tetrachloroethane (mg/kg)	<0.050	<0.050			
1,1,2,2-Tetrachloroethane (mg/kg)	<0.050	<0.050			
Tetrachloroethylene (mg/kg)	<0.050	<0.050			
Toluene (mg/kg)	<0.050	<0.050			
1,1,1-Trichloroethane (mg/kg)	<0.050	<0.050			
1,1,2-Trichloroethane (mg/kg)	<0.050	<0.050			
Trichloroethylene (mg/kg)	<0.010	<0.010			
Trichlorofluoromethane (mg/kg)	<0.10	<0.10			
Vinyl Chloride (mg/kg)	<0.10	<0.10			
ortho-Xylene (mg/kg)	<0.050	<0.050			
meta- & para-Xylene (mg/kg)	<0.050	<0.050			
Xylenes (mg/kg)	<0.075	<0.075			
Surrogate: 4-Bromofluorobenzene (SS) (%)	90.2	96.7			
Surrogate: 1,4-Difluorobenzene (SS) (%)	84.6	86.2			
Hydrocarbons					
EPH10-19 (mg/kg)	<200	<200	<200	<200	220
EPH19-32 (mg/kg)	<200	<200	<200	<200	980
LEPH (mg/kg)	<200	<200	<200	<200	
HEPH (mg/kg)	<200	<200	<200	<200	
Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	<100			
VPH (C6-C10) (mg/kg)	<100	<100			
Surrogate: 2-Bromobenzotrifluoride (%)	82.4	81.6	87.9	82.3	86.0
Surrogate: 3,4-Dichlorotoluene (SS) (%)	107.1	SURR-ND 136.7			
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	
Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	
Anthracene (mg/kg)	<0.0040	<0.0040	<0.0040	<0.0040	
Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Benzo(b&j)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015	<0.015	
Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-39	L2097353-40	L2097353-41	L2097353-42	L2097353-43
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH158-02	BH158-03	Z122	BH158-04	BH158-05
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds					
1,3-Dichloropropene (cis & trans) (mg/kg)		<0.10	<0.10		
Ethylbenzene (mg/kg)	<0.015	<0.015	<0.015	<0.015	
Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20	<0.20	<0.20	
Styrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
1,1,1,2-Tetrachloroethane (mg/kg)		<0.050	<0.050		
1,1,2,2-Tetrachloroethane (mg/kg)		<0.050	<0.050		
Tetrachloroethylene (mg/kg)		<0.050	<0.050		
Toluene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
1,1,1-Trichloroethane (mg/kg)		<0.050	<0.050		
1,1,2-Trichloroethane (mg/kg)		<0.050	<0.050		
Trichloroethylene (mg/kg)		<0.010	<0.010		
Trichlorofluoromethane (mg/kg)		<0.10	<0.10		
Vinyl Chloride (mg/kg)		<0.10	<0.10		
ortho-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
meta- & para-Xylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
Xylenes (mg/kg)	<0.075	<0.075	<0.075	<0.075	
Surrogate: 4-Bromofluorobenzene (SS) (%)	93.1	96.2	94.1	90.5	
Surrogate: 1,4-Difluorobenzene (SS) (%)	83.6	86.3	82.7	82.0	
Hydrocarbons					
EPH10-19 (mg/kg)	<200	<200	<200	<200	
EPH19-32 (mg/kg)	<200	<200	<200	<200	
LEPH (mg/kg)	<200	<200	<200	<200	
HEPH (mg/kg)	<200	<200	<200	<200	
Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	<100	<100	<100	
VPH (C6-C10) (mg/kg)	<100	<100	<100	<100	
Surrogate: 2-Bromobenzotrifluoride (%)	86.5	88.8	94.0	92.8	
Surrogate: 3,4-Dichlorotoluene (SS) (%)	124.8	128.0	123.6	121.1	
Polycyclic Aromatic Hydrocarbons					
Acenaphthene (mg/kg)	0.0054	<0.0050	0.0051	<0.0050	
Acenaphthylene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	
Anthracene (mg/kg)	<0.0060 DLQ	<0.0040	<0.0050 DLQ	<0.0040	
Benz(a)anthracene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Benzo(a)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Benzo(b&j)fluoranthene (mg/kg)	0.014	<0.010	0.011	<0.010	
Benzo(b+j+k)fluoranthene (mg/kg)	<0.015	<0.015	<0.015	<0.015	
Benzo(g,h,i)perylene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Benzo(k)fluoranthene (mg/kg)	<0.010	<0.010	<0.010	<0.010	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-44	L2097353-45			
	Description	SOIL	SOIL			
	Sampled Date	17-MAY-18	17-MAY-18			
	Sampled Time					
	Client ID	BH158-06	Z125			
Grouping	**Analyte**					
SOIL						
Volatile Organic Compounds	1,3-Dichloropropene (cis & trans) (mg/kg)					
	Ethylbenzene (mg/kg)					
	Methyl t-butyl ether (MTBE) (mg/kg)					
	Styrene (mg/kg)					
	1,1,1,2-Tetrachloroethane (mg/kg)					
	1,1,2,2-Tetrachloroethane (mg/kg)					
	Tetrachloroethylene (mg/kg)					
	Toluene (mg/kg)					
	1,1,1-Trichloroethane (mg/kg)					
	1,1,2-Trichloroethane (mg/kg)					
	Trichloroethylene (mg/kg)					
	Trichlorofluoromethane (mg/kg)					
	Vinyl Chloride (mg/kg)					
	ortho-Xylene (mg/kg)					
	meta- & para-Xylene (mg/kg)					
	Xylenes (mg/kg)					
	Surrogate: 4-Bromofluorobenzene (SS) (%)					
	Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
	Volatile Hydrocarbons (VH6-10) (mg/kg)					
	VPH (C6-C10) (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)					
	Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b&j)fluoranthene (mg/kg)					
	Benzo(b+j+k)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-1	L2097353-2	L2097353-3	L2097353-4	L2097353-5
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
	Sampled Time					
	Client ID	BH151-01	Z123	BH151-02	BH151-03	BH152-01
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	1-Methylnaphthalene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Quinoline (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					
	B(a)P Total Potency Equivalent (mg/kg)					
	IACR (CCME) (mg/kg)					
Phenolics	4-Chloro-3-methylphenol (mg/kg)					
	2-Chlorophenol (mg/kg)					
	3-Chlorophenol (mg/kg)					
	4-Chlorophenol (mg/kg)					
	2,3-Dichlorophenol (mg/kg)					
	2,4 & 2,5-Dichlorophenol (mg/kg)					
	2,6-Dichlorophenol (mg/kg)					
	3,4-Dichlorophenol (mg/kg)					
	3,5-Dichlorophenol (mg/kg)					
	2,4-Dimethylphenol (mg/kg)					
	o-Cresol (mg/kg)					
	m-Cresol (mg/kg)					
	p-Cresol (mg/kg)					
	Pentachlorophenol (mg/kg)					
	Phenol (mg/kg)					
	2,3,4,5-Tetrachlorophenol (mg/kg)					
	2,3,4,6-Tetrachlorophenol (mg/kg)					
	2,3,5,6-Tetrachlorophenol (mg/kg)					
	2,3,4-Trichlorophenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-6	L2097353-7	L2097353-8	L2097353-9	L2097353-10
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
	Sampled Time					
	Client ID	BH152-02	BH152-03	Z124	BH152-04	BH152-05
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	1-Methylnaphthalene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Quinoline (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					
	B(a)P Total Potency Equivalent (mg/kg)					
	IACR (CCME) (mg/kg)					
Phenolics	4-Chloro-3-methylphenol (mg/kg)					
	2-Chlorophenol (mg/kg)					
	3-Chlorophenol (mg/kg)					
	4-Chlorophenol (mg/kg)					
	2,3-Dichlorophenol (mg/kg)					
	2,4 & 2,5-Dichlorophenol (mg/kg)					
	2,6-Dichlorophenol (mg/kg)					
	3,4-Dichlorophenol (mg/kg)					
	3,5-Dichlorophenol (mg/kg)					
	2,4-Dimethylphenol (mg/kg)					
	o-Cresol (mg/kg)					
	m-Cresol (mg/kg)					
	p-Cresol (mg/kg)					
	Pentachlorophenol (mg/kg)					
	Phenol (mg/kg)					
	2,3,4,5-Tetrachlorophenol (mg/kg)					
	2,3,4,6-Tetrachlorophenol (mg/kg)					
	2,3,5,6-Tetrachlorophenol (mg/kg)					
	2,3,4-Trichlorophenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-11	L2097353-12	L2097353-13	L2097353-14	L2097353-15
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH153-01	BH153-02	BH153-03	BH154-01	BH154-02
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons Chrysene (mg/kg)			<0.010		
Dibenz(a,h)anthracene (mg/kg)			<0.0050		
Fluoranthene (mg/kg)			<0.010		
Fluorene (mg/kg)			<0.010		
Indeno(1,2,3-c,d)pyrene (mg/kg)			<0.010		
1-Methylnaphthalene (mg/kg)			<0.050		
2-Methylnaphthalene (mg/kg)			<0.010		
Naphthalene (mg/kg)			<0.010		
Phenanthrene (mg/kg)			<0.010		
Pyrene (mg/kg)			<0.010		
Quinoline (mg/kg)			<0.050		
Surrogate: Acenaphthene d10 (%)			74.0		
Surrogate: Chrysene d12 (%)			109.8		
Surrogate: Naphthalene d8 (%)			69.0		
Surrogate: Phenanthrene d10 (%)			81.2		
B(a)P Total Potency Equivalent (mg/kg)			<0.020		
IACR (CCME) (mg/kg)			<0.15		
Phenolics 4-Chloro-3-methylphenol (mg/kg)					
2-Chlorophenol (mg/kg)					
3-Chlorophenol (mg/kg)					
4-Chlorophenol (mg/kg)					
2,3-Dichlorophenol (mg/kg)					
2,4 & 2,5-Dichlorophenol (mg/kg)					
2,6-Dichlorophenol (mg/kg)					
3,4-Dichlorophenol (mg/kg)					
3,5-Dichlorophenol (mg/kg)					
2,4-Dimethylphenol (mg/kg)					
o-Cresol (mg/kg)					
m-Cresol (mg/kg)					
p-Cresol (mg/kg)					
Pentachlorophenol (mg/kg)					
Phenol (mg/kg)					
2,3,4,5-Tetrachlorophenol (mg/kg)					
2,3,4,6-Tetrachlorophenol (mg/kg)					
2,3,5,6-Tetrachlorophenol (mg/kg)					
2,3,4-Trichlorophenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-16	L2097353-17	L2097353-18	L2097353-20	L2097353-21
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH154-03	Z121	BH154-04	BH154-06	BH154-07
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons / Chrysene (mg/kg)	0.016	0.020	0.319		
Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	0.0378		
Fluoranthene (mg/kg)	0.034	0.045	0.714		
Fluorene (mg/kg)	<0.010	<0.010	0.071		
Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	0.014	0.202		
1-Methylnaphthalene (mg/kg)	<0.050	<0.050	0.063		
2-Methylnaphthalene (mg/kg)	0.014	0.018	0.085		
Naphthalene (mg/kg)	0.034	0.048	0.234		
Phenanthrene (mg/kg)	0.029	0.038	0.510		
Pyrene (mg/kg)	0.036	0.048	0.703		
Quinoline (mg/kg)	<0.050	<0.050	<0.050		
Surrogate: Acenaphthene d10 (%)	87.7	86.0	92.7		
Surrogate: Chrysene d12 (%)	110.1	110.1	118.8		
Surrogate: Naphthalene d8 (%)	83.9	83.6	87.0		
Surrogate: Phenanthrene d10 (%)	99.5	98.1	105.3		
B(a)P Total Potency Equivalent (mg/kg)	0.020	0.028	0.471		
IACR (CCME) (mg/kg)	0.25	0.35	5.46		
Phenolics / 4-Chloro-3-methylphenol (mg/kg)	<0.020	<0.020			
2-Chlorophenol (mg/kg)	<0.020	<0.020			
3-Chlorophenol (mg/kg)	<0.020	<0.020			
4-Chlorophenol (mg/kg)	<0.020	<0.020			
2,3-Dichlorophenol (mg/kg)	<0.020	<0.020			
2,4 & 2,5-Dichlorophenol (mg/kg)	<0.020	<0.020			
2,6-Dichlorophenol (mg/kg)	<0.020	<0.020			
3,4-Dichlorophenol (mg/kg)	<0.020	<0.020			
3,5-Dichlorophenol (mg/kg)	<0.020	<0.020			
2,4-Dimethylphenol (mg/kg)	DLCI <0.090	DLCI <0.080			
o-Cresol (mg/kg)	<0.020	<0.020			
m-Cresol (mg/kg)	<0.020	<0.020			
p-Cresol (mg/kg)	DLCI <0.040	DLCI <0.030			
Pentachlorophenol (mg/kg)	<0.020	<0.020			
Phenol (mg/kg)	<0.020	<0.020			
2,3,4,5-Tetrachlorophenol (mg/kg)	<0.020	<0.020			
2,3,4,6-Tetrachlorophenol (mg/kg)	<0.020	<0.020			
2,3,5,6-Tetrachlorophenol (mg/kg)	<0.020	<0.020			
2,3,4-Trichlorophenol (mg/kg)	<0.020	<0.020			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L2097353-23 SOIL 17-MAY-18 BH155-01	L2097353-24 SOIL 17-MAY-18 BH155-02	L2097353-25 SOIL 17-MAY-18 BH155-03	L2097353-26 SOIL 17-MAY-18 BH155-04	L2097353-27 SOIL 17-MAY-18 BH155-05
SOIL							
Polycyclic Aromatic Hydrocarbons	Chrysene (mg/kg)		<0.060 DLCI	<0.010	<0.010		
	Dibenz(a,h)anthracene (mg/kg)		<0.025 DLCI	<0.0050	<0.0050		
	Fluoranthene (mg/kg)		0.088	0.011	<0.010		
	Fluorene (mg/kg)		<0.025 DLCI	<0.010	<0.010		
	Indeno(1,2,3-c,d)pyrene (mg/kg)		0.048	<0.010	<0.010		
	1-Methylnaphthalene (mg/kg)		<0.050	<0.050	<0.050		
	2-Methylnaphthalene (mg/kg)		0.040	<0.010	<0.010		
	Naphthalene (mg/kg)		0.039	<0.010	<0.010		
	Phenanthrene (mg/kg)		0.073	<0.010	<0.010		
	Pyrene (mg/kg)		0.112	0.012	<0.010		
	Quinoline (mg/kg)		<0.050	<0.050	<0.050		
	Surrogate: Acenaphthene d10 (%)		80.0	90.4	86.0		
	Surrogate: Chrysene d12 (%)		93.7	121.0	116.3		
	Surrogate: Naphthalene d8 (%)		63.0	83.7	80.2		
	Surrogate: Phenanthrene d10 (%)		81.8	101.2	97.2		
	B(a)P Total Potency Equivalent (mg/kg)		0.080	<0.020	<0.020		
	IACR (CCME) (mg/kg)		1.02	<0.15	<0.15		
Phenolics	4-Chloro-3-methylphenol (mg/kg)						
	2-Chlorophenol (mg/kg)						
	3-Chlorophenol (mg/kg)						
	4-Chlorophenol (mg/kg)						
	2,3-Dichlorophenol (mg/kg)						
	2,4 & 2,5-Dichlorophenol (mg/kg)						
	2,6-Dichlorophenol (mg/kg)						
	3,4-Dichlorophenol (mg/kg)						
	3,5-Dichlorophenol (mg/kg)						
	2,4-Dimethylphenol (mg/kg)						
	o-Cresol (mg/kg)						
	m-Cresol (mg/kg)						
	p-Cresol (mg/kg)						
	Pentachlorophenol (mg/kg)						
	Phenol (mg/kg)						
	2,3,4,5-Tetrachlorophenol (mg/kg)						
	2,3,4,6-Tetrachlorophenol (mg/kg)						
	2,3,5,6-Tetrachlorophenol (mg/kg)						
	2,3,4-Trichlorophenol (mg/kg)						

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID				
		L2097353-28 SOIL 17-MAY-18 BH156-01	L2097353-29 SOIL 17-MAY-18 BH156-02	L2097353-31 SOIL 17-MAY-18 BH156-04	L2097353-32 SOIL 17-MAY-18 BH156-05	L2097353-33 SOIL 17-MAY-18 BH157-01
SOIL						
Polycyclic Aromatic Hydrocarbons	Chrysene (mg/kg)	1.24	0.056	1.36	0.011	<0.10 DLCI
	Dibenz(a,h)anthracene (mg/kg)	0.208	0.0083	0.153	<0.0050	<0.030 DLCI
	Fluoranthene (mg/kg)	1.88	0.105	4.01	0.024	0.126
	Fluorene (mg/kg)	0.066	<0.010	0.923	<0.010	0.081
	Indeno(1,2,3-c,d)pyrene (mg/kg)	1.02	0.043	0.679	<0.010	0.084
	1-Methylnaphthalene (mg/kg)	0.687	<0.050	0.370	<0.050	0.104
	2-Methylnaphthalene (mg/kg)	0.969	0.035	0.487	<0.010	0.102
	Naphthalene (mg/kg)	1.41	0.034	0.762	0.011	<0.080 DLQ
	Phenanthrene (mg/kg)	1.46	0.086	5.84	0.027	0.202
	Pyrene (mg/kg)	1.88	0.101	3.41	0.023	0.259
	Quinoline (mg/kg)	<0.050	<0.050	<0.060 DLCI	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	87.8	79.6	71.0	77.3	77.3
	Surrogate: Chrysene d12 (%)	100.6	107.5	89.4	102.2	88.0
	Surrogate: Naphthalene d8 (%)	70.0	73.3	63.5	72.7	63.9
	Surrogate: Phenanthrene d10 (%)	87.6	93.5	77.8	88.0	76.2
	B(a)P Total Potency Equivalent (mg/kg)	1.78	0.083	1.80	<0.020	0.140
	IACR (CCME) (mg/kg)	22.0	1.02	22.1	0.17	1.38
Phenolics	4-Chloro-3-methylphenol (mg/kg)					
	2-Chlorophenol (mg/kg)					
	3-Chlorophenol (mg/kg)					
	4-Chlorophenol (mg/kg)					
	2,3-Dichlorophenol (mg/kg)					
	2,4 & 2,5-Dichlorophenol (mg/kg)					
	2,6-Dichlorophenol (mg/kg)					
	3,4-Dichlorophenol (mg/kg)					
	3,5-Dichlorophenol (mg/kg)					
	2,4-Dimethylphenol (mg/kg)					
	o-Cresol (mg/kg)					
	m-Cresol (mg/kg)					
	p-Cresol (mg/kg)					
	Pentachlorophenol (mg/kg)					
	Phenol (mg/kg)					
	2,3,4,5-Tetrachlorophenol (mg/kg)					
	2,3,4,6-Tetrachlorophenol (mg/kg)					
	2,3,5,6-Tetrachlorophenol (mg/kg)					
	2,3,4-Trichlorophenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-34	L2097353-35	L2097353-36	L2097353-37	L2097353-38
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH157-02	BH157-03	BH157-04	BH157-05	BH158-01
Grouping / **Analyte**					
SOIL					
Polycyclic Aromatic Hydrocarbons					
Chrysene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Dibenz(a,h)anthracene (mg/kg)	<0.0050	<0.0050	<0.0050	<0.0050	
Fluoranthene (mg/kg)	<0.010	<0.010	<0.010	0.014	
Fluorene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
1-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
2-Methylnaphthalene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Naphthalene (mg/kg)	<0.010	<0.010	<0.010	<0.010	
Phenanthrene (mg/kg)	<0.020 DLQ	<0.010	<0.010	<0.010	
Pyrene (mg/kg)	0.015	<0.010	<0.010	0.014	
Quinoline (mg/kg)	<0.050	<0.050	<0.050	<0.050	
Surrogate: Acenaphthene d10 (%)	81.5	79.4	84.5	73.4	
Surrogate: Chrysene d12 (%)	110.4	108.1	113.2	100.6	
Surrogate: Naphthalene d8 (%)	74.4	73.0	81.1	68.0	
Surrogate: Phenanthrene d10 (%)	93.3	87.8	88.9	83.6	
B(a)P Total Potency Equivalent (mg/kg)	<0.020	<0.020	<0.020	<0.020	
IACR (CCME) (mg/kg)	<0.15	<0.15	<0.15	<0.15	
Phenolics					
4-Chloro-3-methylphenol (mg/kg)					
2-Chlorophenol (mg/kg)					
3-Chlorophenol (mg/kg)					
4-Chlorophenol (mg/kg)					
2,3-Dichlorophenol (mg/kg)					
2,4 & 2,5-Dichlorophenol (mg/kg)					
2,6-Dichlorophenol (mg/kg)					
3,4-Dichlorophenol (mg/kg)					
3,5-Dichlorophenol (mg/kg)					
2,4-Dimethylphenol (mg/kg)					
o-Cresol (mg/kg)					
m-Cresol (mg/kg)					
p-Cresol (mg/kg)					
Pentachlorophenol (mg/kg)					
Phenol (mg/kg)					
2,3,4,5-Tetrachlorophenol (mg/kg)					
2,3,4,6-Tetrachlorophenol (mg/kg)					
2,3,5,6-Tetrachlorophenol (mg/kg)					
2,3,4-Trichlorophenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID	L2097353-39 SOIL 17-MAY-18 BH158-02	L2097353-40 SOIL 17-MAY-18 BH158-03	L2097353-41 SOIL 17-MAY-18 Z122	L2097353-42 SOIL 17-MAY-18 BH158-04	L2097353-43 SOIL 17-MAY-18 BH158-05
SOIL							
Polycyclic Aromatic Hydrocarbons	Chrysene (mg/kg)		<0.020 DLCI	<0.010	<0.020 DLCI	<0.010	
	Dibenz(a,h)anthracene (mg/kg)		<0.0050	<0.0050	<0.0050	<0.0050	
	Fluoranthene (mg/kg)		0.021	0.014	0.018	<0.010	
	Fluorene (mg/kg)		<0.010	<0.010	<0.010	<0.010	
	Indeno(1,2,3-c,d)pyrene (mg/kg)		<0.010	<0.010	<0.010	<0.010	
	1-Methylnaphthalene (mg/kg)		<0.050	<0.050	<0.050	<0.050	
	2-Methylnaphthalene (mg/kg)		0.022	0.016	0.017	<0.010	
	Naphthalene (mg/kg)		0.019	0.014	0.015	<0.010	
	Phenanthrene (mg/kg)		0.028	0.017	<0.030 DLQ	<0.010	
	Pyrene (mg/kg)		0.026	0.017	0.022	<0.010	
	Quinoline (mg/kg)		<0.050	<0.050	<0.050	<0.050	
	Surrogate: Acenaphthene d10 (%)		82.3	81.9	92.0	87.4	
	Surrogate: Chrysene d12 (%)		103.4	108.0	116.9	114.5	
	Surrogate: Naphthalene d8 (%)		75.9	76.7	84.3	81.9	
	Surrogate: Phenanthrene d10 (%)		90.9	92.2	101.9	90.8	
	B(a)P Total Potency Equivalent (mg/kg)		<0.020	<0.020	<0.020	<0.020	
	IACR (CCME) (mg/kg)		0.16	<0.15	<0.15	<0.15	
Phenolics	4-Chloro-3-methylphenol (mg/kg)						
	2-Chlorophenol (mg/kg)						
	3-Chlorophenol (mg/kg)						
	4-Chlorophenol (mg/kg)						
	2,3-Dichlorophenol (mg/kg)						
	2,4 & 2,5-Dichlorophenol (mg/kg)						
	2,6-Dichlorophenol (mg/kg)						
	3,4-Dichlorophenol (mg/kg)						
	3,5-Dichlorophenol (mg/kg)						
	2,4-Dimethylphenol (mg/kg)						
	o-Cresol (mg/kg)						
	m-Cresol (mg/kg)						
	p-Cresol (mg/kg)						
	Pentachlorophenol (mg/kg)						
	Phenol (mg/kg)						
	2,3,4,5-Tetrachlorophenol (mg/kg)						
	2,3,4,6-Tetrachlorophenol (mg/kg)						
	2,3,5,6-Tetrachlorophenol (mg/kg)						
	2,3,4-Trichlorophenol (mg/kg)						

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-44	L2097353-45			
	Description	SOIL	SOIL			
	Sampled Date	17-MAY-18	17-MAY-18			
	Sampled Time					
	Client ID	BH158-06	Z125			
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	1-Methylnaphthalene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Quinoline (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					
	B(a)P Total Potency Equivalent (mg/kg)					
	IACR (CCME) (mg/kg)					
Phenolics	4-Chloro-3-methylphenol (mg/kg)					
	2-Chlorophenol (mg/kg)					
	3-Chlorophenol (mg/kg)					
	4-Chlorophenol (mg/kg)					
	2,3-Dichlorophenol (mg/kg)					
	2,4 & 2,5-Dichlorophenol (mg/kg)					
	2,6-Dichlorophenol (mg/kg)					
	3,4-Dichlorophenol (mg/kg)					
	3,5-Dichlorophenol (mg/kg)					
	2,4-Dimethylphenol (mg/kg)					
	o-Cresol (mg/kg)					
	m-Cresol (mg/kg)					
	p-Cresol (mg/kg)					
	Pentachlorophenol (mg/kg)					
	Phenol (mg/kg)					
	2,3,4,5-Tetrachlorophenol (mg/kg)					
	2,3,4,6-Tetrachlorophenol (mg/kg)					
	2,3,5,6-Tetrachlorophenol (mg/kg)					
	2,3,4-Trichlorophenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-1	L2097353-2	L2097353-3	L2097353-4	L2097353-5
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
	Sampled Time					
	Client ID	BH151-01	Z123	BH151-02	BH151-03	BH152-01
Grouping	**Analyte**					
SOIL						
Phenolics	2,3,5-Trichlorophenol (mg/kg)					
	2,3,6-Trichlorophenol (mg/kg)					
	2,4,5-Trichlorophenol (mg/kg)					
	2,4,6-Trichlorophenol (mg/kg)					
	3,4,5-Trichlorophenol (mg/kg)					
	Surrogate: 2-Chlorophenol-d4 (%)					
	Surrogate: 2,4-Dichlorophenol-d3 (%)					
	Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)					
	2,6-Dimethylphenol (mg/kg)					
	3,4-Dimethylphenol (mg/kg)					
	Hydroquinone (mg/kg)					
	2-Phenylphenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-6	L2097353-7	L2097353-8	L2097353-9	L2097353-10
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH152-02	BH152-03	Z124	BH152-04	BH152-05
Grouping	**Analyte**				
SOIL					
Phenolics	2,3,5-Trichlorophenol (mg/kg)				
	2,3,6-Trichlorophenol (mg/kg)				
	2,4,5-Trichlorophenol (mg/kg)				
	2,4,6-Trichlorophenol (mg/kg)				
	3,4,5-Trichlorophenol (mg/kg)				
	Surrogate: 2-Chlorophenol-d4 (%)				
	Surrogate: 2,4-Dichlorophenol-d3 (%)				
	Surrogate: 2,4,6-Tribromophenol (%)				
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)				
	2,6-Dimethylphenol (mg/kg)				
	3,4-Dimethylphenol (mg/kg)				
	Hydroquinone (mg/kg)				
	2-Phenylphenol (mg/kg)				

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-11	L2097353-12	L2097353-13	L2097353-14	L2097353-15
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH153-01	BH153-02	BH153-03	BH154-01	BH154-02
Grouping / **Analyte**					
SOIL					
Phenolics 2,3,5-Trichlorophenol (mg/kg)					
2,3,6-Trichlorophenol (mg/kg)					
2,4,5-Trichlorophenol (mg/kg)					
2,4,6-Trichlorophenol (mg/kg)					
3,4,5-Trichlorophenol (mg/kg)					
Surrogate: 2-Chlorophenol-d4 (%)					
Surrogate: 2,4-Dichlorophenol-d3 (%)					
Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics Butylated Hydroxytoluene (mg/kg)					
2,6-Dimethylphenol (mg/kg)					
3,4-Dimethylphenol (mg/kg)					
Hydroquinone (mg/kg)					
2-Phenylphenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-16	L2097353-17	L2097353-18	L2097353-20	L2097353-21
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH154-03	Z121	BH154-04	BH154-06	BH154-07
Grouping / **Analyte**					
SOIL					
Phenolics 2,3,5-Trichlorophenol (mg/kg)	<0.020	<0.020			
2,3,6-Trichlorophenol (mg/kg)	<0.020	<0.020			
2,4,5-Trichlorophenol (mg/kg)	<0.020	<0.020			
2,4,6-Trichlorophenol (mg/kg)	<0.020	<0.020			
3,4,5-Trichlorophenol (mg/kg)	<0.020	<0.020			
Surrogate: 2-Chlorophenol-d4 (%)	89.8	91.7			
Surrogate: 2,4-Dichlorophenol-d3 (%)	87.6	85.7			
Surrogate: 2,4,6-Tribromophenol (%)	100.2	98.2			
Non-Chlorinated Phenolics Butylated Hydroxytoluene (mg/kg)	<0.20	<0.20			
2,6-Dimethylphenol (mg/kg)	<0.020	<0.020			
3,4-Dimethylphenol (mg/kg)	<0.020	<0.020			
Hydroquinone (mg/kg)	<0.20	<0.20			
2-Phenylphenol (mg/kg)	<0.60	<0.60			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-23	L2097353-24	L2097353-25	L2097353-26	L2097353-27
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH155-01	BH155-02	BH155-03	BH155-04	BH155-05
Grouping / **Analyte**					
SOIL					
Phenolics					
2,3,5-Trichlorophenol (mg/kg)					
2,3,6-Trichlorophenol (mg/kg)					
2,4,5-Trichlorophenol (mg/kg)					
2,4,6-Trichlorophenol (mg/kg)					
3,4,5-Trichlorophenol (mg/kg)					
Surrogate: 2-Chlorophenol-d4 (%)					
Surrogate: 2,4-Dichlorophenol-d3 (%)					
Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics					
Butylated Hydroxytoluene (mg/kg)					
2,6-Dimethylphenol (mg/kg)					
3,4-Dimethylphenol (mg/kg)					
Hydroquinone (mg/kg)					
2-Phenylphenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-28	L2097353-29	L2097353-31	L2097353-32	L2097353-33
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
	Sampled Time					
	Client ID	BH156-01	BH156-02	BH156-04	BH156-05	BH157-01
Grouping	**Analyte**					
SOIL						
Phenolics	2,3,5-Trichlorophenol (mg/kg)					
	2,3,6-Trichlorophenol (mg/kg)					
	2,4,5-Trichlorophenol (mg/kg)					
	2,4,6-Trichlorophenol (mg/kg)					
	3,4,5-Trichlorophenol (mg/kg)					
	Surrogate: 2-Chlorophenol-d4 (%)					
	Surrogate: 2,4-Dichlorophenol-d3 (%)					
	Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)					
	2,6-Dimethylphenol (mg/kg)					
	3,4-Dimethylphenol (mg/kg)					
	Hydroquinone (mg/kg)					
	2-Phenylphenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097353-34	L2097353-35	L2097353-36	L2097353-37	L2097353-38
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
Sampled Time					
Client ID	BH157-02	BH157-03	BH157-04	BH157-05	BH158-01
Grouping / **Analyte**					
SOIL					
Phenolics					
2,3,5-Trichlorophenol (mg/kg)					
2,3,6-Trichlorophenol (mg/kg)					
2,4,5-Trichlorophenol (mg/kg)					
2,4,6-Trichlorophenol (mg/kg)					
3,4,5-Trichlorophenol (mg/kg)					
Surrogate: 2-Chlorophenol-d4 (%)					
Surrogate: 2,4-Dichlorophenol-d3 (%)					
Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics					
Butylated Hydroxytoluene (mg/kg)					
2,6-Dimethylphenol (mg/kg)					
3,4-Dimethylphenol (mg/kg)					
Hydroquinone (mg/kg)					
2-Phenylphenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-39	L2097353-40	L2097353-41	L2097353-42	L2097353-43
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18	17-MAY-18
	Sampled Time					
	Client ID	BH158-02	BH158-03	Z122	BH158-04	BH158-05
Grouping	**Analyte**					
SOIL						
Phenolics	2,3,5-Trichlorophenol (mg/kg)					
	2,3,6-Trichlorophenol (mg/kg)					
	2,4,5-Trichlorophenol (mg/kg)					
	2,4,6-Trichlorophenol (mg/kg)					
	3,4,5-Trichlorophenol (mg/kg)					
	Surrogate: 2-Chlorophenol-d4 (%)					
	Surrogate: 2,4-Dichlorophenol-d3 (%)					
	Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)					
	2,6-Dimethylphenol (mg/kg)					
	3,4-Dimethylphenol (mg/kg)					
	Hydroquinone (mg/kg)					
	2-Phenylphenol (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097353-44	L2097353-45			
	Description	SOIL	SOIL			
	Sampled Date	17-MAY-18	17-MAY-18			
	Sampled Time					
	Client ID	BH158-06	Z125			
Grouping	**Analyte**					
SOIL						
Phenolics	2,3,5-Trichlorophenol (mg/kg)					
	2,3,6-Trichlorophenol (mg/kg)					
	2,4,5-Trichlorophenol (mg/kg)					
	2,4,6-Trichlorophenol (mg/kg)					
	3,4,5-Trichlorophenol (mg/kg)					
	Surrogate: 2-Chlorophenol-d4 (%)					
	Surrogate: 2,4-Dichlorophenol-d3 (%)					
	Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/kg)					
	2,6-Dimethylphenol (mg/kg)					
	3,4-Dimethylphenol (mg/kg)					
	Hydroquinone (mg/kg)					
	2-Phenylphenol (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)	DUP-H	L2097353-28
Duplicate	Cadmium (Cd)	DUP-H	L2097353-28
Duplicate	Molybdenum (Mo)	DUP-H	L2097353-28
Duplicate	Nickel (Ni)	DUP-H	L2097353-28
Duplicate	Strontium (Sr)	DUP-H	L2097353-28
Duplicate	Tin (Sn)	DUP-H	L2097353-28
Duplicate	Tungsten (W)	DUP-H	L2097353-28

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
SMI	Surrogate recovery could not be measured due to sample matrix interference.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CLPHEN-TMB-MS-VA	Soil	Chlorinated Phenols by Tumbler/GCMS	EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

HG-TCLP-CVAFS-VA	Soil	Mercury by CVAAS (TCLP)	EPA 1311/245.7

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 245.7).

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHs = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

MET-TCLP-ICP-VA	Soil	Metals by ICPOES (TCLP)	EPA 1311/6010B

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MOISTURE-VA	Soil	Moisture content	CWS for PHC in Soil - Tier 1

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA	Soil	PAH - Rotary Extraction (Hexane/Acetone)	EPA 3570/8270

Reference Information

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3570 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

PHEN-M-TMB-MS-VA	Soil	Misc. Phenolics in Soil	EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

PHEN-TMB-MS-VA	Soil	Phenolics by Tumbler/GC-MS	EPA 3570, 8270D, Knapp(1979)

A subsample of the soil/sediment is rotary extracted by solvent, derivitized, and analysed by GC/MS.

VH-HSFID-VA	Soil	VH in soil by Headspace GCFID	BC Env. Lab Manual (VH in Solids)

This analysis involves the extraction of a subsample of the sediment/soil with methanol. Aliquots of the methanol extract are then added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999).

VH-SURR-FID-VA	Soil	VH Surrogates for Soils	BC Env. Lab Manual (VH in Solids)
VOC-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7-L-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Soil	VOC7 and/or VOC Surrogates for Soils	EPA 5035A/5021A/8260C
VPH-CALC-VA	Soil	VPH is VH minus select aromatics	BC MOE VPH

VPHs measures Volatile Petroleum Hydrocarbons in soil. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure.
VPHs = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene

XYLENES-CALC-VA	Soil	Sum of Xylene Isomer Concentrations	EPA 8260B & 524.2

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

15-609545 15-609546 15-609547 15-609548

Reference Information

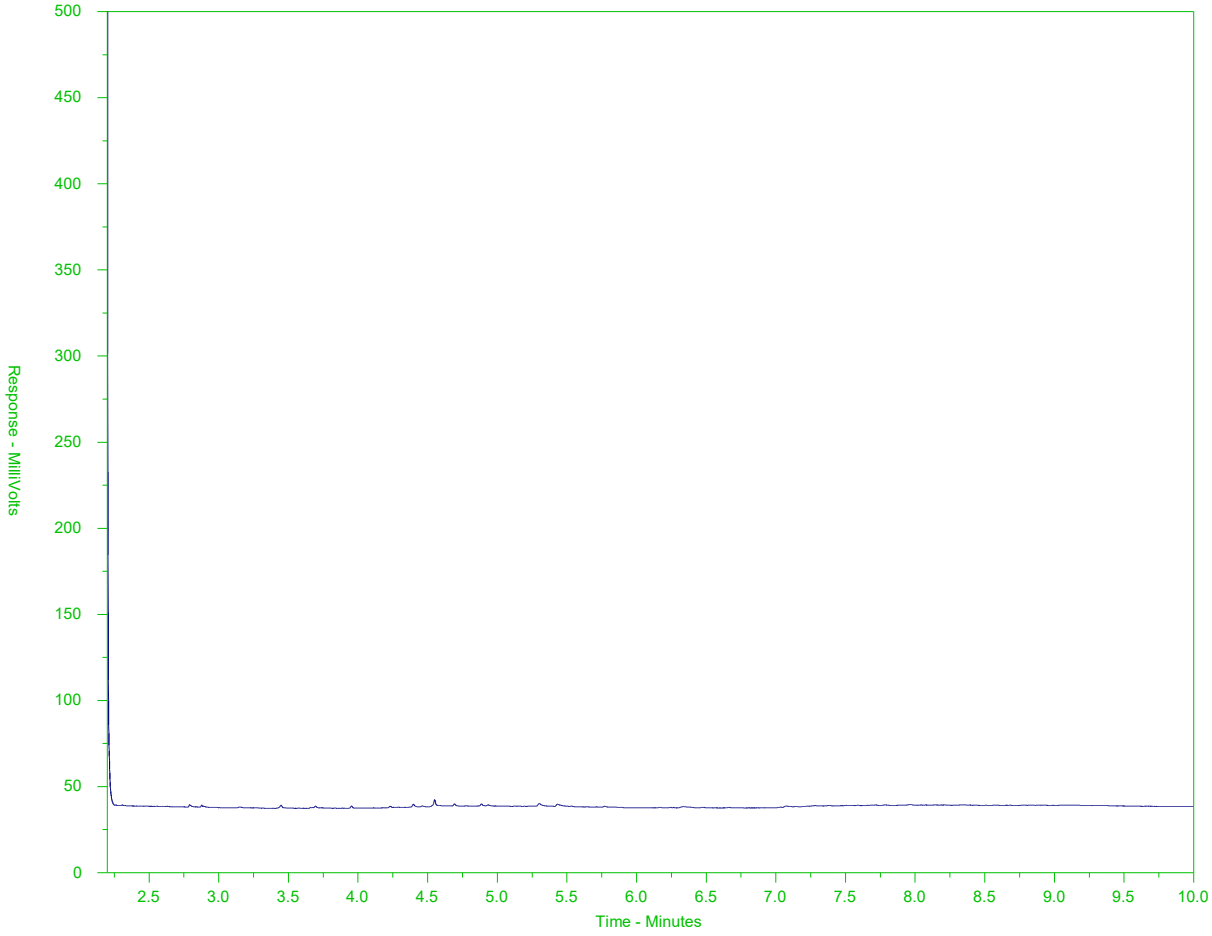
GLOSSARY OF REPORT TERMS

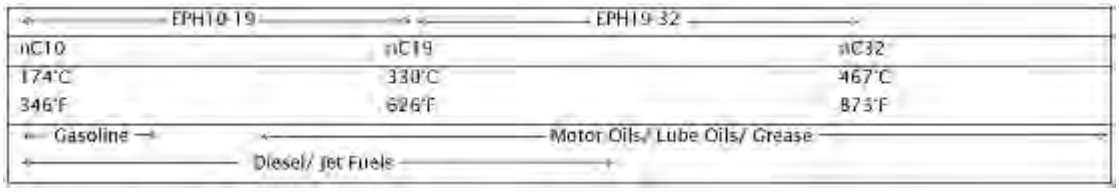
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-5
Client Sample ID: BH152-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

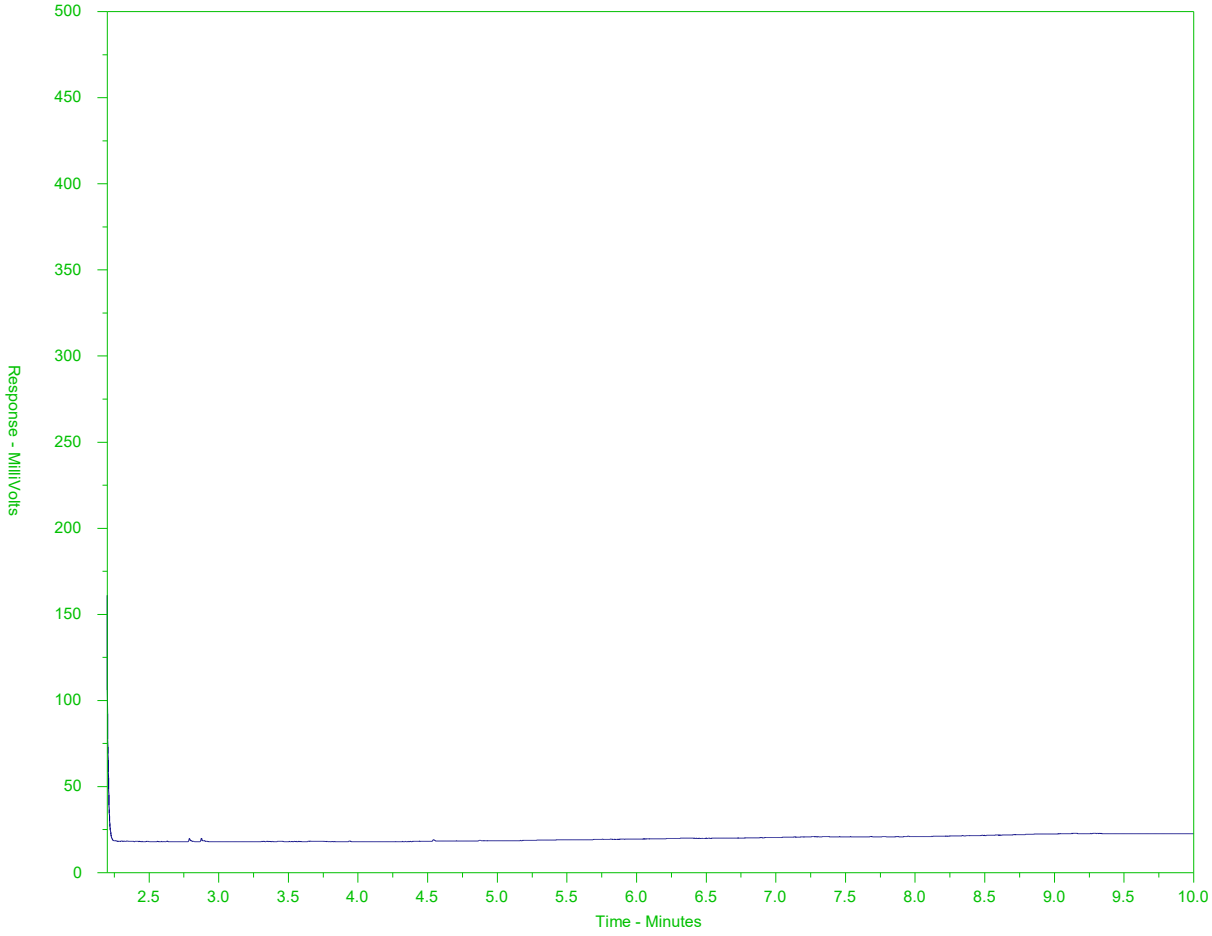
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

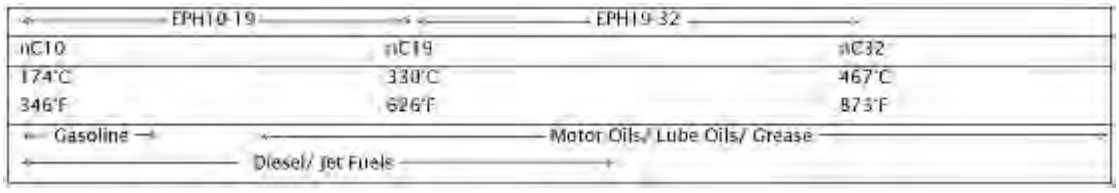
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-11
Client Sample ID: BH153-01





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

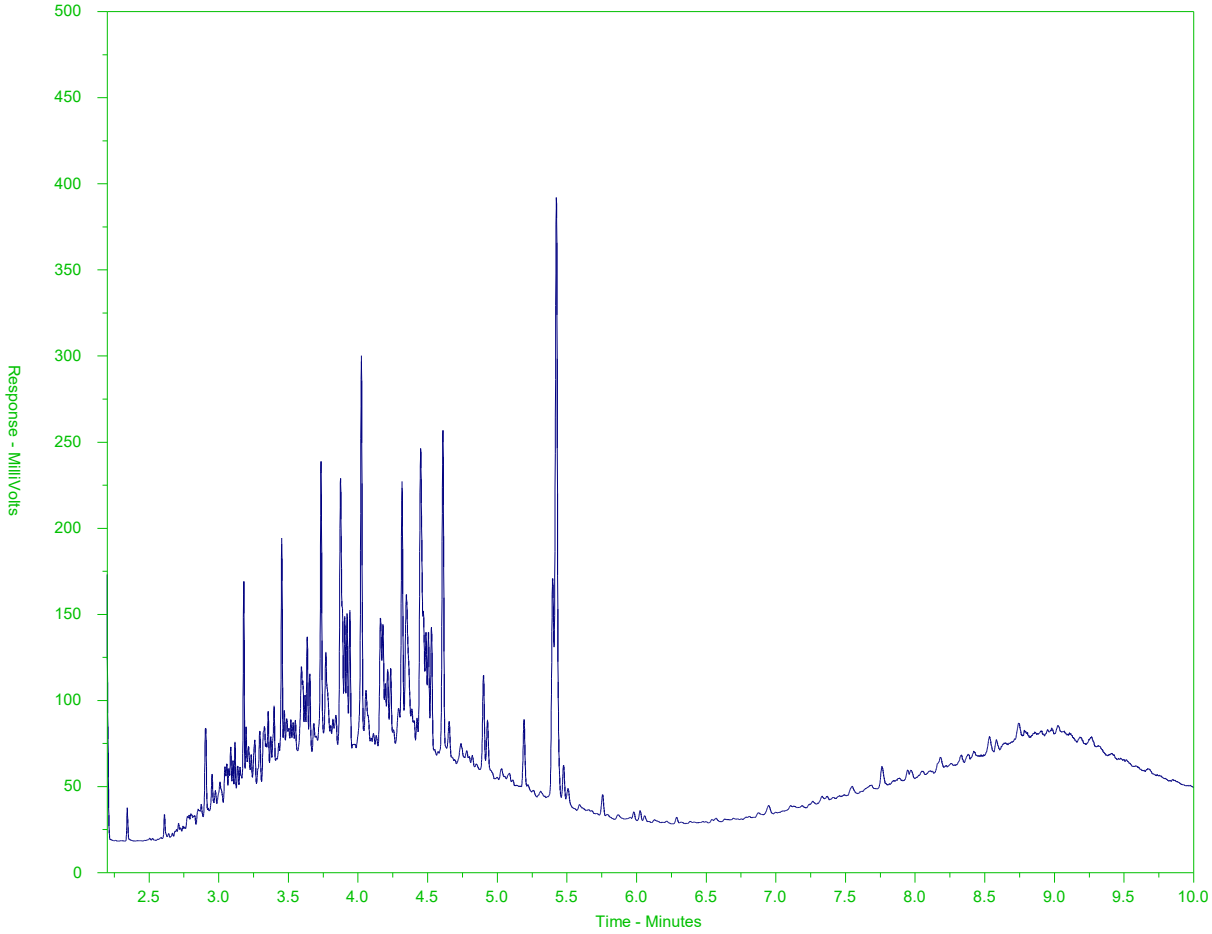
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

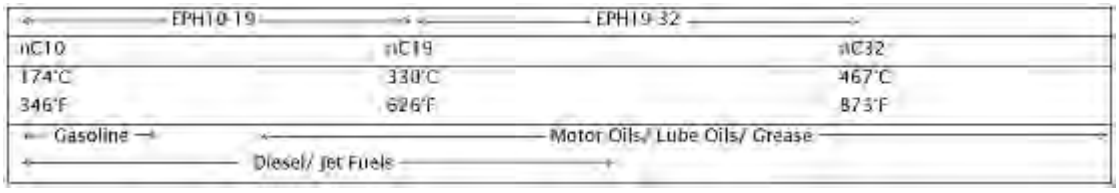
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG2799901-4#L2097353-11
Client Sample ID: BH153-01





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Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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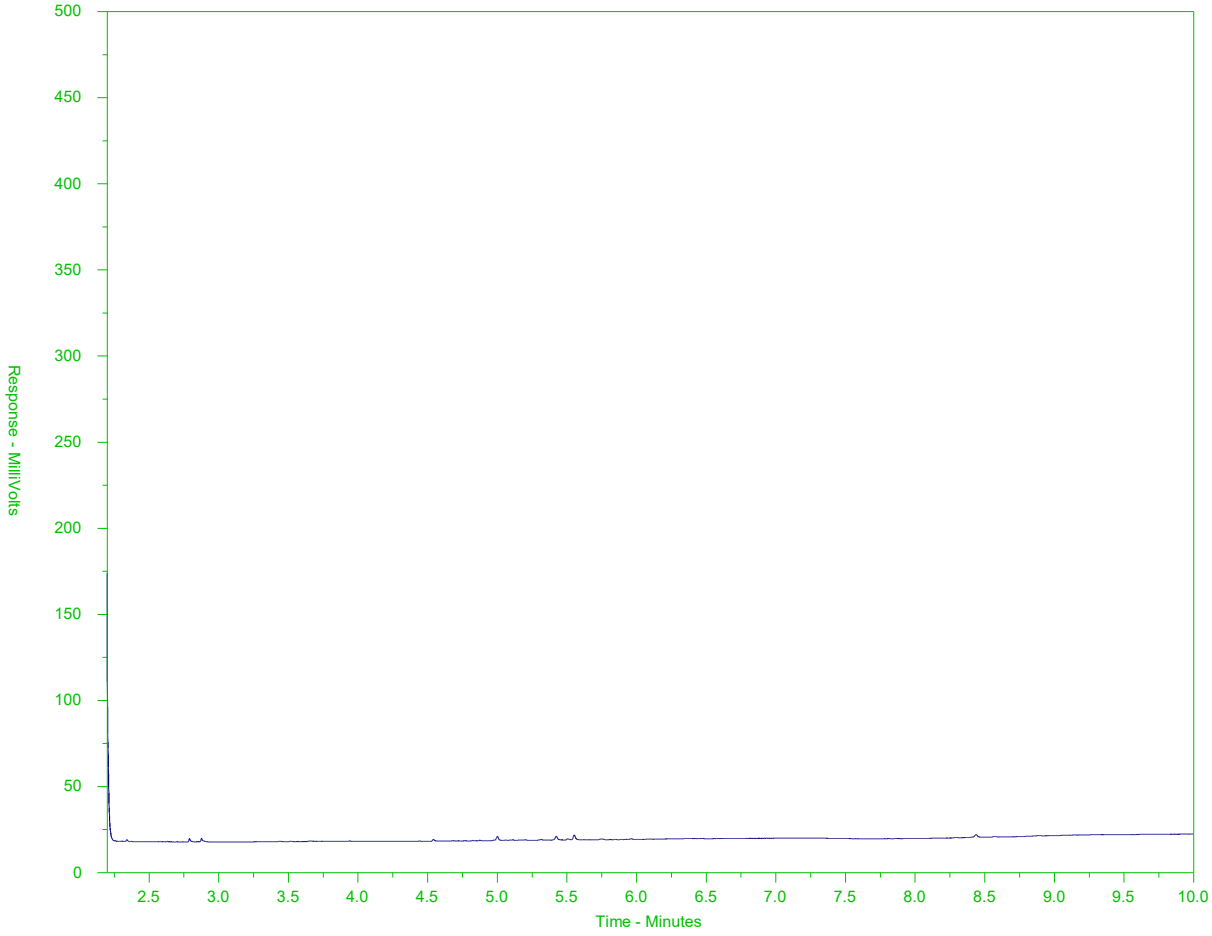
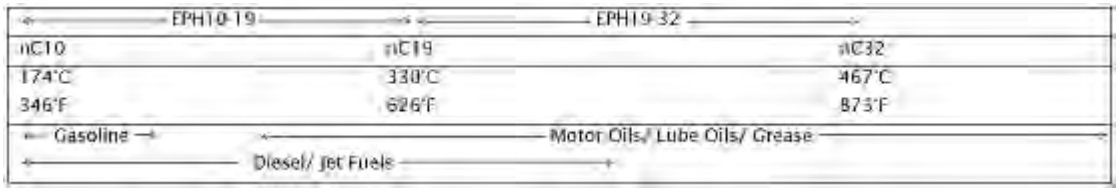
Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-12
Client Sample ID: BH153-02





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

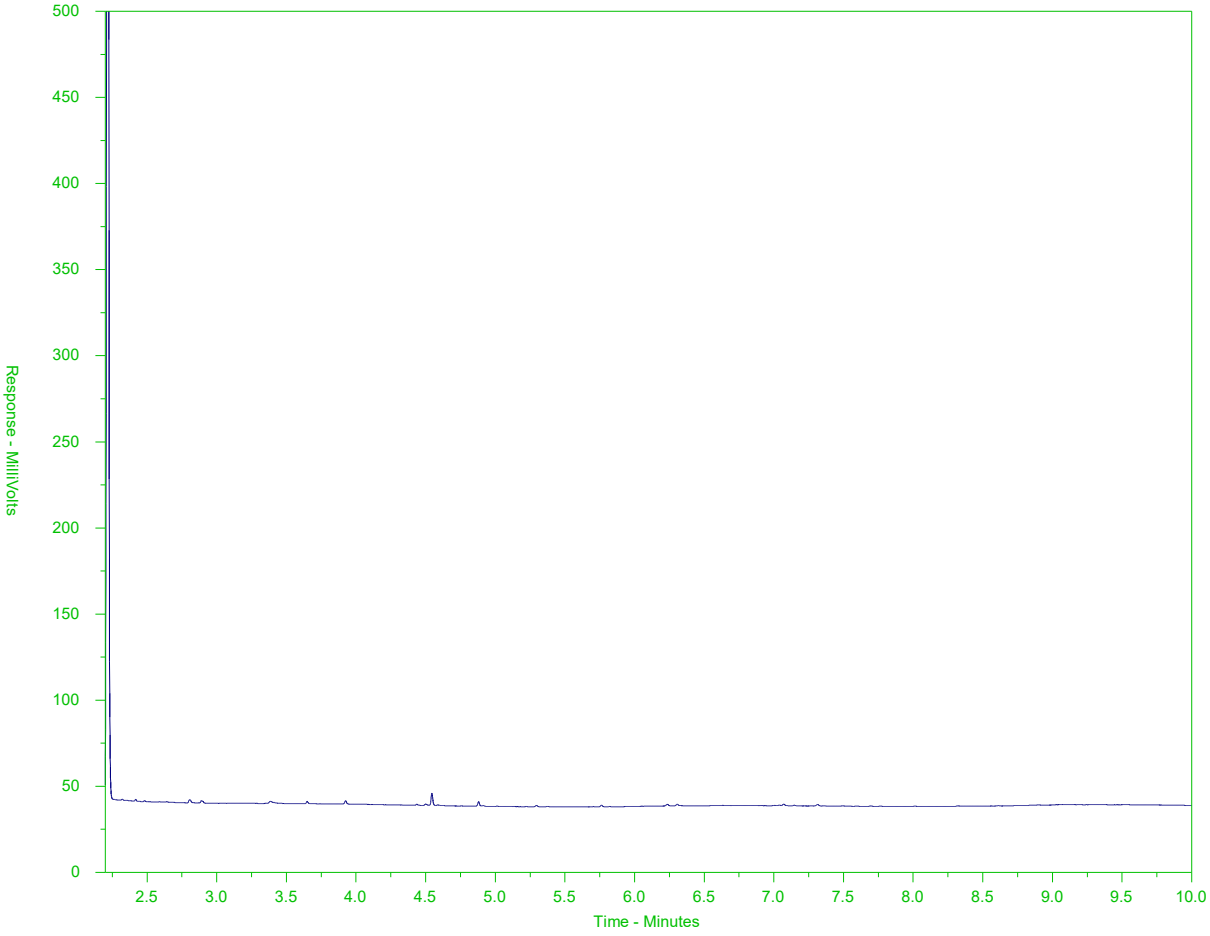
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-13
Client Sample ID: BH153-03



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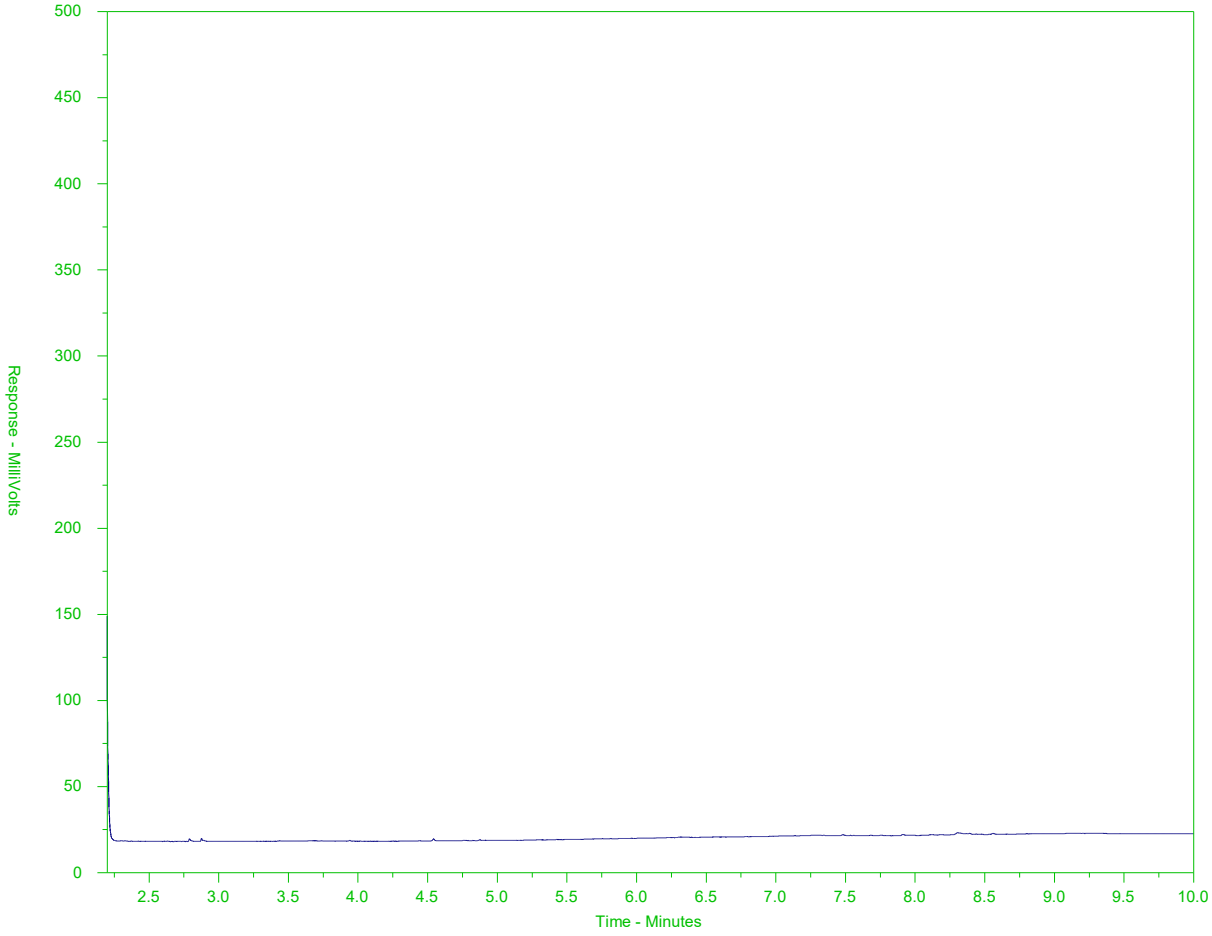
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

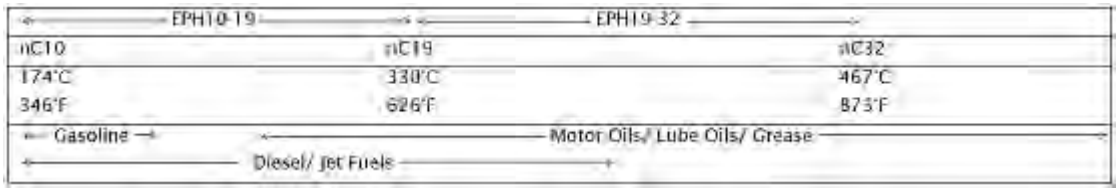
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-14
Client Sample ID: BH154-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

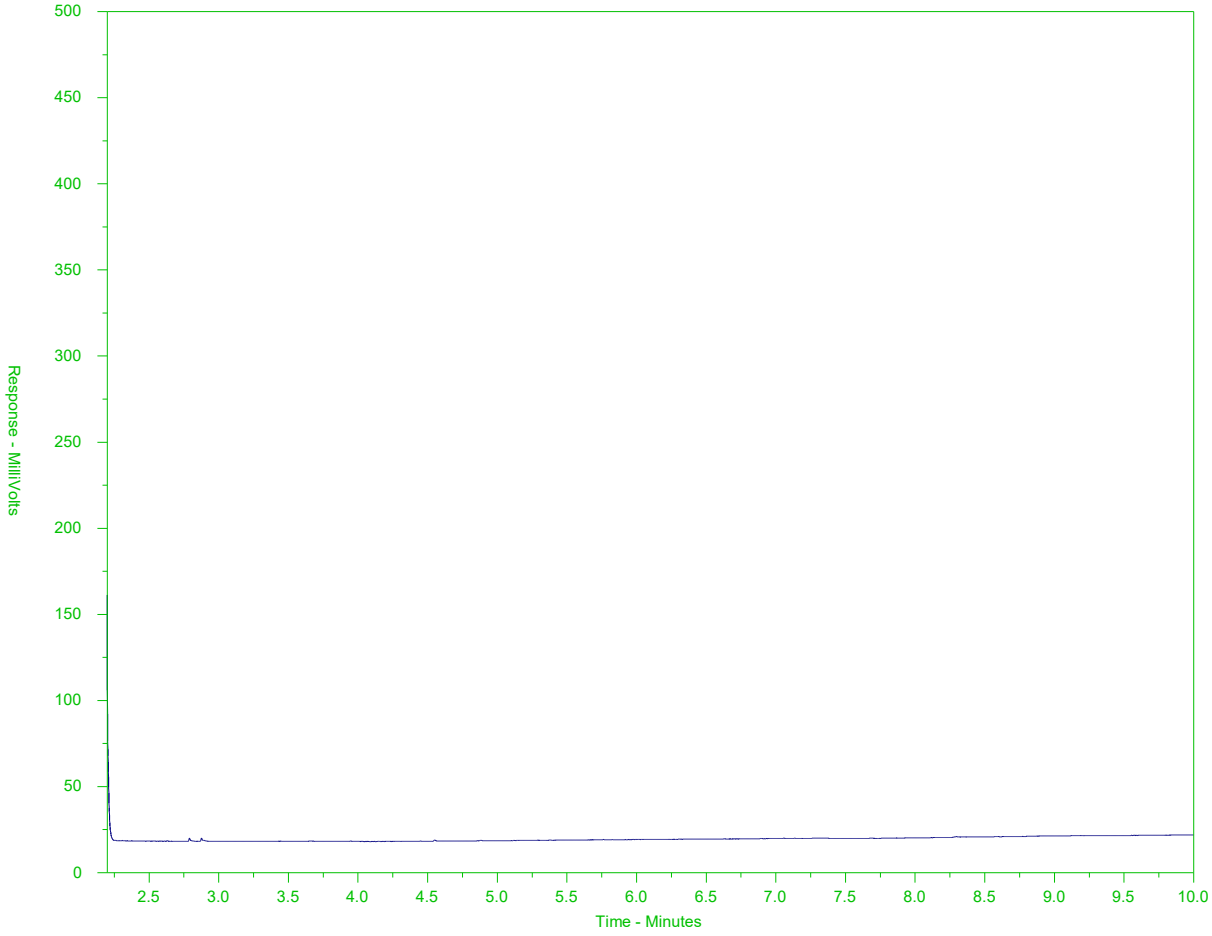
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

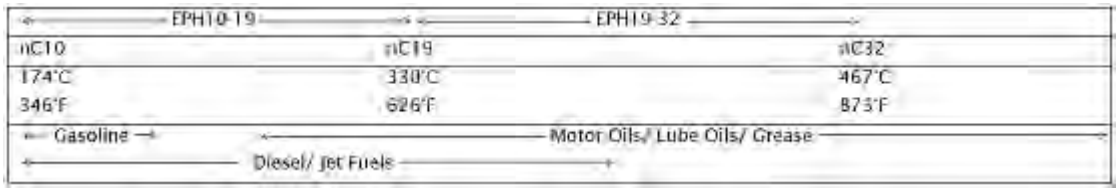
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-15
Client Sample ID: BH154-02





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

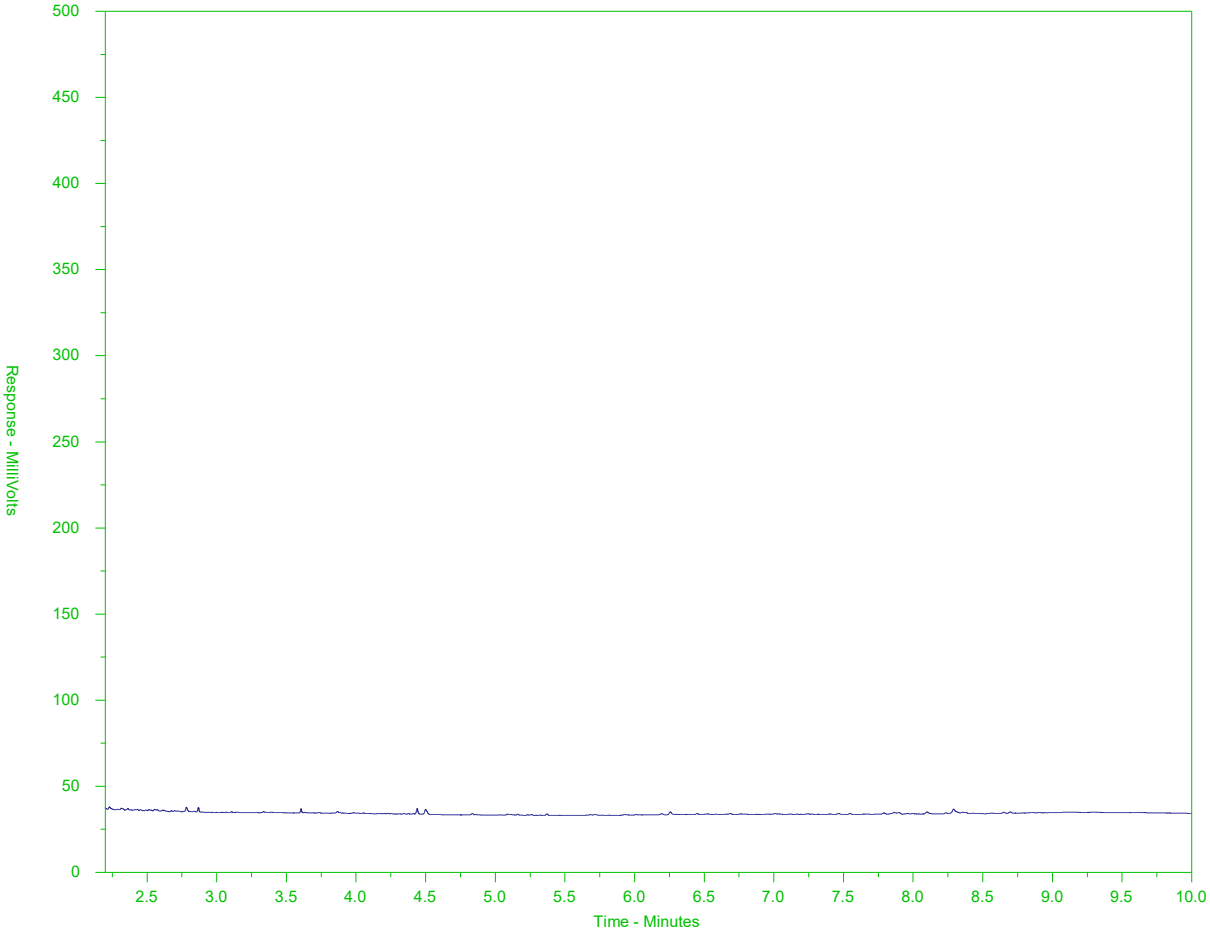
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-16
Client Sample ID: BH154-03



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

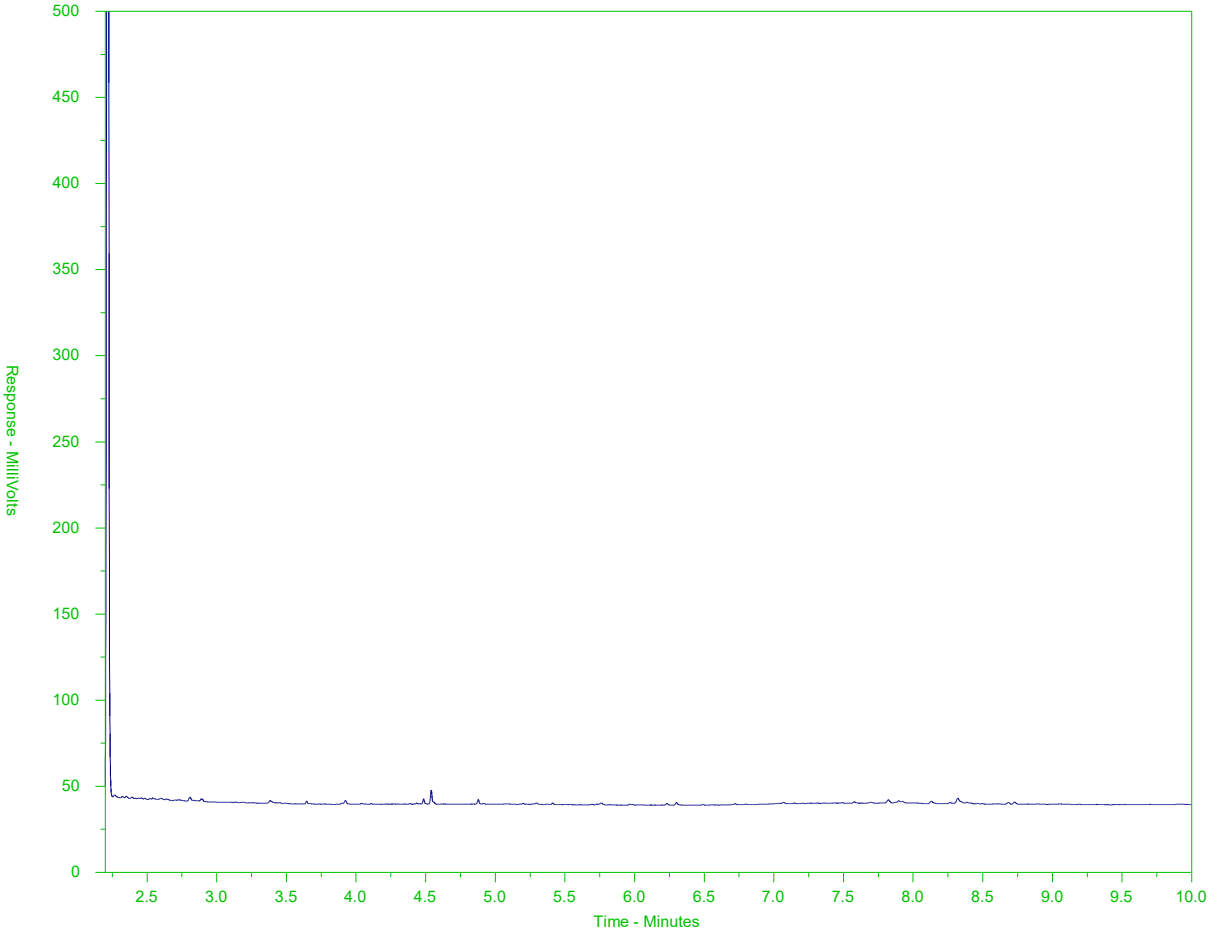
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-17
Client Sample ID: Z121



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

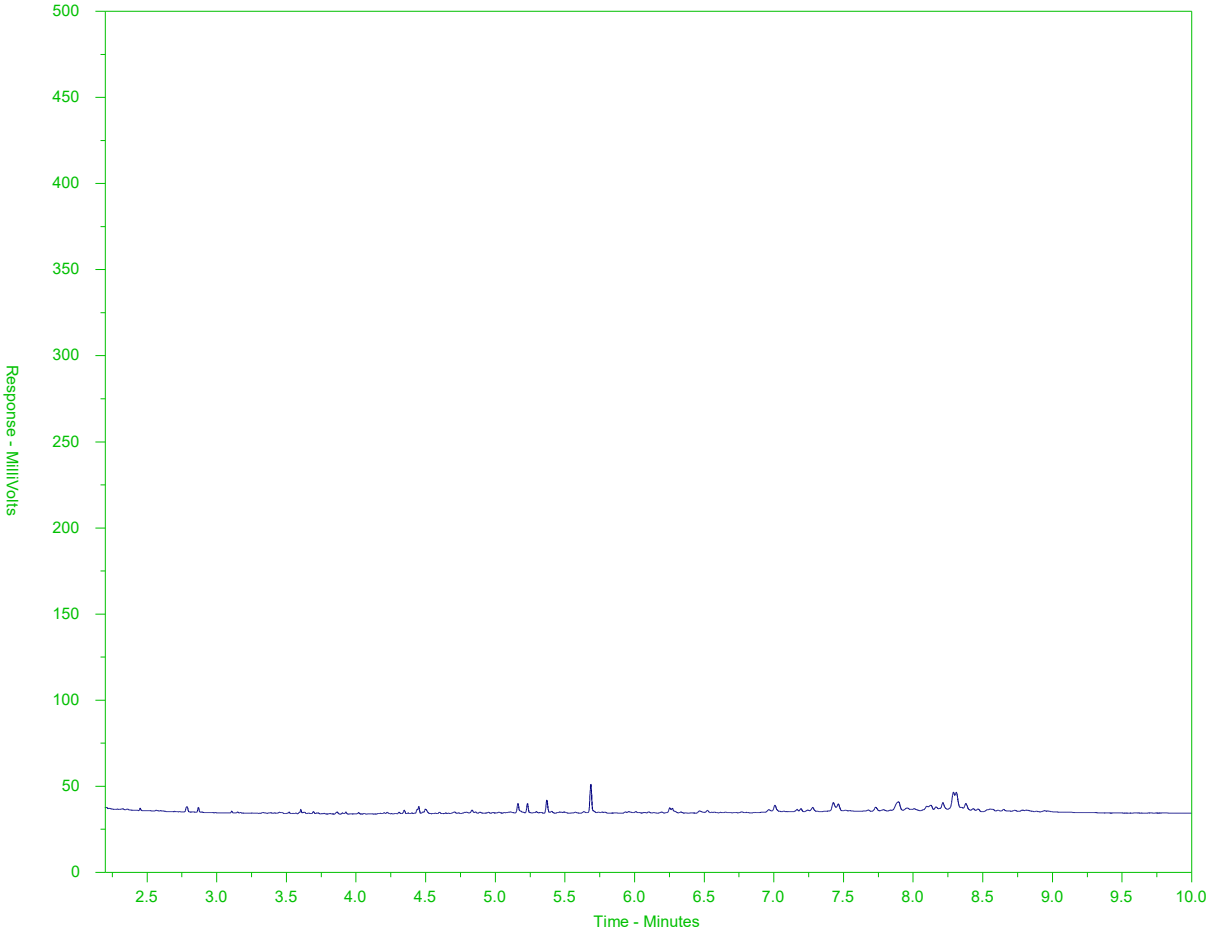
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

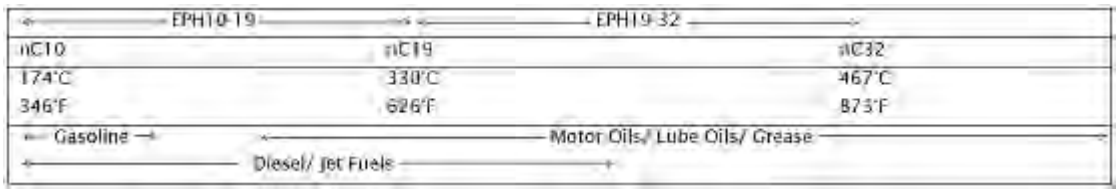
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-18
Client Sample ID: BH154-04





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

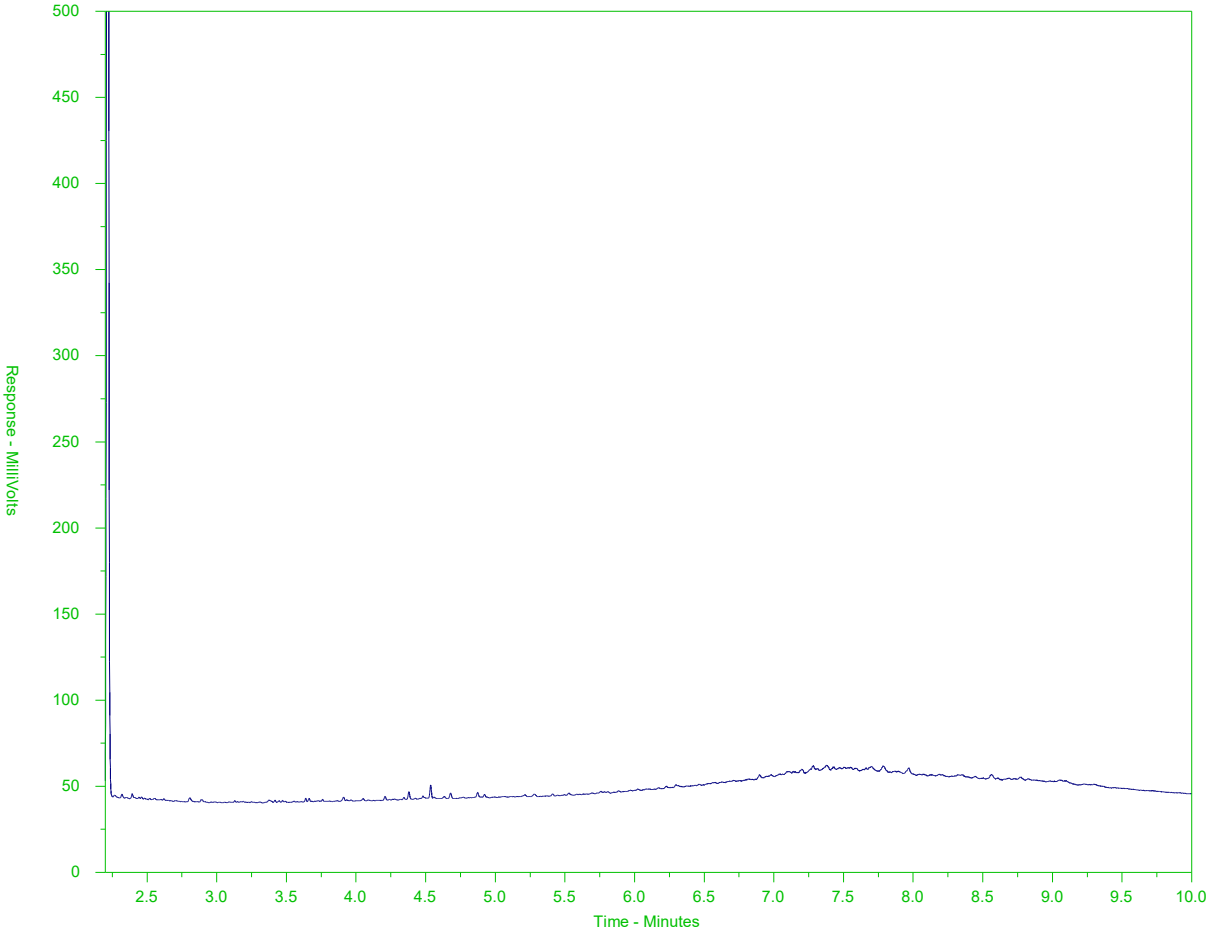
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-23
Client Sample ID: BH155-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

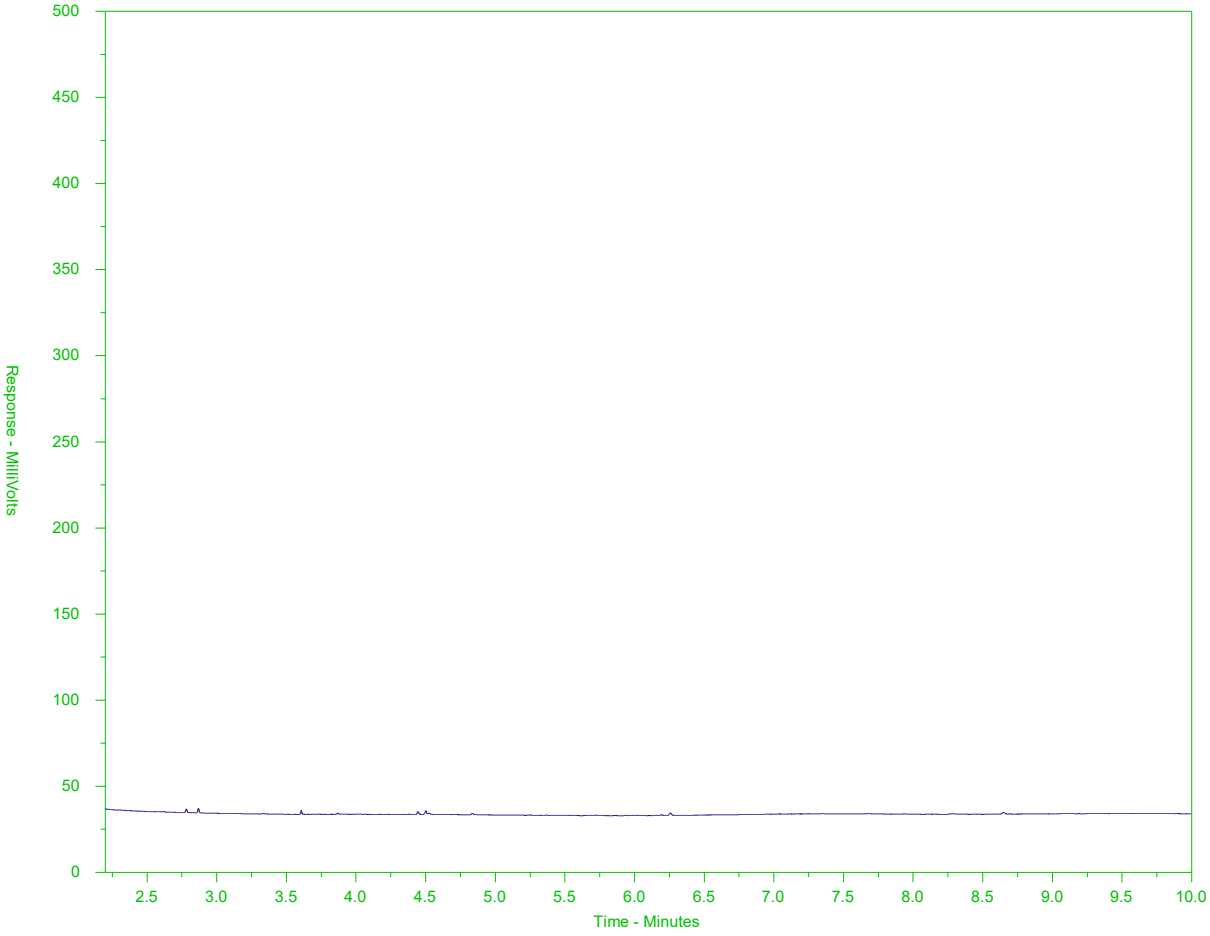
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-24
Client Sample ID: BH155-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

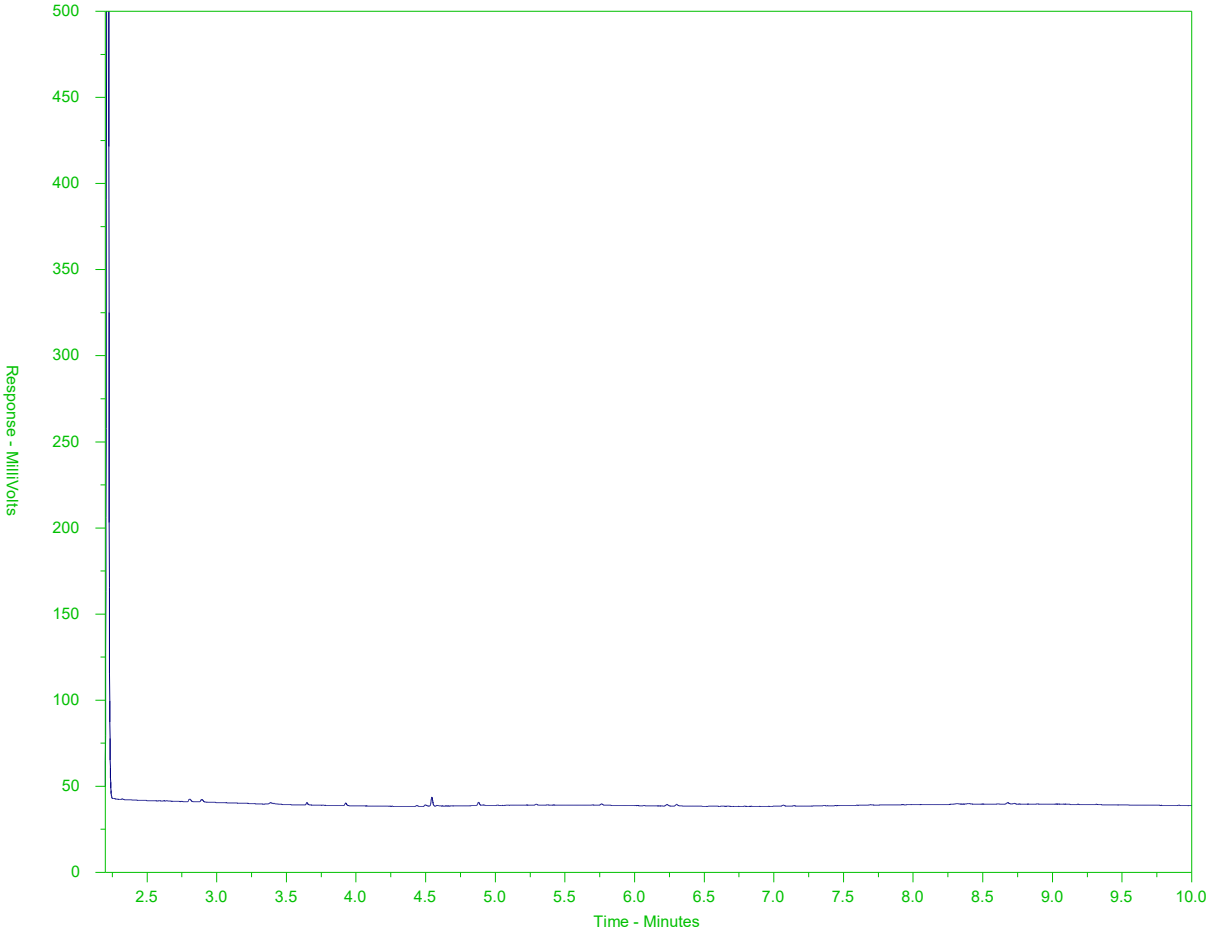
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-25
Client Sample ID: BH155-03



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

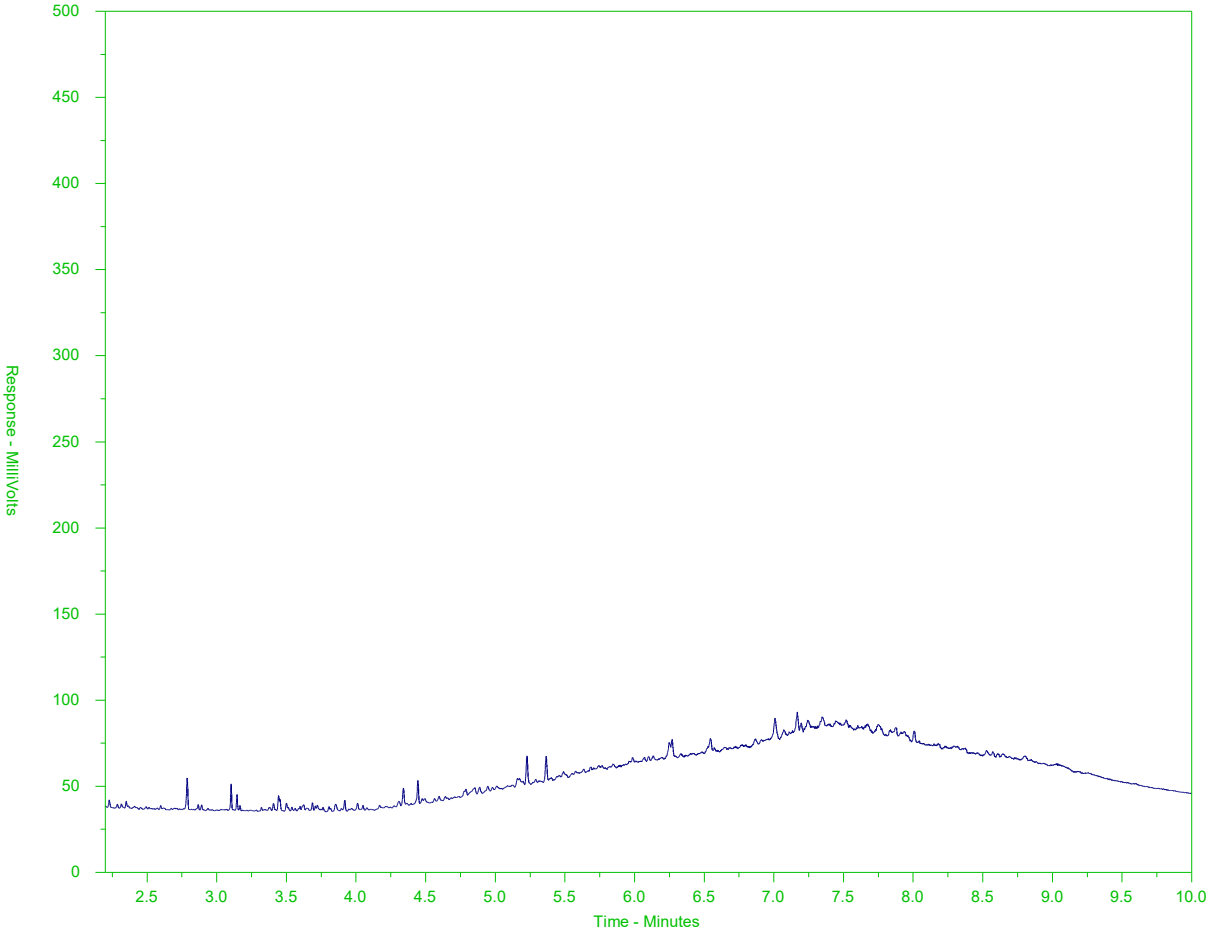
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-28
Client Sample ID: BH156-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

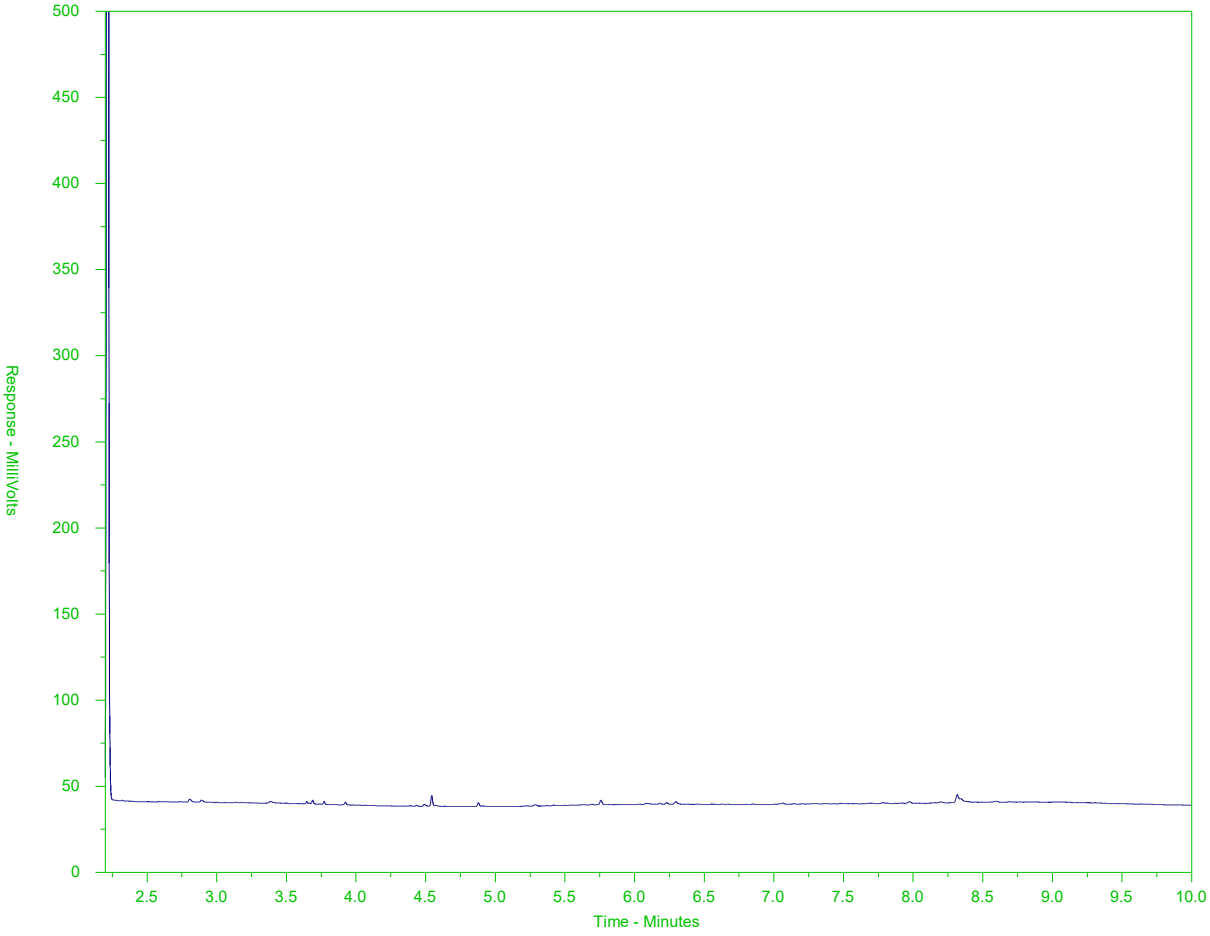
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-29
Client Sample ID: BH156-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

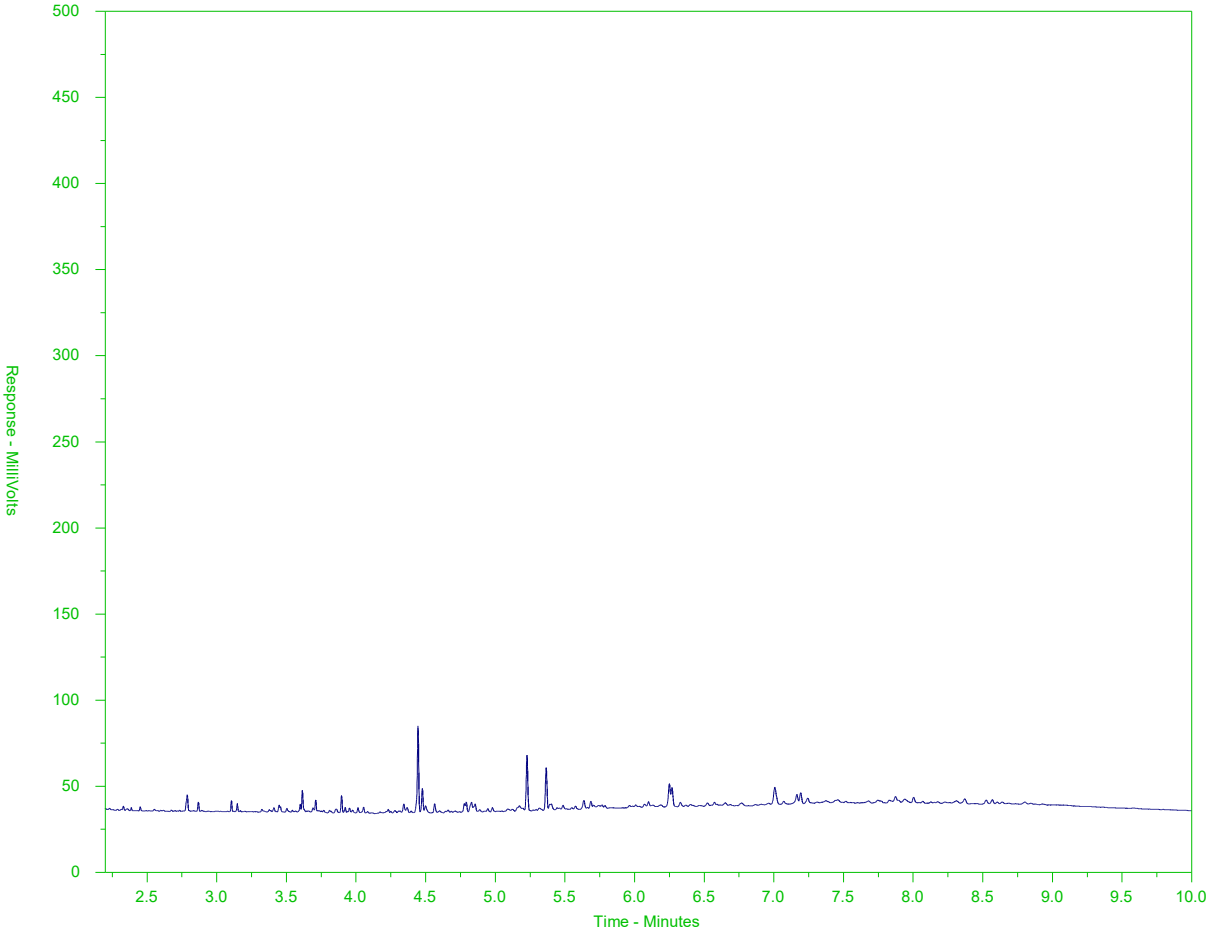
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-31
Client Sample ID: BH156-04



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

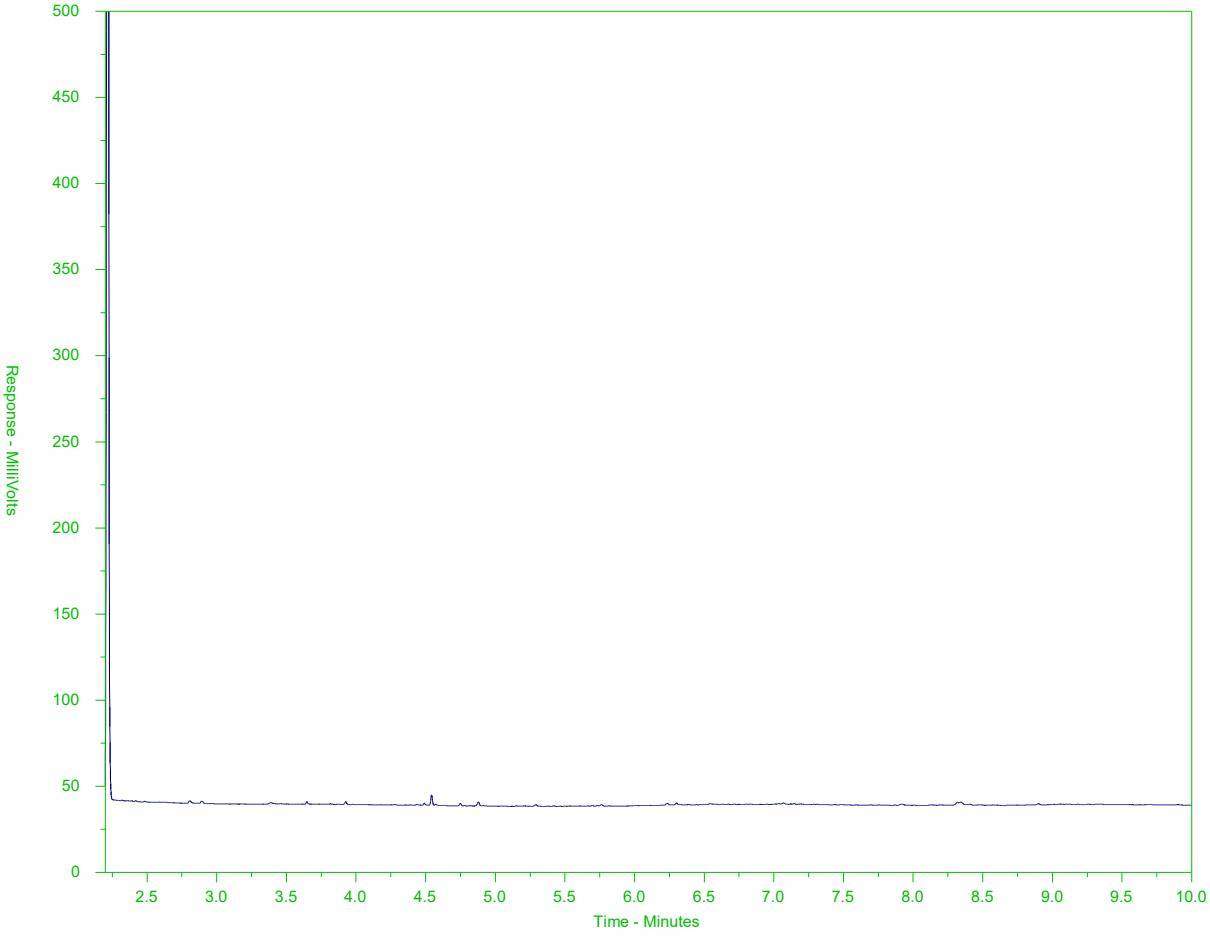
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-32
Client Sample ID: BH156-05



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

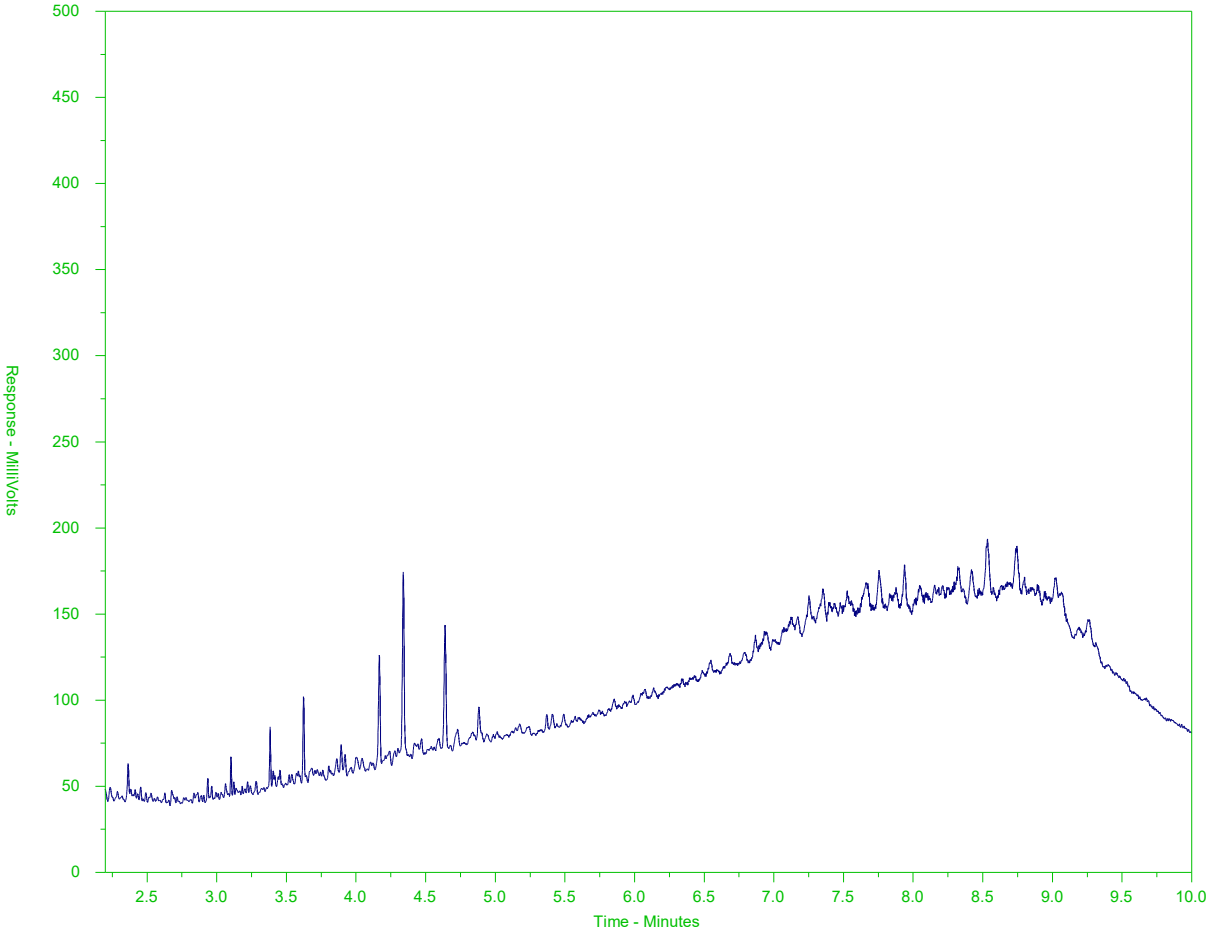
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-33
Client Sample ID: BH157-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

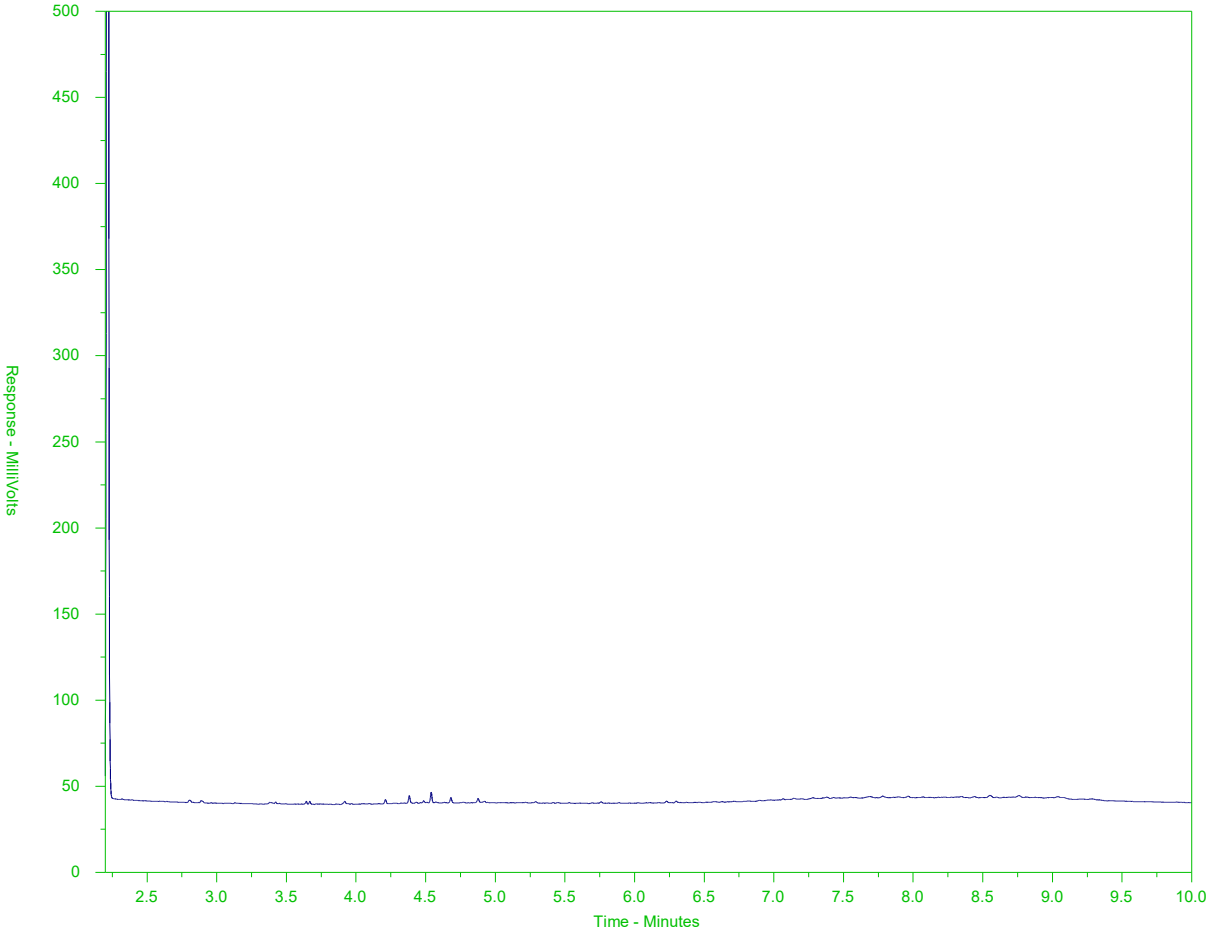
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-34
Client Sample ID: BH157-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

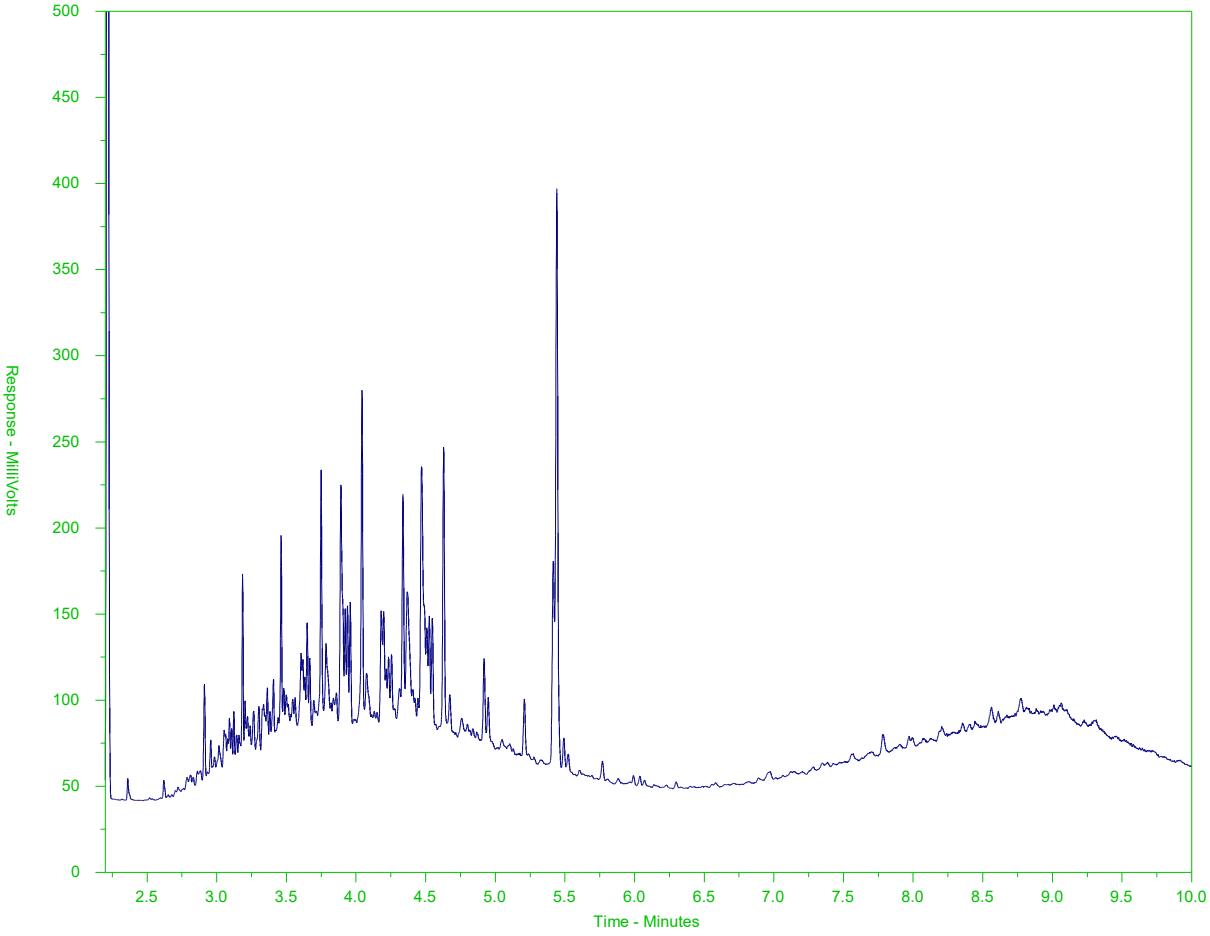
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG2780930-4#L2097353-34
Client Sample ID: BH157-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

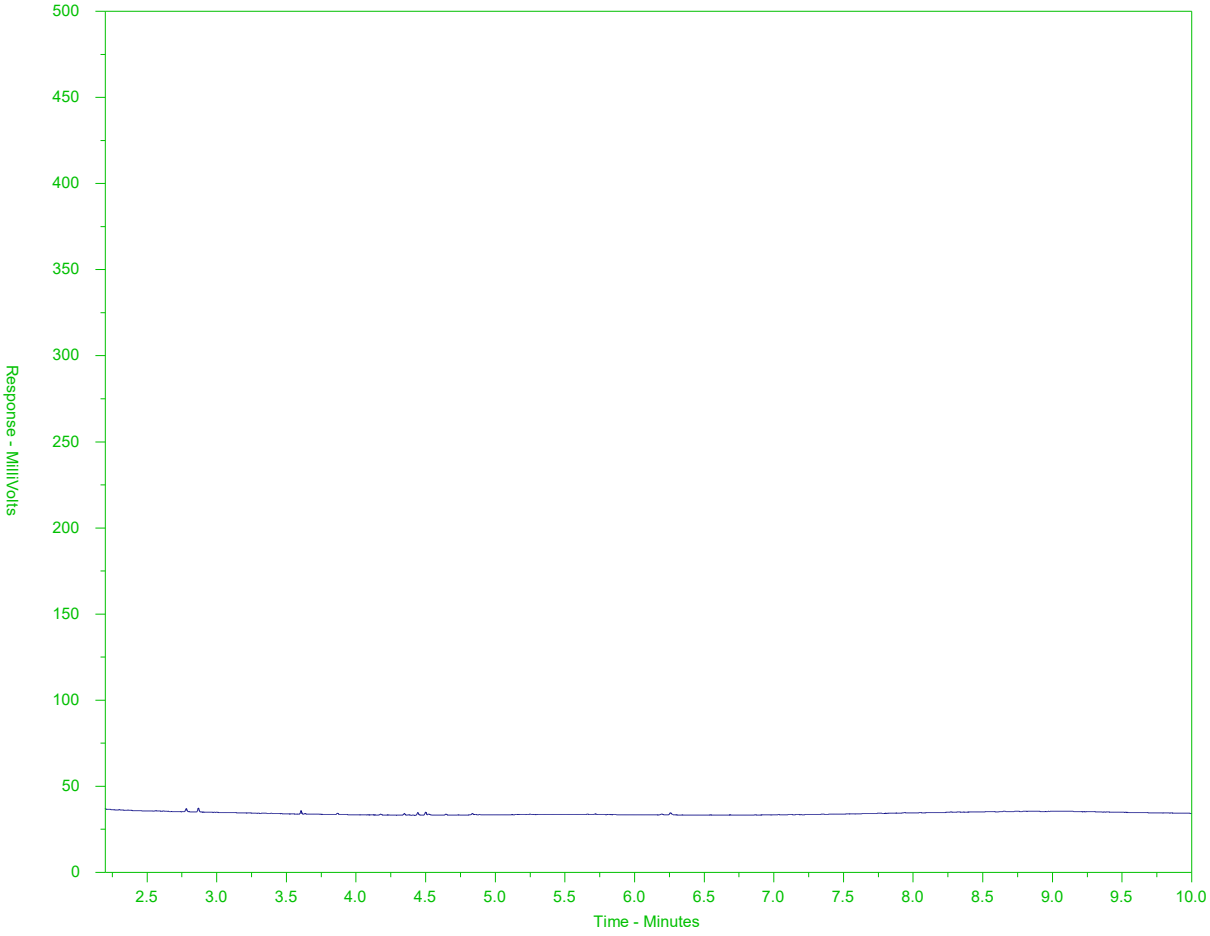
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-35
Client Sample ID: BH157-03



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

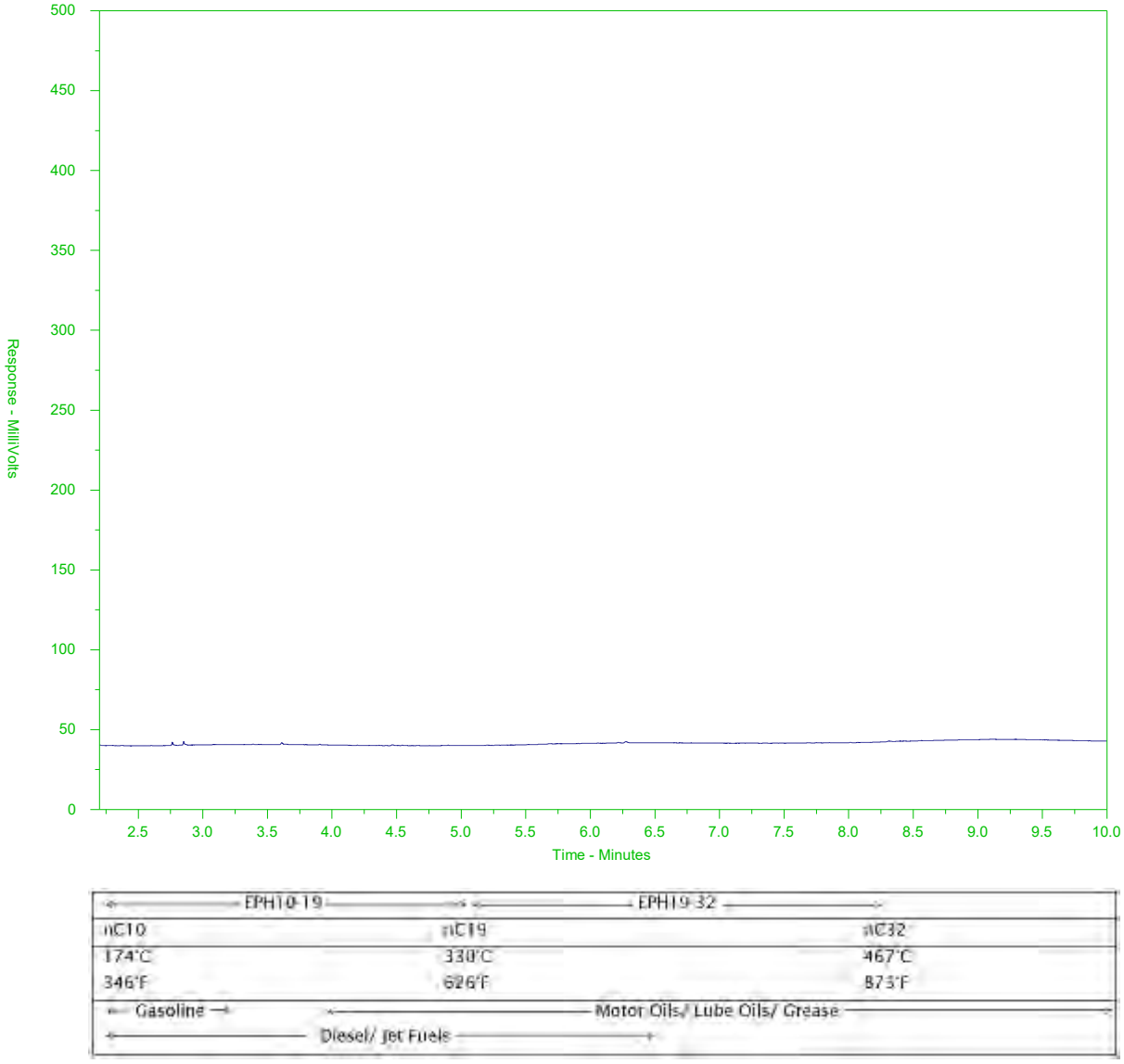
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-36
Client Sample ID: BH157-04



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

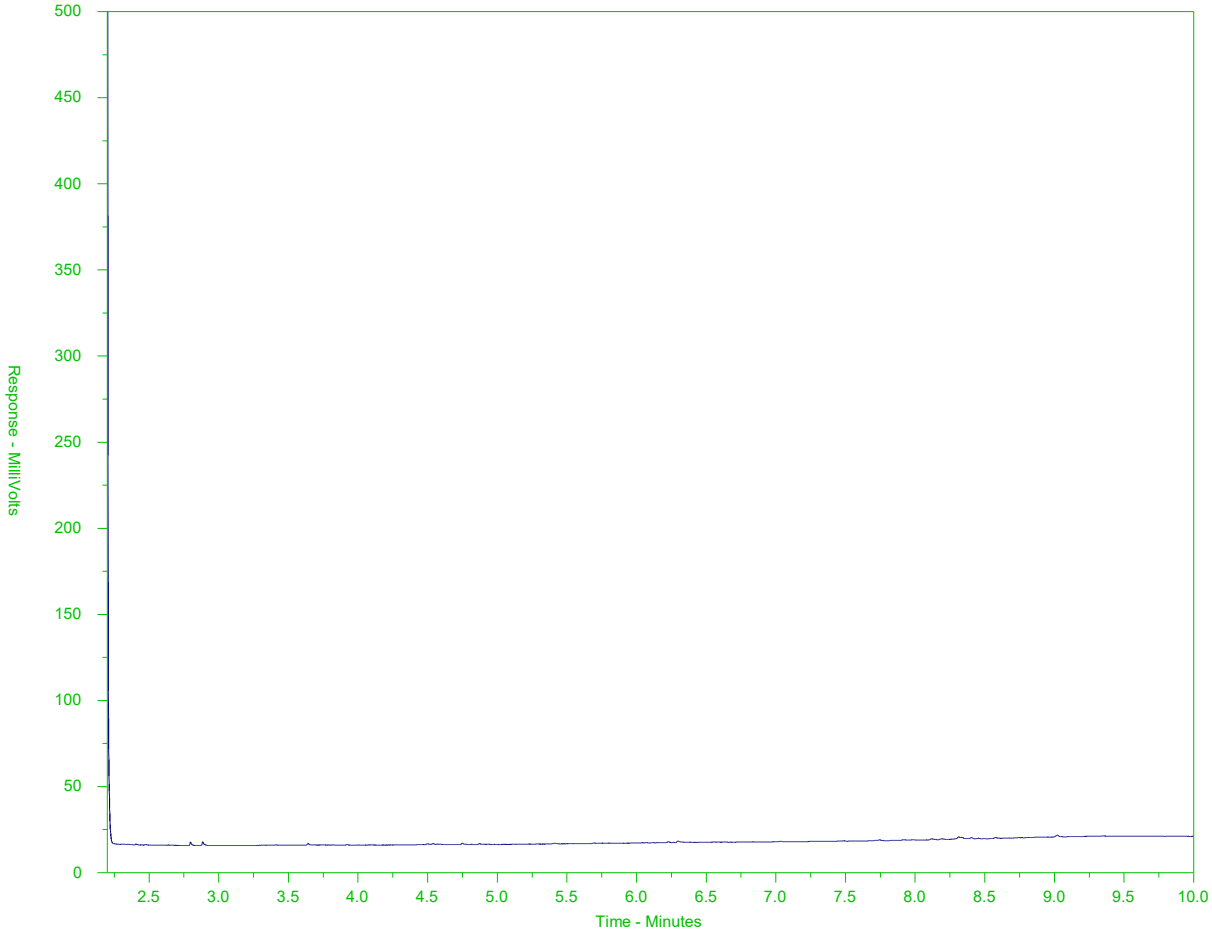
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

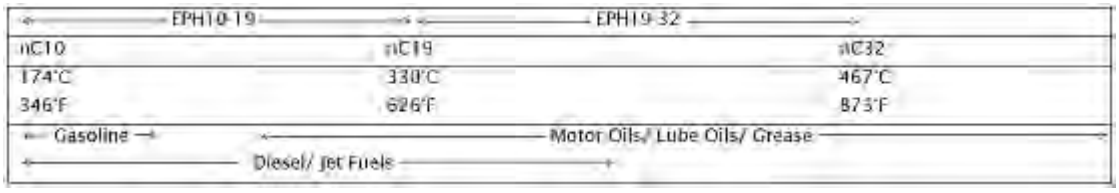
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-37
Client Sample ID: BH157-05





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

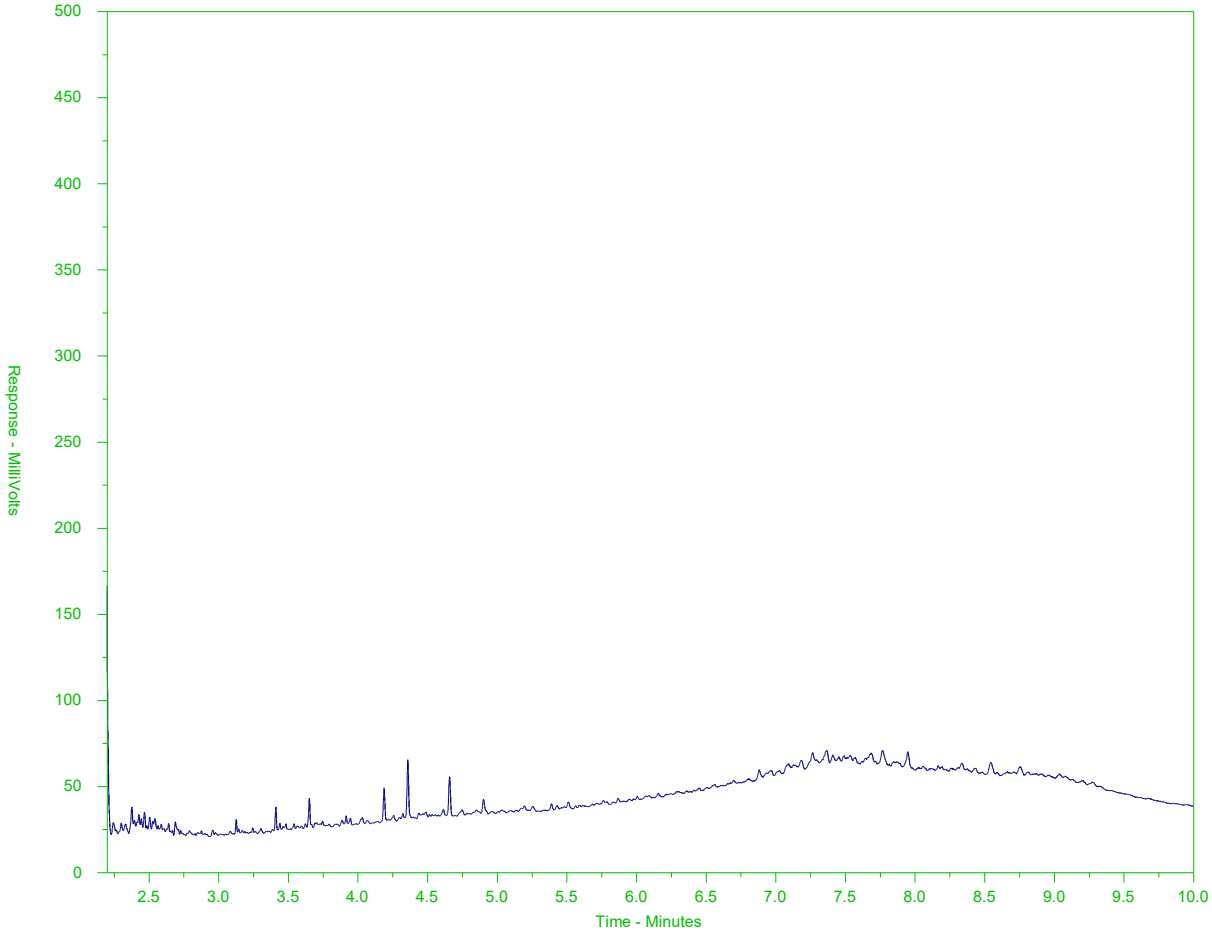
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

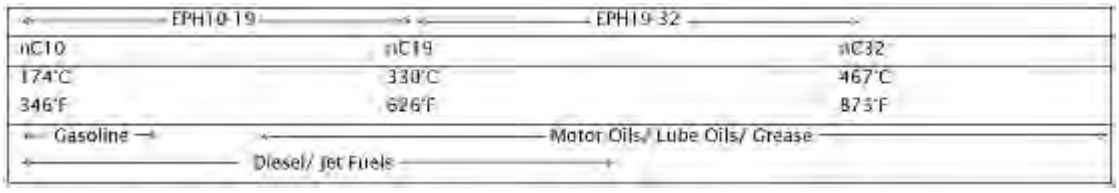
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-38
Client Sample ID: BH158-01





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

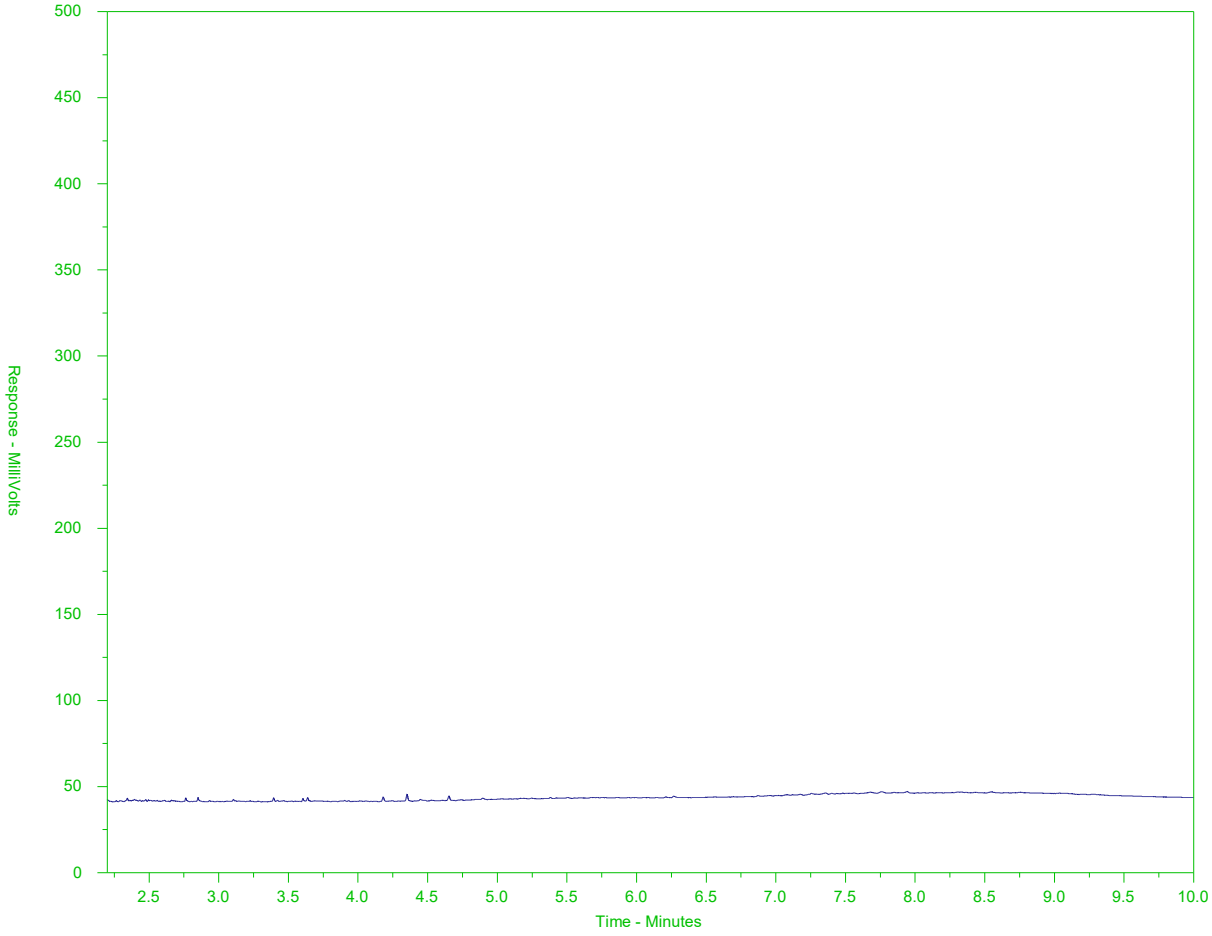
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

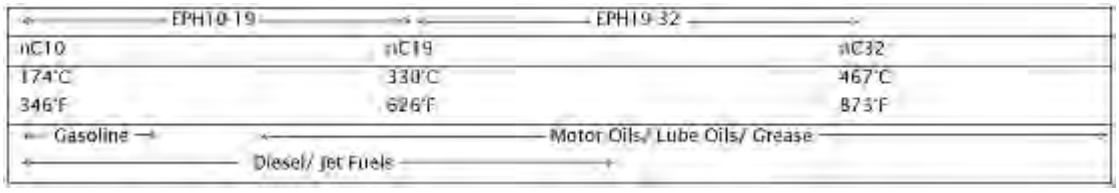
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-39
Client Sample ID: BH158-02





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

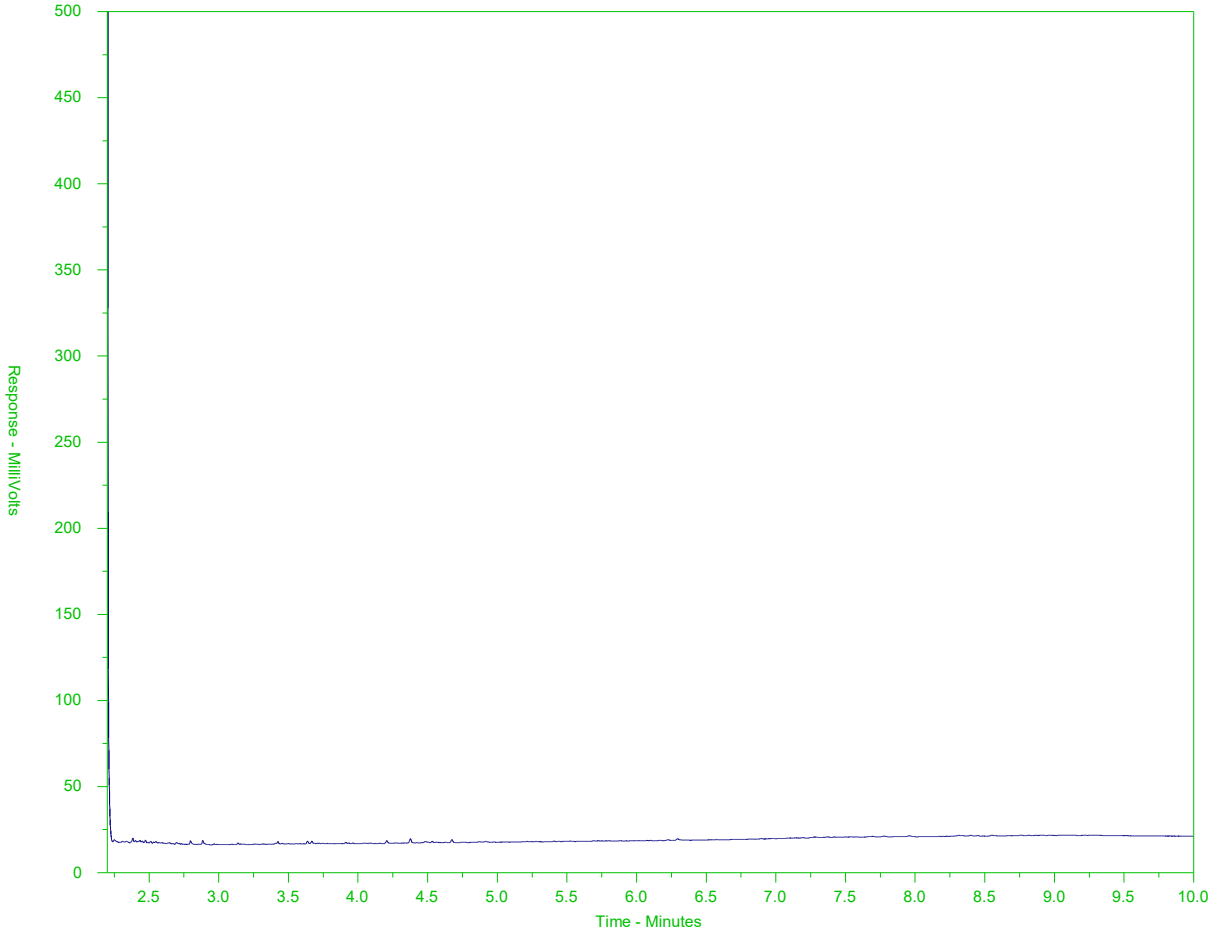
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

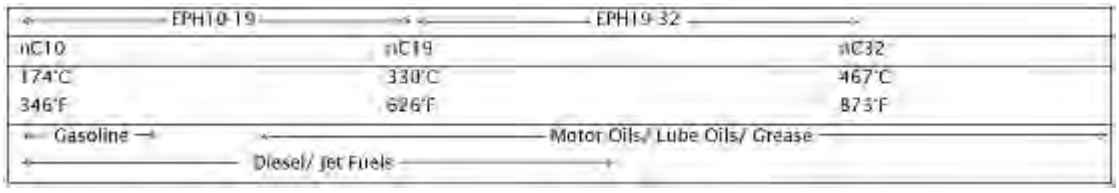
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-40
Client Sample ID: BH158-03





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

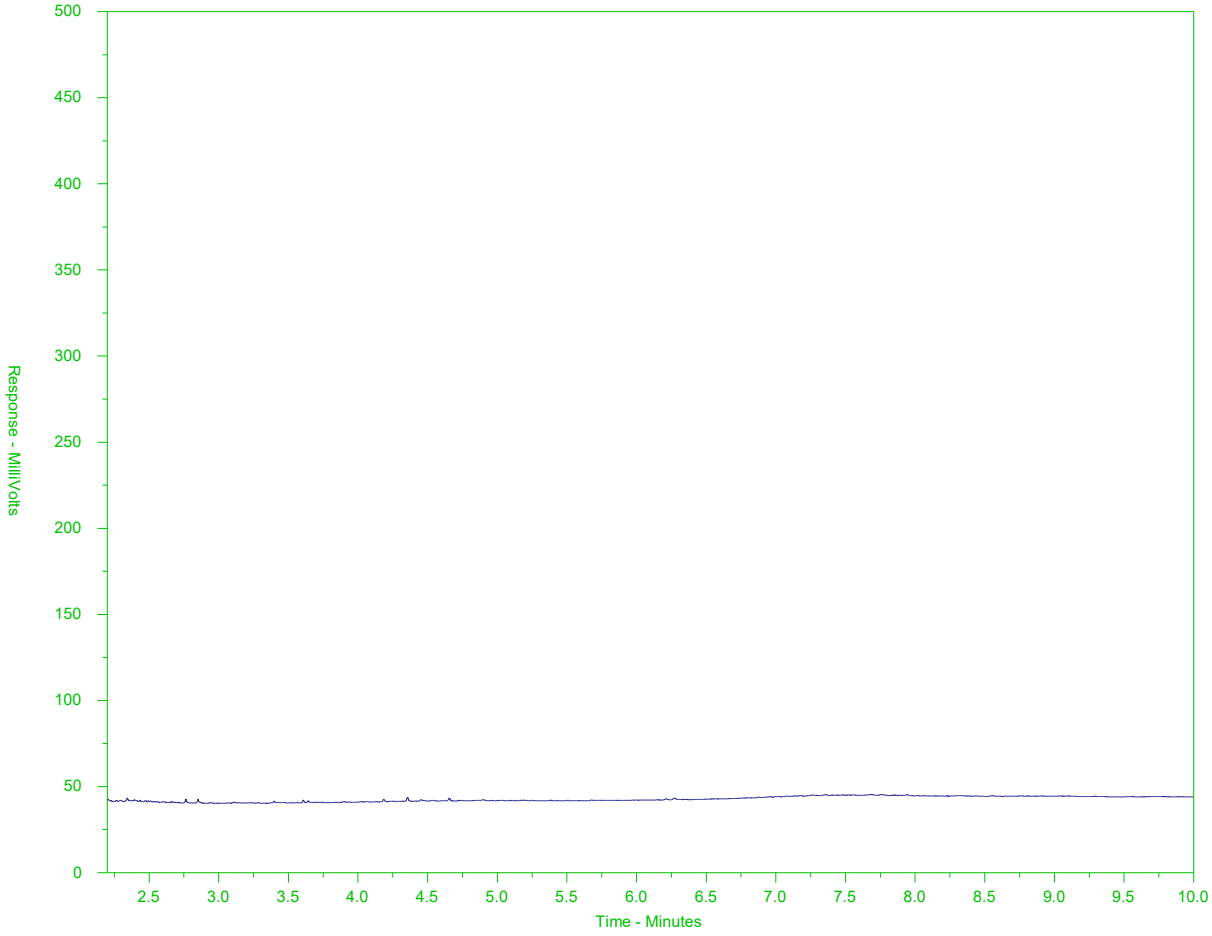
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

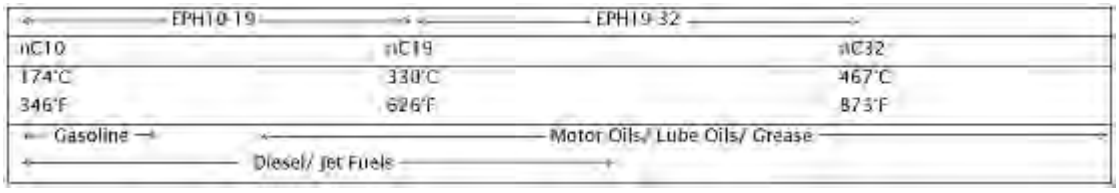
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-41
Client Sample ID: Z122





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

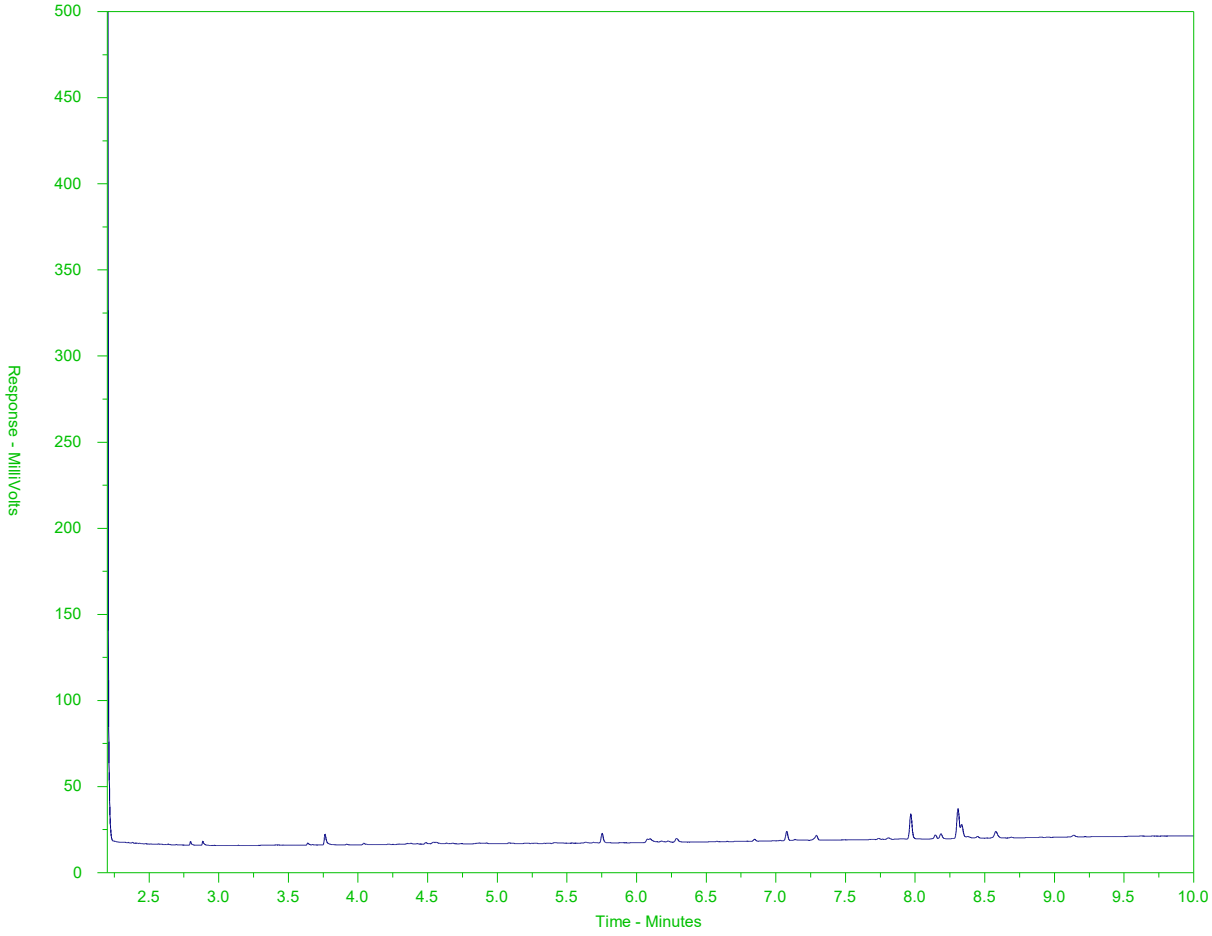
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097353-42
Client Sample ID: BH158-04



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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

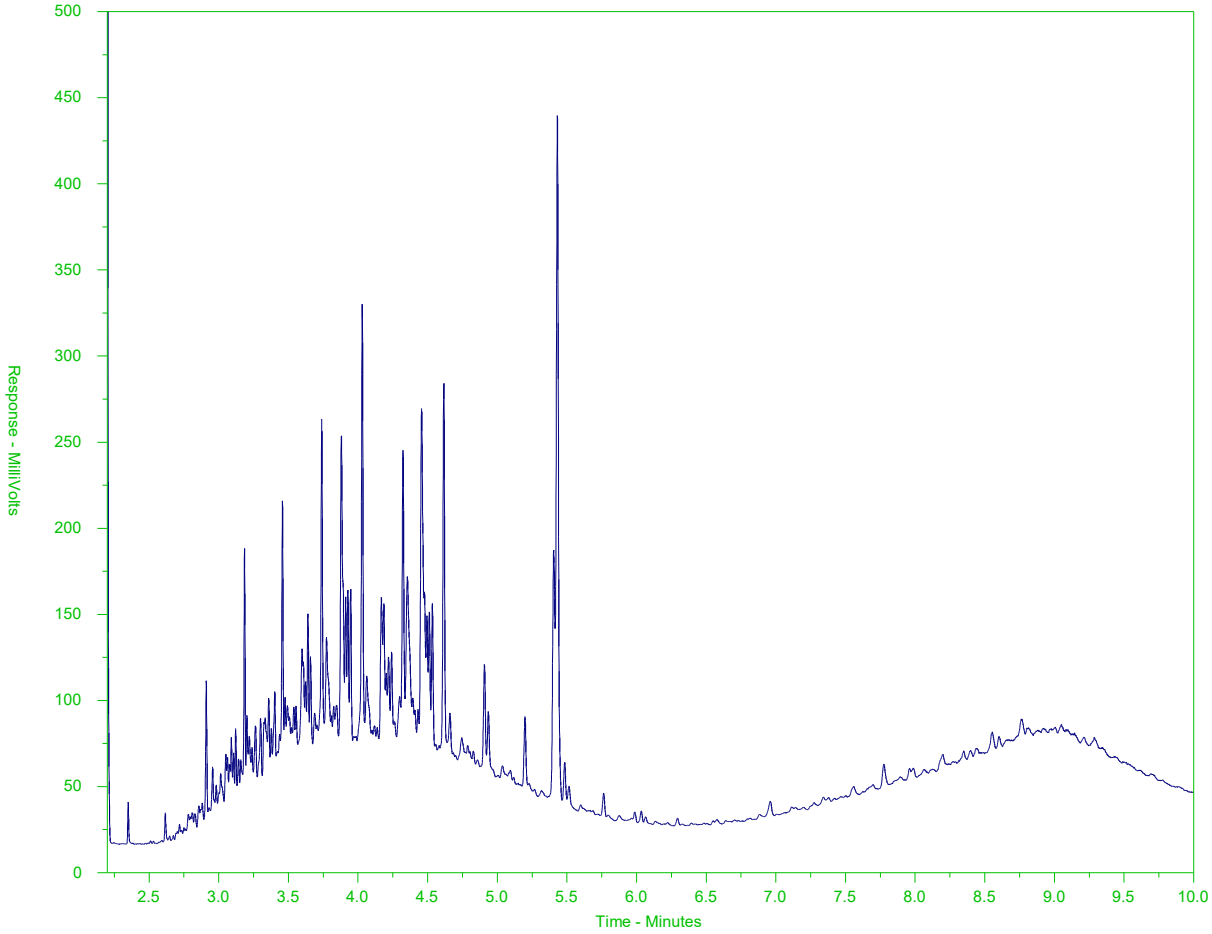
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

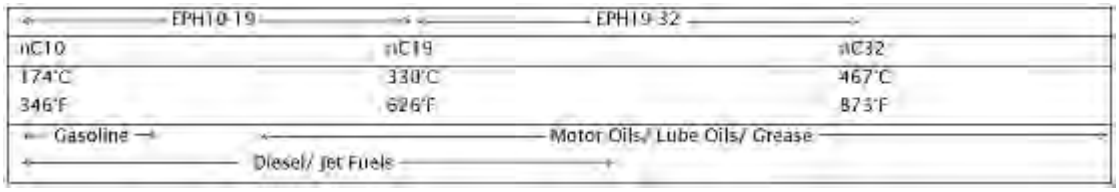
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: WG2781140-5#L2097353-42
Client Sample ID: BH158-04





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2097353-COFC

COC Number: 15 - 609545

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Report To	Contact and company name below will appear on the final report	Report Format / D	E&P TATs with your AM - surcharges will apply
Company:	PGL Environmental	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4] ☐ / 3 day [P3] ☐ / 2 day [P2] ☐ — EMERGENCY: 1 Business day [E1] ☐ / Same Day, Weekend or Statutory holiday [E0] ☐
Phone:	604 682 3707	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	1500-1185 W Georgia	Email 1 or Fax zmohamed@pggroup.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver	Email 2 sloarr@pggroup.com	
Postal Code:		Email 3 arivers@pggroup.com	
Invoice To	Same as Report To ☐ YES ☐ NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: B Mock	Sampler: A. Rivers

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	BH151-01	18 May 18		Soil	2
	~~BH151-02~~ 2123				2
	~~BH151-03~~ BH151-02				~~4~~ 3
	BH151-03				~~4~~ 3
	BH152-01				3
	BH152-02				~~3~~ 5
	BH153-03				4
	~~2123~~ 2124				4
	BH153-04				3
	BH153-05				3
	BH153-01				3
	BH153-02				~~3~~ 5

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice Packs	☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		12			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	18 May 18					HA	5/18	10:45 am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2097353-COFC

COC Number: 15 - 609546

Report To	Contact and company name below will appear on the final report	Report Format	Turn all E&P TATs with your AM - surcharges will apply
Company:	PGL	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4] ☐ / 3 day [P3] ☐ / 2 day [P2] ☐ — EMERGENCY: 1 Business day [E1] ☐ / Same Day, Weekend or Statutory holiday [E0] ☐
Phone:		☐ Compare Results to Criteria on Report - provide details below if box checked	Date and Time Required for all E&P TATs:
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	For tests that can not be performed according to the service level selected, you will be contacted.
Street:		Email 1 or Fax	
City/Province:		Email 2	
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	BH163-03	17 May 18		Soil	3
	~~BH163-04~~				5
	BH154-01				3
	BH154-02				3
	BH154-03				5
	Z121				5
	BH154-04				5
	BH154-05				3
	BH154-06				3
	BH154-07				3
	BH154-08				3

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice Packs	☐ Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		12			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Amalia R	18 May 18					HA	5/18	10:14:54

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental
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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2097353-COFC

COC Number: 15 - 609547

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply
Company:	PGL Environmental	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mahmood	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4] 3 day [P3] 2 day [P2] — EMERGENCY: 1 Business day [E1] Same Day, Weekend or Statutory holiday [E0]
Phone:		Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3	

Invoice To		Invoice Distribution
	Same as Report To YES NO	Select Invoice Distribution: EMAIL MAIL FAX
	Copy of Invoice with Report YES NO	
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	BH155-01	17 May 18		Soil	3
	BH155-02				3
	BH155-03				5
	BH155-04				5
	BH155-05				3
	BH156-01				3
	BH156-02				3
	BH156-03				5
	BH156-04				3
	BH156-05				3
	BH157-01				5
	BH157-02				5

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human drinking water use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		12			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Andrew	18 May 18	930				MA	5/18	10145

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — OCTOBER 2015 FRONT

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2097353-COFC

COC Number: 15 - 609548

Page 4 of 4

Report To	Contact and company name below will appear on the final report
Company:	PGL Environmental
Contact:	[illegible] Zayed Mohamed
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	

Report Format / D...	
Select Report Format:	☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	
Email 3	

E&P TATs with your AM - surcharges will apply

Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4] ☐		1 Business day [E1] ☐
	3 day [P3] ☐		Same Day, Weekend or Statutory holiday [E0] ☐
	2 day [P2] ☐		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☐ NO
	Copy of Invoice with Report ☐ YES ☐ NO
Company:	
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	
Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#:
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Number of Containers
	BH157-03	17 May 18		Soil	5
	BH157-04				5
	BH157-05				~~3~~ 3
	BH158-01				3
	BH158-02				3
	BH158-03				4
	~~2129~~ 2122				4
	BH158-04				3
	BH158-05				3
	BH158-06				3

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human drinking water use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No ☐	
Ice Packs	☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		12			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
[illegible]	18 May 18	9:30				HA	5/18	10:45

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 18-MAY-18
Report Date: 14-JAN-19 15:46 (MT)
Version: FINAL REV. 2

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2097564

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-692337
Legal Site Desc:

Comments:

14-JAN-2019 This report replaces the previous version and includes updated Metals data for sample Z01.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097564-1	L2097564-2	L2097564-3	L2097564-4	L2097564-5
Description	WATER	WATER	WATER	WATER	WATER
Sampled Date	18-MAY-18	18-MAY-18	18-MAY-18	18-MAY-18	18-MAY-18
Sampled Time					
Client ID	BH124M	BH123M	BH122M	BH121M	BH130M
Grouping / **Analyte**					
WATER					
Physical Tests Hardness (as CaCO3) (mg/L)	100	246	243	417	236
Dissolved Metals Dissolved Mercury Filtration Location	LAB	LAB	LAB	LAB	LAB
Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	LAB
Aluminum (Al)-Dissolved (mg/L)	0.0015	0.0018	0.0019	0.0017	0.0046
Antimony (Sb)-Dissolved (mg/L)	<0.00010	0.00058	0.00029	0.00253	0.00028
Arsenic (As)-Dissolved (mg/L)	0.00011	0.00093	0.00187	0.00113	0.00098
Barium (Ba)-Dissolved (mg/L)	0.00595	0.0363	0.0414	0.0821	0.0362
Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved (mg/L)	<0.010	0.019	0.155	0.212	0.057
Cadmium (Cd)-Dissolved (mg/L)	0.0000084	0.0000230	0.0000146	<0.0000050	<0.0000050
Calcium (Ca)-Dissolved (mg/L)	37.9	91.5	73.2	147	86.4
Cesium (Cs)-Dissolved (mg/L)	<0.000010	<0.000010	0.000011	<0.000010	<0.000010
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Dissolved (mg/L)	0.00012	0.00022	0.00290	0.00139	0.00044
Copper (Cu)-Dissolved (mg/L)	0.00124	0.00038	0.00117	<0.00020	0.00021
Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	0.213
Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Lithium (Li)-Dissolved (mg/L)	<0.0010	0.0046	<0.0010	0.0015	0.0010
Magnesium (Mg)-Dissolved (mg/L)	1.34	4.19	14.7	12.4	4.97
Manganese (Mn)-Dissolved (mg/L)	0.115	0.0919	3.91	1.15	0.309
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	0.00163	0.00283	0.00350	0.00395	0.00228
Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00110	0.00119	0.00146	0.00136
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	1.39	2.94	5.74	3.13	3.64
Rubidium (Rb)-Dissolved (mg/L)	0.00072	0.00266	0.00180	0.00160	0.00222
Selenium (Se)-Dissolved (mg/L)	0.000053	0.000106	0.000116	<0.000050	0.000111
Silicon (Si)-Dissolved (mg/L)	3.49	6.11	7.10	7.15	7.81
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	3.00	20.1	64.8	12.9	6.10
Strontium (Sr)-Dissolved (mg/L)	0.192	0.552	0.804	0.841	0.282
Sulfur (S)-Dissolved (mg/L)	1.88	1.32	16.7	27.3	4.07
Tellurium (Te)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Thorium (Th)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	0.00055	<0.00010	0.00011

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097564-6	L2097564-7	L2097564-8		
	Description	WATER	WATER	WATER		
	Sampled Date	18-MAY-18	18-MAY-18	18-MAY-18		
	Sampled Time					
	Client ID	BH131M	BH120M	Z01		
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	70.0	810	416		
Dissolved Metals	Dissolved Mercury Filtration Location	LAB	LAB	LAB		
	Dissolved Metals Filtration Location	LAB	LAB	LAB		
	Aluminum (Al)-Dissolved (mg/L)	0.0017	0.0068	0.0017		
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	0.00019	0.00247		
	Arsenic (As)-Dissolved (mg/L)	<0.00010	0.00024	0.00112		
	Barium (Ba)-Dissolved (mg/L)	0.00606	0.621	0.0828		
	Beryllium (Be)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		
	Boron (B)-Dissolved (mg/L)	0.036	1.40	0.220		
	Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050		
	Calcium (Ca)-Dissolved (mg/L)	24.8	181	147		
	Cesium (Cs)-Dissolved (mg/L)	<0.000010	0.000068	<0.000010		
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.00123	0.00138		
	Copper (Cu)-Dissolved (mg/L)	0.00022	<0.00020	<0.00020		
	Iron (Fe)-Dissolved (mg/L)	<0.010	0.011	<0.010		
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		
	Lithium (Li)-Dissolved (mg/L)	<0.0010	0.0340	0.0015		
	Magnesium (Mg)-Dissolved (mg/L)	1.93	87.1	12.1		
	Manganese (Mn)-Dissolved (mg/L)	0.130	0.594	1.11		
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050		
	Molybdenum (Mo)-Dissolved (mg/L)	0.000067	0.00138	0.00394		
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	0.00121	0.00144		
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050		
	Potassium (K)-Dissolved (mg/L)	1.61	32.5	3.08		
	Rubidium (Rb)-Dissolved (mg/L)	0.00093	0.0183	0.00161		
	Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000053	<0.000050		
	Silicon (Si)-Dissolved (mg/L)	5.79	9.93	6.82		
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
	Sodium (Na)-Dissolved (mg/L)	2.80	538	12.6		
	Strontium (Sr)-Dissolved (mg/L)	0.197	2.46	0.849		
	Sulfur (S)-Dissolved (mg/L)	1.35	38.0	26.2		
	Tellurium (Te)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020		
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
	Thorium (Th)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097564-1	L2097564-2	L2097564-3	L2097564-4	L2097564-5
Description	WATER	WATER	WATER	WATER	WATER
Sampled Date	18-MAY-18	18-MAY-18	18-MAY-18	18-MAY-18	18-MAY-18
Sampled Time					
Client ID	BH124M	BH123M	BH122M	BH121M	BH130M
Grouping / **Analyte**					
WATER					
Dissolved Metals Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Tungsten (W)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Uranium (U)-Dissolved (mg/L)	0.000038	0.000929	0.000563	0.00227	0.00128
Vanadium (V)-Dissolved (mg/L)	0.00095	0.00054	0.00066	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	0.0023	0.0013	0.0022	0.0026	<0.0010
Zirconium (Zr)-Dissolved (mg/L)	<0.000060	<0.000060	<0.000060	<0.000060	0.000119
Volatile Organic Compounds Benzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Bromodichloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Bromoform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Carbon Tetrachloride (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Chlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dibromochloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Chloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Chloroform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Chloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichlorobenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,3-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,4-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
trans-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Dichloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,2-Dichloropropane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
cis-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
trans-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,3-Dichloropropene (cis & trans) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Styrene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
1,1,1,2-Tetrachloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2,2-Tetrachloroethane (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Tetrachloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	0.0011	<0.0010
Toluene (mg/L)	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045
1,1,1-Trichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,1,2-Trichloroethane (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097564-6	L2097564-7	L2097564-8		
	Description	WATER	WATER	WATER		
	Sampled Date	18-MAY-18	18-MAY-18	18-MAY-18		
	Sampled Time					
	Client ID	BH131M	BH120M	Z01		
Grouping	**Analyte**					
WATER						
Dissolved Metals	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030		
	Tungsten (W)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
	Uranium (U)-Dissolved (mg/L)	<0.000010	0.000845	0.00217		
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050		
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	<0.0010	0.0027		
	Zirconium (Zr)-Dissolved (mg/L)	<0.000060	0.000063	<0.000060		
Volatile Organic Compounds	Benzene (mg/L)	<0.00050	<0.00050	<0.00050		
	Bromodichloromethane (mg/L)	<0.0010	<0.0010	<0.0010		
	Bromoform (mg/L)	<0.0010	<0.0010	<0.0010		
	Carbon Tetrachloride (mg/L)	<0.00050	<0.00050	<0.00050		
	Chlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010		
	Dibromochloromethane (mg/L)	<0.0010	<0.0010	<0.0010		
	Chloroethane (mg/L)	<0.0010	<0.0010	<0.0010		
	Chloroform (mg/L)	<0.0010	<0.0010	<0.0010		
	Chloromethane (mg/L)	<0.0050	<0.0050	<0.0050		
	1,2-Dichlorobenzene (mg/L)	<0.00050	<0.00050	<0.00050		
	1,3-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010		
	1,4-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010		
	1,1-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010		
	1,2-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010		
	1,1-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010		
	cis-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010		
	trans-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010		
	Dichloromethane (mg/L)	<0.0050	<0.0050	<0.0050		
	1,2-Dichloropropane (mg/L)	<0.0010	<0.0010	<0.0010		
	cis-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050		
	trans-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050		
	1,3-Dichloropropene (cis & trans) (mg/L)	<0.0010	<0.0010	<0.0010		
	Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050		
	Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050	<0.00050		
	Styrene (mg/L)	<0.00050	<0.00050	<0.00050		
	1,1,1,2-Tetrachloroethane (mg/L)	<0.0010	<0.0010	<0.0010		
	1,1,2,2-Tetrachloroethane (mg/L)	<0.00020	<0.00020	<0.00020		
	Tetrachloroethylene (mg/L)	<0.0010	<0.0010	0.0012		
	Toluene (mg/L)	<0.00045	<0.00045	<0.00045		
	1,1,1-Trichloroethane (mg/L)	<0.0010	<0.0010	<0.0010		
	1,1,2-Trichloroethane (mg/L)	<0.00050	<0.00050	<0.00050		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2097564-1	L2097564-2	L2097564-3	L2097564-4	L2097564-5
Description	WATER	WATER	WATER	WATER	WATER
Sampled Date	18-MAY-18	18-MAY-18	18-MAY-18	18-MAY-18	18-MAY-18
Sampled Time					
Client ID	BH124M	BH123M	BH122M	BH121M	BH130M
Grouping / **Analyte**					
WATER					
Volatile Organic Compounds / Trichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Trichlorofluoromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Vinyl Chloride (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
ortho-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
meta- & para-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Xylenes (mg/L)	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
Surrogate: 4-Bromofluorobenzene (SS) (%)	97.9	98.9	94.1	96.7	96.3
Surrogate: 1,4-Difluorobenzene (SS) (%)	98.0	95.7	97.9	96.4	95.4
Hydrocarbons / EPH10-19 (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
EPH19-32 (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
LEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
HEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
Volatile Hydrocarbons (VH6-10) (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
VPH (C6-C10) (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
Surrogate: 2-Bromobenzotrifluoride (%)	91.9	95.6	101.5	105.8	103.3
Surrogate: 3,4-Dichlorotoluene (SS) (%)	112.7	106.3	91.7	93.8	97.1
Polycyclic Aromatic Hydrocarbons / Acenaphthene (mg/L)	<0.000010	<0.000010	0.000035	0.000620	0.000188
Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Acridine (mg/L)	<0.000010	<0.000010	<0.000010	<0.000020 DLQ	<0.000020 DLCI
Anthracene (mg/L)	<0.000010	<0.000010	<0.000010	0.000080	0.000018
Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chrysene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	0.000255	0.000027
Fluorene (mg/L)	<0.000010	<0.000010	0.000018	0.000322	0.000030
Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
1-Methylnaphthalene (mg/L)	<0.000050	<0.000050	<0.000050	0.000161	0.000061
2-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.000056	0.000127	0.000066
Naphthalene (mg/L)	<0.000050	<0.000050	0.000131	0.000426	0.000113
Phenanthrene (mg/L)	<0.000020	<0.000020	<0.000030 DLQ	0.000750	0.000058
Pyrene (mg/L)	<0.000010	0.000016	0.000015	0.000176	0.000033

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097564-6	L2097564-7	L2097564-8		
	Description	WATER	WATER	WATER		
	Sampled Date	18-MAY-18	18-MAY-18	18-MAY-18		
	Sampled Time					
	Client ID	BH131M	BH120M	Z01		
Grouping	**Analyte**					
WATER						
Volatile Organic Compounds	Trichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010		
	Trichlorofluoromethane (mg/L)	<0.0010	<0.0010	<0.0010		
	Vinyl Chloride (mg/L)	<0.00040	<0.00040	<0.00040		
	ortho-Xylene (mg/L)	<0.00050	<0.00050	<0.00050		
	meta- & para-Xylene (mg/L)	<0.00050	<0.00050	<0.00050		
	Xylenes (mg/L)	<0.00075	<0.00075	<0.00075		
	Surrogate: 4-Bromofluorobenzene (SS) (%)	97.9	95.9	95.2		
	Surrogate: 1,4-Difluorobenzene (SS) (%)	94.4	94.5	95.5		
Hydrocarbons	EPH10-19 (mg/L)	<0.25	<0.25	<0.25		
	EPH19-32 (mg/L)	<0.25	<0.25	<0.25		
	LEPH (mg/L)	<0.25	<0.25	<0.25		
	HEPH (mg/L)	<0.25	<0.25	<0.25		
	Volatile Hydrocarbons (VH6-10) (mg/L)	<0.10	<0.10	<0.10		
	VPH (C6-C10) (mg/L)	<0.10	<0.10	<0.10		
	Surrogate: 2-Bromobenzotrifluoride (%)	104.4	98.5	98.9		
	Surrogate: 3,4-Dichlorotoluene (SS) (%)	108.5	88.9	81.6		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	0.000228	0.000187	0.000692		
	Acenaphthylene (mg/L)	<0.000010 DLCI	0.000013 DLQ	<0.000010 DLCI		
	Acridine (mg/L)	<0.000030 DLQ	<0.000020 DLQ	<0.000020 DLQ		
	Anthracene (mg/L)	<0.000020	<0.00020	<0.000080		
	Benz(a)anthracene (mg/L)	<0.000010	0.000012	<0.000010		
	Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	<0.0000050		
	Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015		
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010		
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		
	Chrysene (mg/L)	<0.000010	<0.000020 DLCI	<0.000010		
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050		
	Fluoranthene (mg/L)	0.000037	0.000154	0.000285		
	Fluorene (mg/L)	<0.000020 DLQ	0.000283	0.000350		
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010		
	1-Methylnaphthalene (mg/L)	<0.000050	0.000699	0.000171		
	2-Methylnaphthalene (mg/L)	<0.000050	0.000750	0.000136		
	Naphthalene (mg/L)	0.000055	0.00221	0.000470		
	Phenanthrene (mg/L)	0.000032	0.000714	0.000827		
	Pyrene (mg/L)	0.000034	0.000146	0.000191		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097564-1	L2097564-2	L2097564-3	L2097564-4	L2097564-5
	Description	WATER	WATER	WATER	WATER	WATER
	Sampled Date	18-MAY-18	18-MAY-18	18-MAY-18	18-MAY-18	18-MAY-18
	Sampled Time					
	Client ID	BH124M	BH123M	BH122M	BH121M	BH130M
Grouping	**Analyte**					
WATER						
Polycyclic Aromatic Hydrocarbons	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Surrogate: Acridine d9 (%)	76.1	78.2	83.8	88.8	88.1
	Surrogate: Chrysene d12 (%)	68.2	70.7	72.1	72.5	72.9
	Surrogate: Naphthalene d8 (%)	83.0	86.5	92.2	94.5	102.1
	Surrogate: Phenanthrene d10 (%)	89.4	94.0	98.5	100.9	100.2

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2097564-6	L2097564-7	L2097564-8		
	Description	WATER	WATER	WATER		
	Sampled Date	18-MAY-18	18-MAY-18	18-MAY-18		
	Sampled Time					
	Client ID	BH131M	BH120M	Z01		
Grouping	**Analyte**					
WATER						
Polycyclic Aromatic Hydrocarbons	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050		
	Surrogate: Acridine d9 (%)	83.4	91.6	90.1		
	Surrogate: Chrysene d12 (%)	71.8	75.1	78.5		
	Surrogate: Naphthalene d8 (%)	91.0	97.7	96.1		
	Surrogate: Phenanthrene d10 (%)	96.4	104.6	105.2		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2097564-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Boron (B)-Dissolved	MS-B	L2097564-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2097564-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2097564-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2097564-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Potassium (K)-Dissolved	MS-B	L2097564-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2097564-1, -2, -3, -4, -5, -6, -7, -8
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2097564-1, -2, -3, -4, -5, -6, -7, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-ME-FID-VA	Water	EPH in Water	BC Lab Manual

EPH is extracted from water using a hexane micro-extraction technique, with analysis by GC-FID, as per the BC Lab Manual. EPH results include PAHs and are therefore not equivalent to LEPH or HEPH.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

LEPH/HEPH-CALC-VA	Water	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHw and HEPHw are measures of Light and Heavy Extractable Petroleum Hydrocarbons in water. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.

LEPHw = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.

HEPHw = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

PAH-ME-MS-VA	Water	PAHs in Water	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

VH-HSFID-VA	Water	VH in Water by Headspace GCFID	BC Env. Lab Manual (VH in Water)

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Compounds eluting between n-hexane and n-decane are measured and summed together using flame-ionization detection.

VH-SURR-FID-VA	Water	VH Surrogates for Waters	BC Env. Lab Manual (VH in Solids)
VOC-HSMS-VA	Water	VOCs in water by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 5035A/5021A/8260C
VPH-CALC-VA	Water	VPH is VH minus select aromatics	BC MOE VPH

VPHw measures Volatile Petroleum Hydrocarbons in water. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure.
VPHw = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene

Reference Information

XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-692337

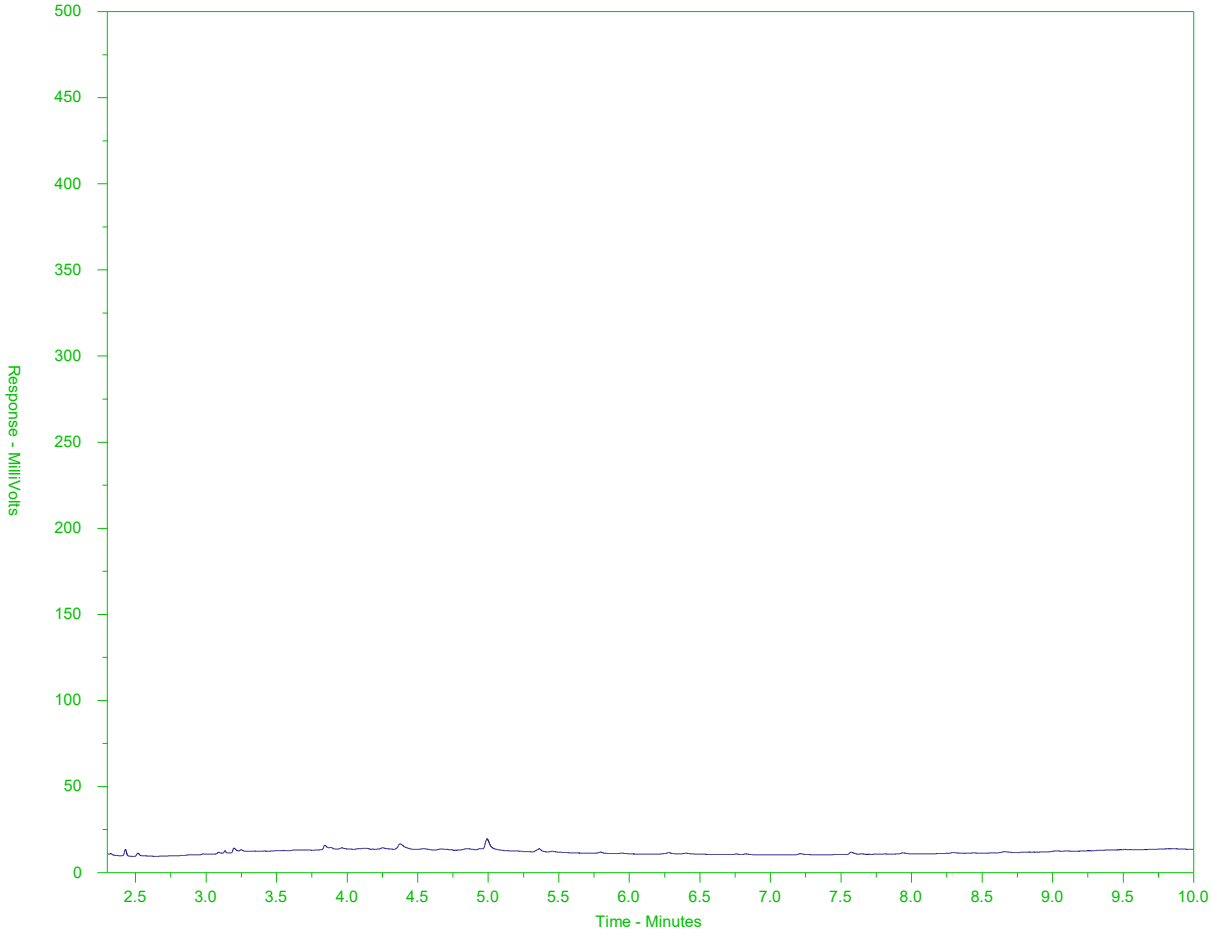
GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097564-1
Client Sample ID: BH124M



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

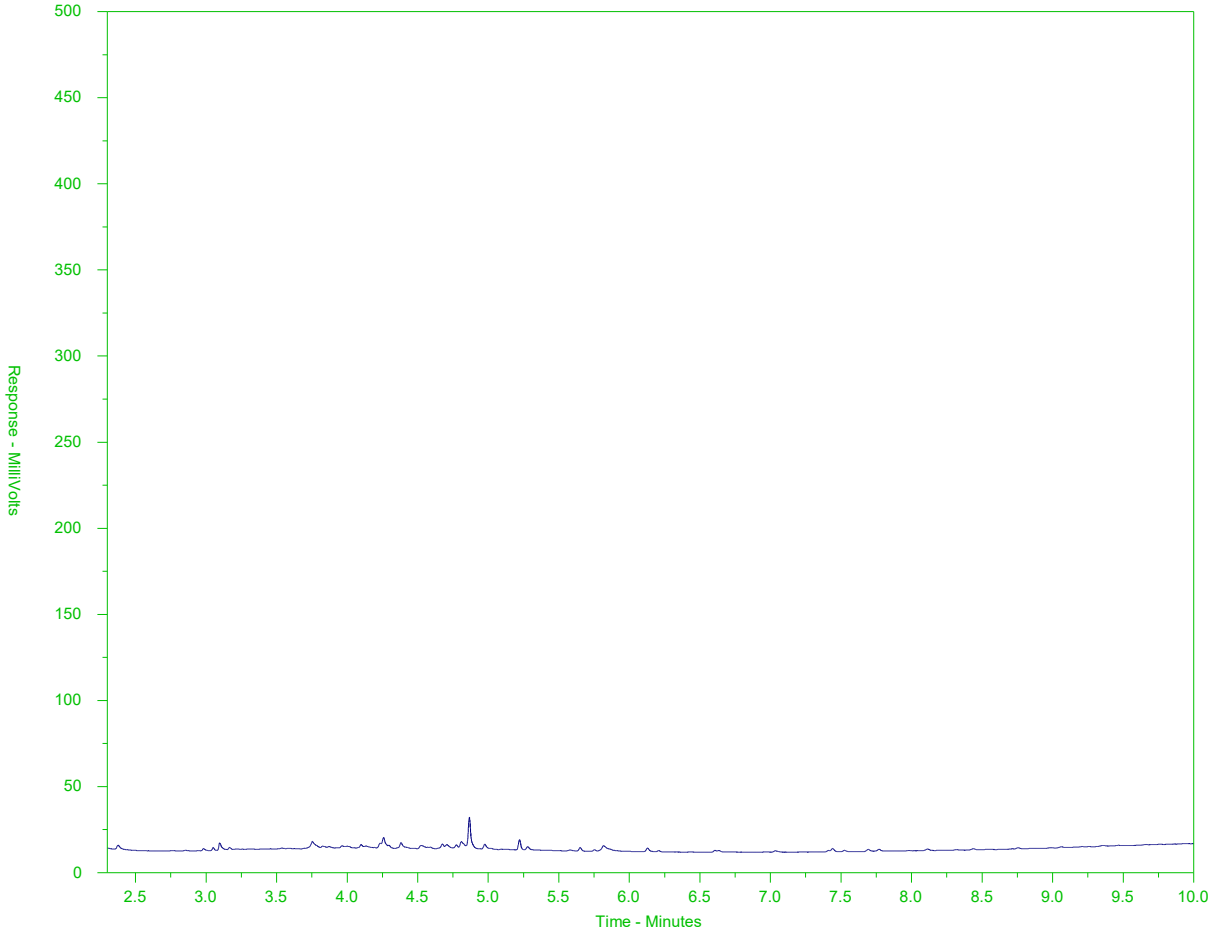
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

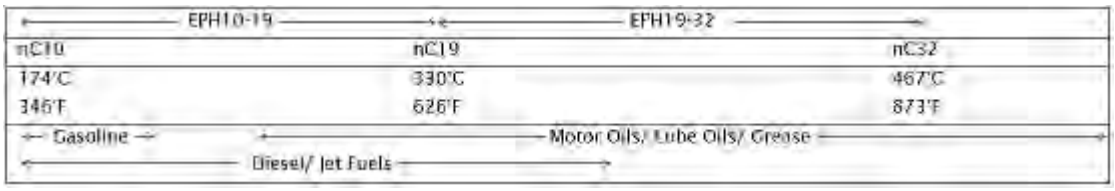
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097564-2
Client Sample ID: BH123M





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

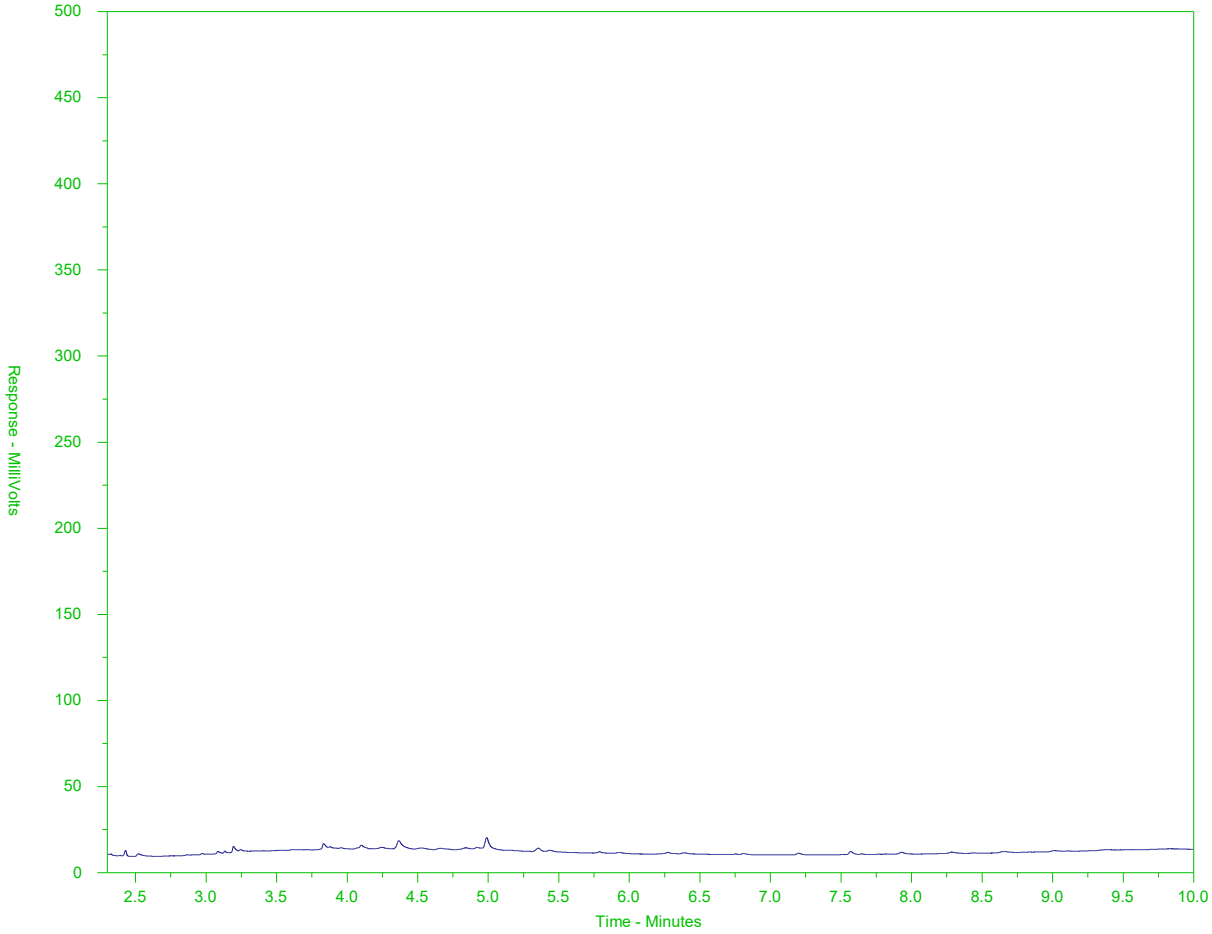
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097564-3
Client Sample ID: BH122M



EPH10-19		EPH19-32
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
Gasoline	Motor Oils/ Lube Oils/ Grease	
Diesel/ Jet Fuels		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

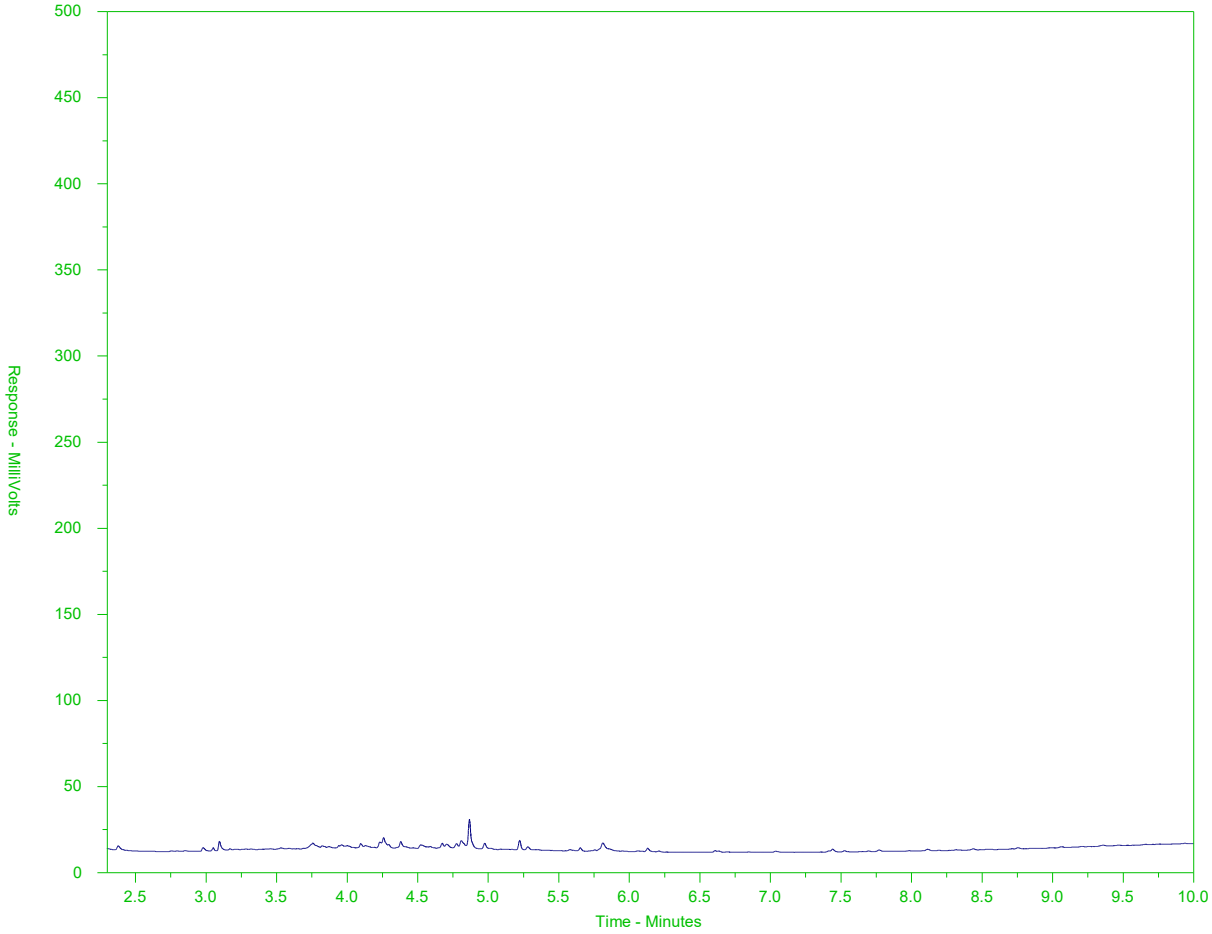
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097564-4
Client Sample ID: BH121M



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

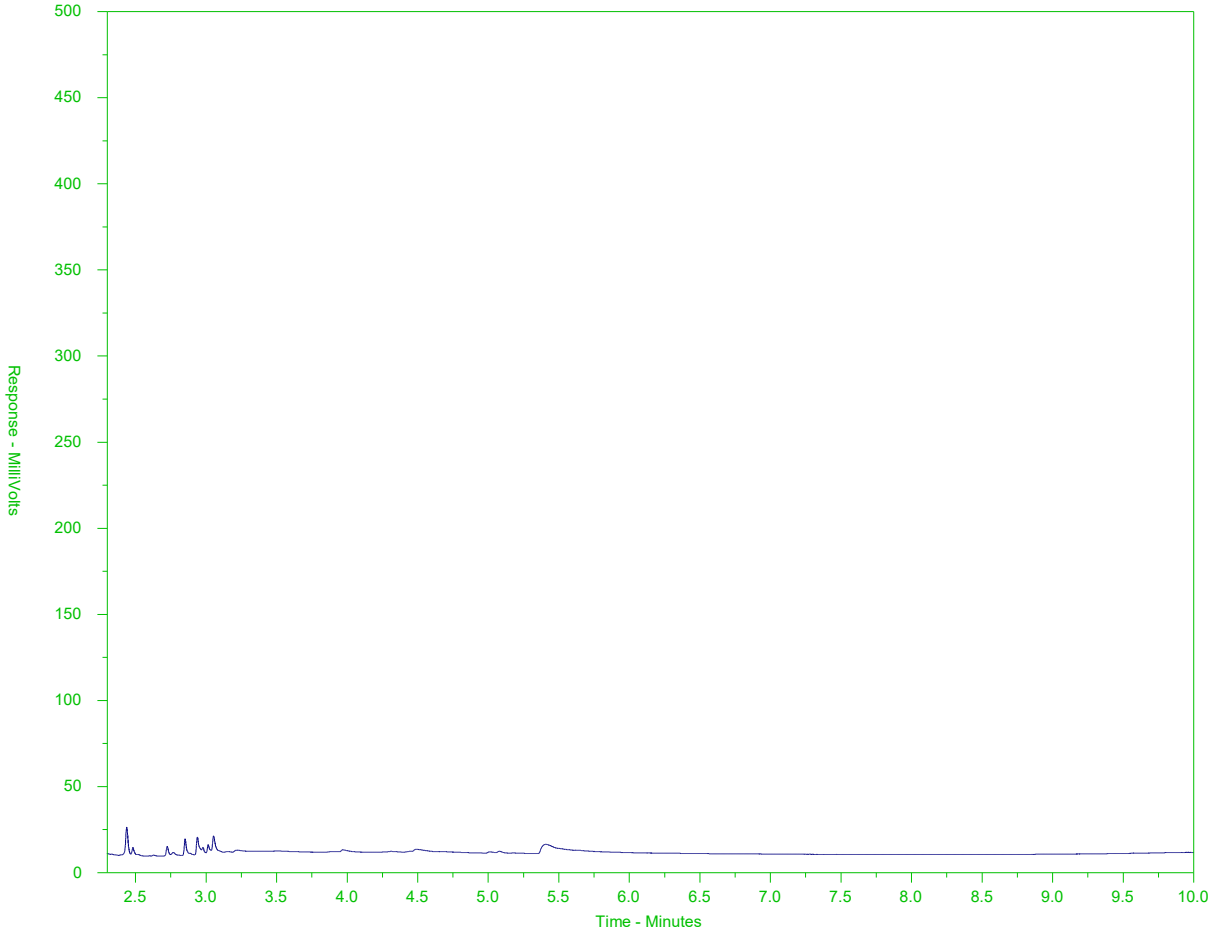
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097564-5
Client Sample ID: BH130M



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

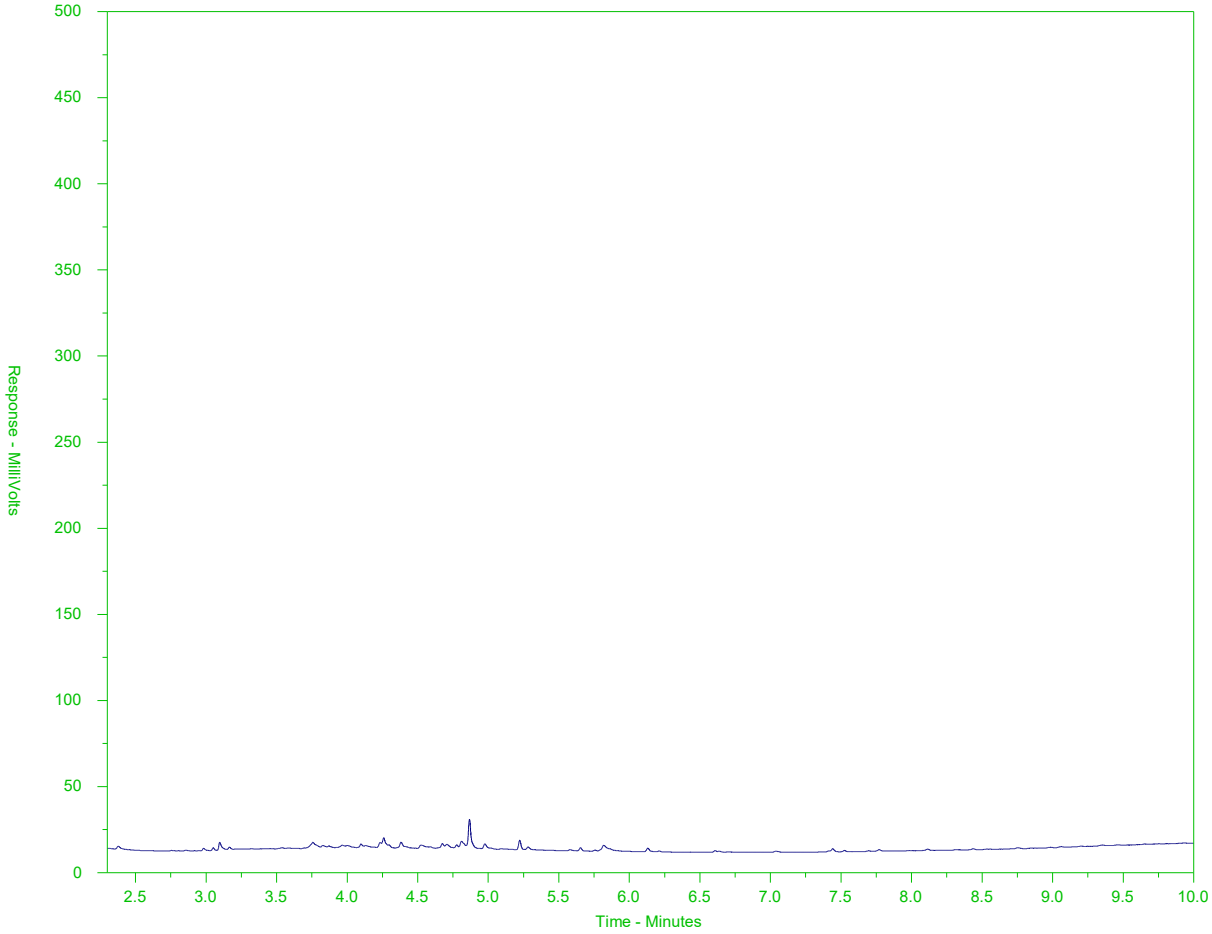
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097564-6
Client Sample ID: BH131M



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

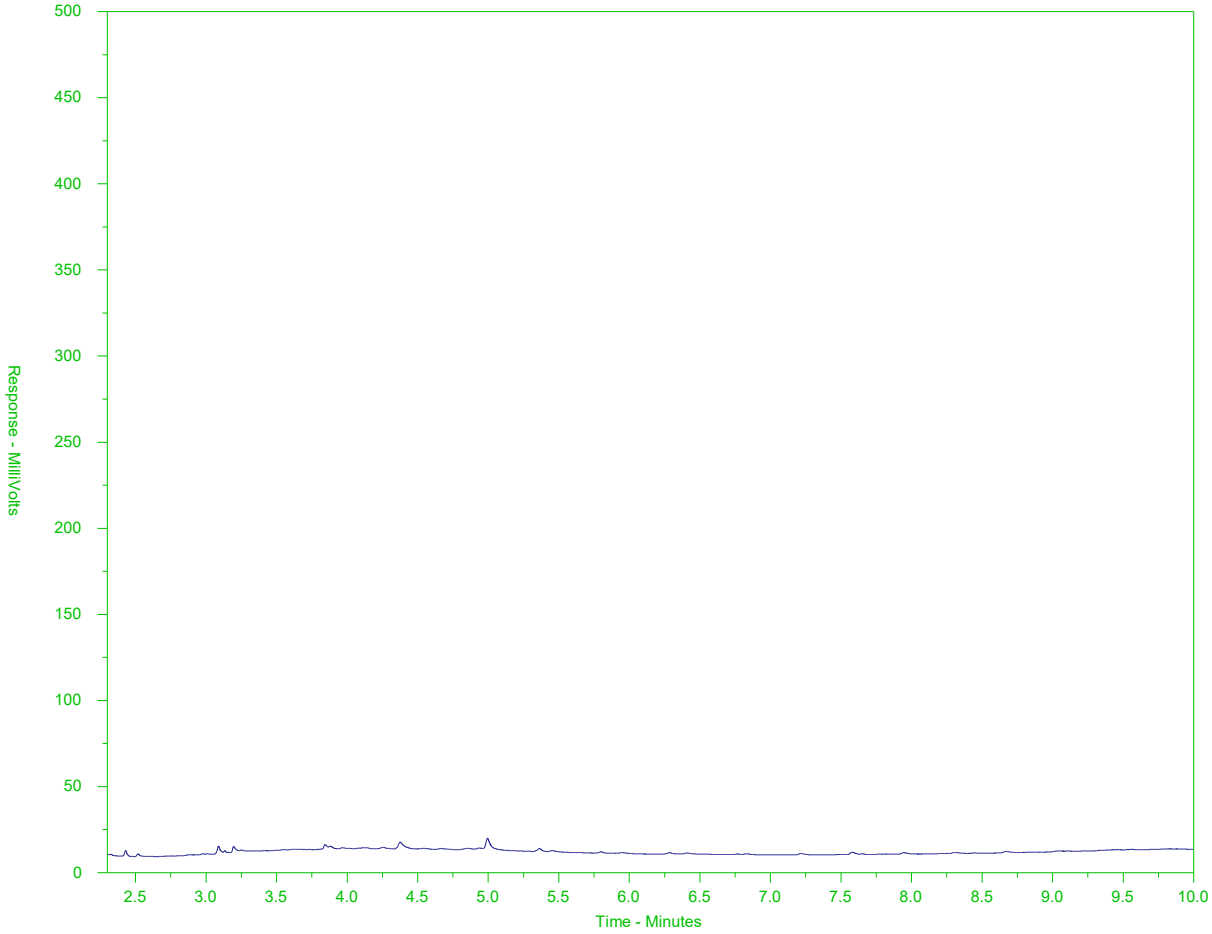
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

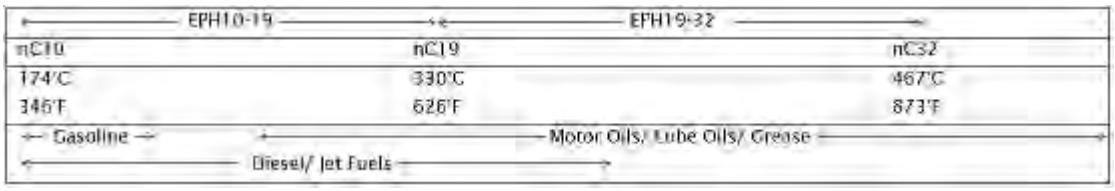
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097564-7
Client Sample ID: BH120M





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

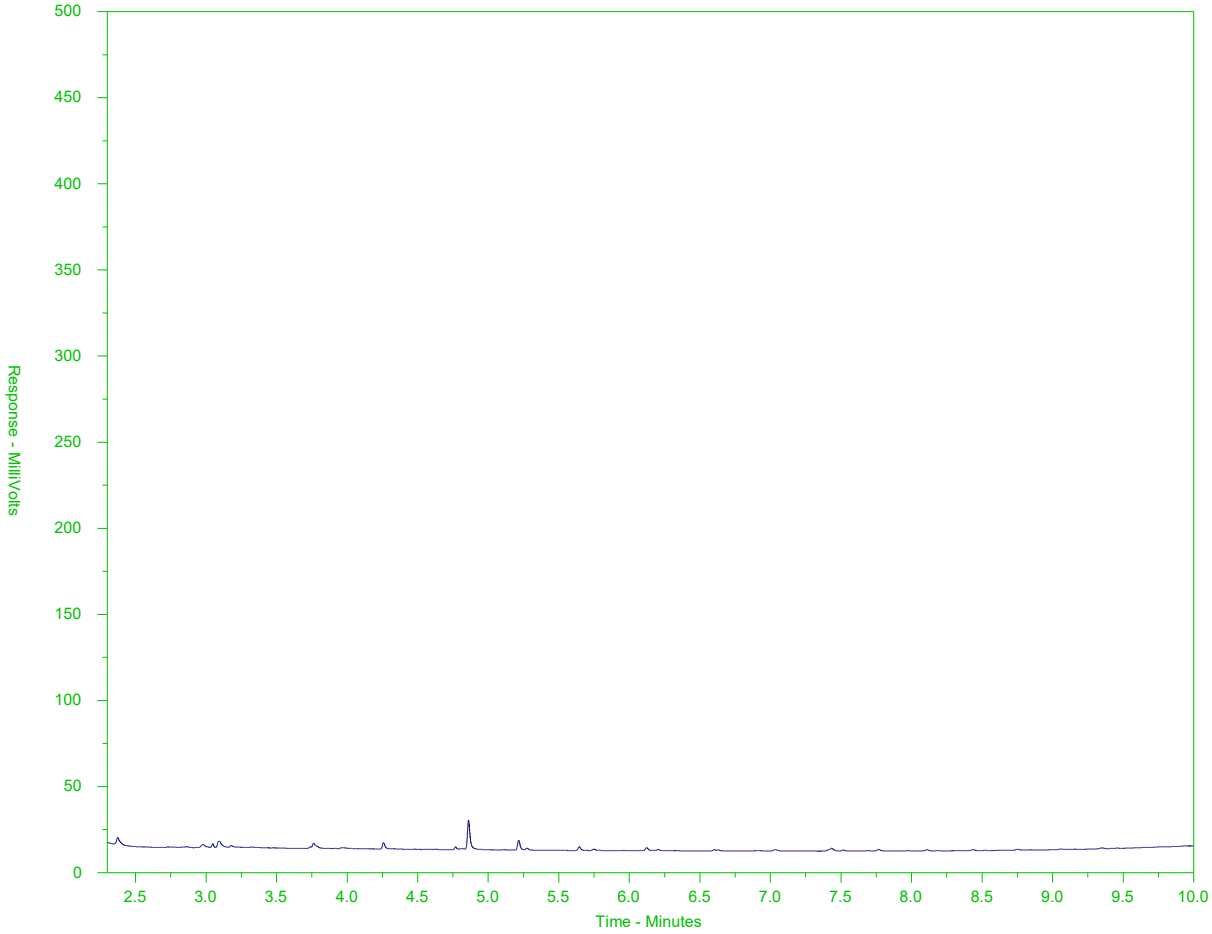
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

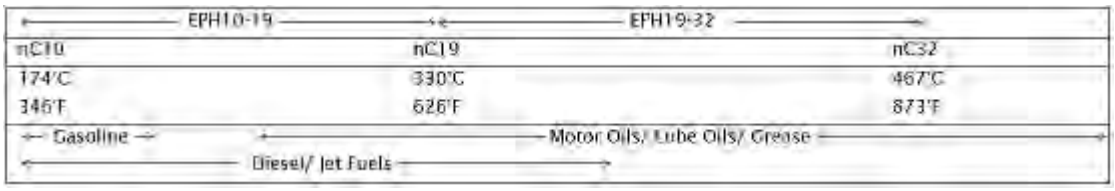
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2097564-8
Client Sample ID: Z01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2097564-COFC

COC Number: 17 - 692337

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL ENVIRONMENTAL LTD	Select Report Format: [X] PDF [X] EXCEL [X] EDD (DIGITAL)	Regular [R] [X] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	ZAYED MOHAMED	Quality Control (QC) Report with Report [ ] YES [ ] NO	PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:	604-895-7640	[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	
Street:	1500-1185 W GEORGIA ST	Email 1 or Fax ZMOHAMED@PGLGROUP.COM	Date and Time Required for all E&P TATs: Regular
City/Province:	VANCOUVER	Email 2 ARIVERS@PGLGROUP.COM	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3 SSINGH@PGLGROUP.COM	

Invoice To		Invoice Distribution	
	Same as Report To [X] YES [ ] NO	Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	
	Copy of Invoice with Report [ ] YES [ ] NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: Simranpal Singh

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	LSPH/HEPH	VOC/VPH	D-35 Metals + Hg	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH124M	18-05-17	am	WATER						
	BH123M	"	"	"						
	BH122M	"	"	"						
	BH121M	"	"	"						
	BH130M	"	"	"						
	BH131M	"	"	"						
	BH120M	"	"	"						
	Z01	"	"	"						

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [X] NO	
Are samples for human consumption/ use? [ ] YES [X] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]
Ice Packs [✓] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C	FINAL COOLER TEMPERATURES °C
9	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
Simranpal singh	May 18	5:02pm	CW	May 18	1705			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 25-MAY-18
Report Date: 31-MAY-18 17:50 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2100737

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-692293
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2100737-1	L2100737-2	L2100737-3	L2100737-4	L2100737-5
Description	SV	SV	SV	SV	SV
Sampled Date	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18
Sampled Time					
Client ID	SV01	SV02	SV03	SV04	SV05
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds					
Acetone (ug)	<0.060	<0.060	2.81	<0.060	<0.060
Acetone (ug/m3)	<29	<29	1250	<40	<25
Benzene (ug)	<0.0040	0.0075	0.0332	<0.0040	<0.0040
Benzene (ug/m3)	<1.9	3.6	14.8	<2.7	<1.7
Bromodichloromethane (ug)	<0.0025	<0.0025	<0.20 DLCI	<0.0025	<0.0025
Bromodichloromethane (ug/m3)	<1.2	<1.2	<89 DLCI	<1.7	<1.1
Bromoform (ug)	<0.015	<0.015	<0.015	<0.015	<0.015
Bromoform (ug/m3)	<7.1	<7.1	<6.7	<10	<6.3
2-Butanone (MEK) (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
2-Butanone (MEK) (ug/m3)	<12	<12	<11	<17	<11
Carbon Tetrachloride (ug)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Carbon Tetrachloride (ug/m3)	<0.71	<0.71	<0.67	<1.0	<0.63
Chlorobenzene (ug)	<0.0025	<0.0025	<0.0080 DLCI	<0.0025	<0.0025
Chlorobenzene (ug/m3)	<1.2	<1.2	<3.6 DLCI	<1.7	<1.1
Dibromochloromethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
Dibromochloromethane (ug/m3)	<12	<12	<11	<17	<11
Chloroethane (ug)	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroethane (ug/m3)	<24	<24	<22	<33	<21
Decane (nC10) (ug)	<0.025	<0.025	<0.040 DLQ	<0.025	<0.025
Decane (nC10) (ug/m3)	<12	<12	<18 DLQ	<17	<11
1,2-Dichlorobenzene (ug)	<0.015	<0.015	<0.015	<0.015	<0.015
1,2-Dichlorobenzene (ug/m3)	<7.1	<7.1	<6.7	<10	<6.3
1,3-Dichlorobenzene (ug)	<0.0050	<0.0050	0.0065	<0.0050	0.0071
1,3-Dichlorobenzene (ug/m3)	<2.4	<2.4	2.9	<3.3	3.0
1,4-Dichlorobenzene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,4-Dichlorobenzene (ug/m3)	<2.4	<2.4	<2.2	<3.3	<2.1
1,1-Dichloroethane (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
1,1-Dichloroethane (ug/m3)	<1.2	<1.2	<1.1	<1.7	<1.1
1,2-Dichloroethane (ug)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane (ug/m3)	<0.48	<0.48	<0.45	<0.67	<0.42
1,1-Dichloroethylene (ug)	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
1,1-Dichloroethylene (ug/m3)	<1.4	<1.4	<1.3	<2.0	<1.3
cis-1,2-Dichloroethylene (ug)	<0.0050	<0.0050	0.0165	<0.0050	<0.0050
cis-1,2-Dichloroethylene (ug/m3)	<2.4	<2.4	7.4	<3.3	<2.1
trans-1,2-Dichloroethylene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
trans-1,2-Dichloroethylene (ug/m3)	<2.4	<2.4	<2.2	<3.3	<2.1
1,2-Dichloropropane (ug)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2100737-6	L2100737-7	L2100737-8	L2100737-9	
Description	SV	SV	SV	SV	
Sampled Date	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18	
Sampled Time					
Client ID	SV06	SV07	SV08	Z01	
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds					
Acetone (ug)	<0.060	1.25	0.351	<0.060	
Acetone (ug/m3)	<29	499	167	<30	
Benzene (ug)	<0.0040	0.0512	0.279	<0.0040	
Benzene (ug/m3)	<1.9	20.5	133	<2.0	
Bromodichloromethane (ug)	<0.0025	<0.030 DLCI	<0.020 DLCI	<0.0025	
Bromodichloromethane (ug/m3)	<1.2	<12 DLCI	<9.5 DLCI	<1.3	
Bromoform (ug)	<0.015	<0.015	<0.015	<0.015	
Bromoform (ug/m3)	<7.1	<6.0	<7.1	<7.5	
2-Butanone (MEK) (ug)	<0.025	<0.025	<0.025	<0.025	
2-Butanone (MEK) (ug/m3)	<12	<10	<12	<13	
Carbon Tetrachloride (ug)	<0.0015	<0.0015	<0.0015	<0.0015	
Carbon Tetrachloride (ug/m3)	<0.71	<0.60	<0.71	<0.75	
Chlorobenzene (ug)	<0.0025	<0.0070 DLCI	<0.0030 DLCI	<0.0025	
Chlorobenzene (ug/m3)	<1.2	<2.8 DLCI	<1.4 DLCI	<1.3	
Dibromochloromethane (ug)	<0.025	<0.025	<0.025	<0.025	
Dibromochloromethane (ug/m3)	<12	<10	<12	<13	
Chloroethane (ug)	<0.050	<0.050	<0.050	<0.050	
Chloroethane (ug/m3)	<24	<20	<24	<25	
Decane (nC10) (ug)	<0.025	<0.20 DLQ	0.180	<0.025	
Decane (nC10) (ug/m3)	<12	<80 DLQ	86	<13	
1,2-Dichlorobenzene (ug)	<0.015	<0.015	<0.015	<0.015	
1,2-Dichlorobenzene (ug/m3)	<7.1	<6.0	<7.1	<7.5	
1,3-Dichlorobenzene (ug)	0.0055	0.0073	<0.0050	<0.0050	
1,3-Dichlorobenzene (ug/m3)	2.6	2.9	<2.4	<2.5	
1,4-Dichlorobenzene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	
1,4-Dichlorobenzene (ug/m3)	<2.4	<2.0	<2.4	<2.5	
1,1-Dichloroethane (ug)	<0.0025	<0.0025	<0.0025	<0.0025	
1,1-Dichloroethane (ug/m3)	<1.2	<1.0	<1.2	<1.3	
1,2-Dichloroethane (ug)	<0.0010	<0.0010	<0.0010	<0.0010	
1,2-Dichloroethane (ug/m3)	<0.48	<0.40	<0.48	<0.50	
1,1-Dichloroethylene (ug)	<0.0030	<0.0030	<0.0030	<0.0030	
1,1-Dichloroethylene (ug/m3)	<1.4	<1.2	<1.4	<1.5	
cis-1,2-Dichloroethylene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	
cis-1,2-Dichloroethylene (ug/m3)	<2.4	<2.0	<2.4	<2.5	
trans-1,2-Dichloroethylene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	
trans-1,2-Dichloroethylene (ug/m3)	<2.4	<2.0	<2.4	<2.5	
1,2-Dichloropropane (ug)	<0.0015	<0.0015	<0.0015	<0.0015	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2100737-1	L2100737-2	L2100737-3	L2100737-4	L2100737-5
Description	SV	SV	SV	SV	SV
Sampled Date	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18
Sampled Time					
Client ID	SV01	SV02	SV03	SV04	SV05
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds 1,2-Dichloropropane (ug/m3)	<0.71	<0.71	<0.67	<1.0	<0.63
cis-1,3-Dichloropropylene (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
cis-1,3-Dichloropropylene (ug/m3)	<1.2	<1.2	<1.1	<1.7	<1.1
trans-1,3-Dichloropropylene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
trans-1,3-Dichloropropylene (ug/m3)	<2.4	<2.4	<2.2	<3.3	<2.1
Ethyl Acetate (ug)	<0.10	<0.10	<0.10	<0.10	<0.10
Ethyl Acetate (ug/m3)	<48	<48	<45	<67	<42
Ethylbenzene (ug)	0.0043	0.0054	0.0450	0.0042	0.0025
Ethylbenzene (ug/m3)	2.1	2.6	20.1	2.8	<1.1
n-Hexane (nC6) (ug)	<0.025	<0.025	0.442	<0.025	<0.025
n-Hexane (nC6) (ug/m3)	<12	<12	197	<17	<11
Cumene (ug)	<0.0025	<0.0025	0.0036	<0.0025	<0.0025
Cumene (ug/m3)	<1.2	<1.2	1.6	<1.7	<1.1
Styrene (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Styrene (ug/m3)	<1.2	<1.2	<1.1	<1.7	<1.1
1,1,1,2-Tetrachloroethane (ug)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
1,1,1,2-Tetrachloroethane (ug/m3)	<1.9	<1.9	<1.8	<2.7	<1.7
1,1,2,2-Tetrachloroethane (ug)	<0.0025	<0.0025	<0.0040 DLCI	<0.0025	<0.0025
1,1,2,2-Tetrachloroethane (ug/m3)	<1.2	<1.2	<1.8 DLCI	<1.7	<1.1
Tetrachloroethylene (ug)	0.112	0.038	<0.030	<0.030	<0.030
Tetrachloroethylene (ug/m3)	53	18	<13	<20	<13
Toluene (ug)	<0.020	0.030	0.119	<0.020	<0.020
Toluene (ug/m3)	<9.5	14.1	53.3	<13	<8.4
1,1,2-Trichloro-1,2,2-trifluoroethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
1,1,2-Trichloro-1,2,2-trifluoroethane (ug/m3)	<12	<12	<11	<17	<11
1,1,1-Trichloroethane (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
1,1,1-Trichloroethane (ug/m3)	<1.2	<1.2	<1.1	<1.7	<1.1
1,1,2-Trichloroethane (ug)	<0.0015	<0.0015	<0.0020 DLCI	<0.0015	<0.0015
1,1,2-Trichloroethane (ug/m3)	<0.71	<0.71	<0.89 DLCI	<1.0	<0.63
Trichloroethylene (ug)	<0.0015	<0.0015	<0.0060 DLQ	0.0022	<0.0015
Trichloroethylene (ug/m3)	<0.71	<0.71	<2.7 DLQ	1.4	<0.63
Trichlorofluoromethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
Trichlorofluoromethane (ug/m3)	<12	<12	<11	<17	<11
Vinyl Chloride (ug)	<0.0030	<0.0030	0.0061	<0.0030	<0.0030
Vinyl Chloride (ug/m3)	<1.4	<1.4	2.7	<2.0	<1.3
ortho-Xylene (ug)	0.0025	0.0058	0.0679	0.0154	0.0073
ortho-Xylene (ug/m3)	1.2	2.8	30.3	10.2	3.1

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2100737-6	L2100737-7	L2100737-8	L2100737-9	
Description	SV	SV	SV	SV	
Sampled Date	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18	
Sampled Time					
Client ID	SV06	SV07	SV08	Z01	
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds 1,2-Dichloropropane (ug/m3)	<0.71	<0.60	<0.71	<0.75	
cis-1,3-Dichloropropylene (ug)	<0.0025	<0.0025	<0.0025	<0.0025	
cis-1,3-Dichloropropylene (ug/m3)	<1.2	<1.0	<1.2	<1.3	
trans-1,3-Dichloropropylene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	
trans-1,3-Dichloropropylene (ug/m3)	<2.4	<2.0	<2.4	<2.5	
Ethyl Acetate (ug)	<0.10	<0.10	<0.10	<0.10	
Ethyl Acetate (ug/m3)	<48	<40	<48	<50	
Ethylbenzene (ug)	0.0034	0.0228	0.0692	<0.0025	
Ethylbenzene (ug/m3)	1.6	9.1	32.9	<1.3	
n-Hexane (nC6) (ug)	<0.025	0.283	0.419	<0.025	
n-Hexane (nC6) (ug/m3)	<12	113	200	<13	
Cumene (ug)	<0.0025	0.0108	0.0083	<0.0025	
Cumene (ug/m3)	<1.2	4.3	4.0	<1.3	
Styrene (ug)	0.0037	0.0042	0.0070	<0.0025	
Styrene (ug/m3)	1.7	1.7	3.3	<1.3	
1,1,1,2-Tetrachloroethane (ug)	<0.0040	<0.0040	<0.0040	<0.0040	
1,1,1,2-Tetrachloroethane (ug/m3)	<1.9	<1.6	<1.9	<2.0	
1,1,2,2-Tetrachloroethane (ug)	<0.0025	<0.010 DLCI	<0.0040 DLCI	<0.0025	
1,1,2,2-Tetrachloroethane (ug/m3)	<1.2	<4.0 DLCI	<1.9 DLCI	<1.3	
Tetrachloroethylene (ug)	0.142	0.057	0.058	<0.030	
Tetrachloroethylene (ug/m3)	68	23	28	<15	
Toluene (ug)	0.037	0.128	0.456	<0.020	
Toluene (ug/m3)	17.4	51.0	217	<10	
1,1,2-Trichloro-1,2,2-trifluoroethane (ug)	<0.025	<0.025	<0.025	<0.025	
1,1,2-Trichloro-1,2,2-trifluoroethane (ug/m3)	<12	<10	<12	<13	
1,1,1-Trichloroethane (ug)	<0.0025	<0.0025	<0.0025	<0.0025	
1,1,1-Trichloroethane (ug/m3)	<1.2	<1.0	<1.2	<1.3	
1,1,2-Trichloroethane (ug)	<0.0015	<0.0015	<0.0050 DLCI	<0.0015	
1,1,2-Trichloroethane (ug/m3)	<0.71	<0.60	<2.4 DLCI	<0.75	
Trichloroethylene (ug)	<0.0015	<0.0030 DLQ	<0.0015	<0.0015	
Trichloroethylene (ug/m3)	<0.71	<1.2 DLQ	<0.71	<0.75	
Trichlorofluoromethane (ug)	<0.025	<0.025	<0.025	<0.025	
Trichlorofluoromethane (ug/m3)	<12	<10	<12	<13	
Vinyl Chloride (ug)	<0.0030	<0.0030	<0.0030	<0.0030	
Vinyl Chloride (ug/m3)	<1.4	<1.2	<1.4	<1.5	
ortho-Xylene (ug)	0.0026	0.0392	0.0789	<0.0025	
ortho-Xylene (ug/m3)	1.2	15.7	37.6	<1.3	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2100737-1	L2100737-2	L2100737-3	L2100737-4	L2100737-5
Description	SV	SV	SV	SV	SV
Sampled Date	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18
Sampled Time					
Client ID	SV01	SV02	SV03	SV04	SV05
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds meta- & para-Xylene (ug)	0.0066	0.0129	0.182	0.0167	0.0184
meta- & para-Xylene (ug/m3)	3.1	6.1	81.3	11.1	7.7
Xylenes (ug/m3)	4.3	8.9	112	21.3	10.8
Hydrocarbons VHv(C6-C13) (ug)	3.5	<3.0	31.3	<3.0	<3.0
VHv(C6-C13) (ug/m3)	1700	<1400	14000	<2000	<1300
VPHv(C6-C13) (ug/m3)	1700	<1400	13600	<2000	<1300

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2100737-6 SV 22-MAY-18 SV06	L2100737-7 SV 22-MAY-18 SV07	L2100737-8 SV 22-MAY-18 SV08	L2100737-9 SV 22-MAY-18 Z01	
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
CARBO-TUBE						
Volatile Organic Compounds	meta- & para-Xylene (ug)	0.0078	0.0899	0.262	0.0062	
	meta- & para-Xylene (ug/m3)	3.7	36.0	125	3.1	
	Xylenes (ug/m3)	4.9	51.6	162	3.1	
Hydrocarbons	VHv(C6-C13) (ug)	<3.0	30.5	22.1	<3.0	
	VHv(C6-C13) (ug/m3)	<1400	12200	10500	<1500	
	VPHv(C6-C13) (ug/m3)	<1400	11900	9700	<1500	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2100737-1	L2100737-2	L2100737-3	L2100737-4	L2100737-5
Description	SV	SV	SV	SV	SV
Sampled Date	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18
Sampled Time					
Client ID	SV01	SV02	SV03	SV04	SV05
Grouping **Analyte**					
MISC.					
Field Tests Air Volume, Client Supplied (L)	2.1	2.1	2.24	1.5	2.37

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2100737-6	L2100737-7	L2100737-8	L2100737-9	
Description	SV	SV	SV	SV	
Sampled Date	22-MAY-18	22-MAY-18	22-MAY-18	22-MAY-18	
Sampled Time					
Client ID	SV06	SV07	SV08	Z01	
Grouping **Analyte**					
MISC.					
Field Tests Air Volume, Client Supplied (L)	2.1	2.5	2.1	2	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AIR VOLUME-VA	Misc.	Air volume (L)	HYGIENE METHOD
FUELS-TDMS-VA	Carbo-Tube	Fuels by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VH-TDFID-VA	Carbo-Tube	VHv by Thermal Desorption and GCFID	BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from BCMOE analytical method for contaminated sites "VHv in air by GC-FID / GC-MS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VHv is determined using gas chromatography with flame ionization (GC/FID). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VOC-M2-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VOC-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (November 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV (noted below in litres) may cause the compound to break through the media, leading to a negatively biased result. Lower boiling point compounds such as vinyl chloride (10), chloromethane (6), and dichloromethane (40) are particularly affected. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative. Where SSVs have been exceeded, please contact ALS regarding data interpretation as results may still be fit for purpose.

VOC7-TDMS-VA	Carbo-Tube	BTEX by Thermal Desorption with GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VPH-CALC-VA	Carbo-Tube	VPHv is VHv minus BTEX/nC6/nC10	BC MOE VPH

VPHv measures Volatile Petroleum Hydrocarbons in air. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VHv6-13, as per the BC Lab Manual VPH calculation procedure.
VPHw = VHv6-13 minus Benzene, Toluene, Ethylbenzene, Xylenes, Styrene, n-Hexane, and n-Decane

XYLENES-CALC-VA	Carbo-Tube	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-692293

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2100737-COFC

COC Number: 17 - 692293

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Form
Company:	POL	Select Report Format: ☐ PDF ☐ EXCEL ☐ EDD (DIGITAL)
Contact:	Zayed Mohamad	Quality Control (QC) Report with Report ☐ YES ☐ NO
Phone:	604 682 3707	☐ Compare Results to Criteria on Report - provide details below if box checked
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Street:		Email 1 or Fax arivers@pggroup.com
City/Province:	Vancouver	Email 2 zmohamad@pggroup.com
Postal Code:	BC	Email 3 sbarr@pggroup.com
Invoice To	Same as Report To ☐ YES ☐ NO	**Invoice Distribution**
	Copy of Invoice with Report ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: B. Mack	Sampler: A. Rivers

Turnaround Time (TAT) Options - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☐

Emergency: 1 Business day [E-100%] ☐ | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	POL Solvents + Fuel	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	SV01	22-May-18		SV	X			
	SV02				X			
	SV03				X			
	SV04				X			
	SV05				X			
	SV06				X			
	SV07				X			
	SV08				X			
	ZO1				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			21				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	25 May 18	12:20					5/25	12:23p

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

12123P
5/25
HA 21

THERMAL DESORPTION SYSTEM

L2100737-COFC

Date Returned:	
QC Check:	

ALS File # _____

(To be filled out by ALS upon return of [illegible])

1. Sampling Supplies (To be filled out by ALS)

Company Name/Location:	Pottinger Gaherty Environmental	Project/Job No:	5355-01.01
Pump Requested By:	Andrea Rivers	Date of Request:	May 17/18 9:40
ALS Account Manager:	Brent Mack	Pump(s) Prepared By:	
# of Pumps (TD x 1@100mL/min):		Date Required @ Shipping:	May 17/18 12:00 (noon)
# of Pumps (TD x 2@100mL/min):		Flow Verification Tubes 1	Other
Other Supplies Provided:	Lithium-ion Battery Charger; Pelican Case (Single); Splitters & Tubing 3 Y splitters / 12 small connector plastic tubing; Pelican Case (Multiple); Alkaline Battery Adapter; Additional Pumps:		
TD Tubes 11			

2. Flow Rates (Flow rates before and after - ALS, flow rates in-situ - Client)

Pump ID	Pump flow before sampling (mL/min) - ALS	Pump flow after sampling (mL/min) - ALS	Pump Flow in situ (mL/min) - CLIENT[1]	Notes
1.	A B	A B	A B	See flow rates below
2.	A B	A B	A B	
3.	A B	A B	A B	
4.	A B	A B	A B	

[1] If in-situ flow measurements have been provided, these will be used for all air concentrations calculations.

3. Sample Information (To be filled out by Client)

	TD Tube Serial #	Client Sample ID	Pump # (ml/min flow rate start/end)	Sampling Time (min)	Date/Time	Elevated Levels Expected? Y	?	N	Recvd @ Lab ✓
1	G01549[illegible]				22 May 18		✓		
2	G01528[illegible]								
3	G01539[illegible]	SV04	115 (avg)						
4	G01539[illegible]	SV02	106/105	20 min					
5	G01557[illegible]	SV05	91/95	25 min					
6	G01525[illegible]	SV07	135 (avg)	20 min					
7	G01546[illegible]	SV03	103/112	20 min					
8	G01528[illegible]	SV06	105 avg	20 min	↓		↓		
9	G01546[illegible]	SV01	117/105	20min	22 May 18		✓		
10	G01568[illegible]	SV08		20min	↓				
11	G01509[illegible]	Z01	83/80	25min	↓		↓		
12	G01339[illegible]	——— Flow	verification		tube				

* used rental pumps - measured flow *

ADDRESS 8081 Lougheed Highway, Burnaby British Columbia V5A 1W9 Canada | PHONE +1 604 253 4188 | FAX +1 604 253 6700
ALS CANADA LIMITED Part of the ALS Group A Campbell Brothers Limited Company

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 25-MAY-18
Report Date: 04-JUN-18 10:21 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2100919

Project P.O. #: 5355-01.01
Job Reference: 5355-01.01
C of C Numbers: 17-692294
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2100919-1	L2100919-2	L2100919-3	L2100919-4	L2100919-5
Description	WATER	WATER	WATER	WATER	WATER
Sampled Date	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18
Sampled Time	12:00	12:00	12:00	12:00	
Client ID	BH101M-S	BH101M-D	BH102M-S	BH102M-D	BH103M
Grouping / **Analyte**					
WATER					
Physical Tests Hardness (as CaCO3) (mg/L)	360	340	230	441	383
Dissolved Metals Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	LAB
Aluminum (Al)-Dissolved (mg/L)	0.550	0.415	0.0030	<0.0010	0.0050
Antimony (Sb)-Dissolved (mg/L)	0.0315	0.0300	0.00793	0.0207	0.00055
Arsenic (As)-Dissolved (mg/L)	0.00153	0.00173	0.00051	0.00042	0.00063
Barium (Ba)-Dissolved (mg/L)	0.154	0.121	0.0603	0.0862	0.129
Beryllium (Be)-Dissolved (mg/L)	0.00014	0.00010	<0.00010	<0.00010	<0.00010
Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved (mg/L)	0.521	0.487	0.123	0.420	0.770
Cadmium (Cd)-Dissolved (mg/L)	<0.0000050	0.0000051	0.000116	0.000155	0.0000848
Calcium (Ca)-Dissolved (mg/L)	125	117	82.4	134	121
Cesium (Cs)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Cobalt (Co)-Dissolved (mg/L)	0.00320	0.00149	0.00072	0.00530	0.00406
Copper (Cu)-Dissolved (mg/L)	0.00020	<0.00020	0.00212	0.00071	0.00199
Iron (Fe)-Dissolved (mg/L)	0.282	0.458	<0.010	<0.010	0.059
Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	0.000587	0.000294	<0.000050
Lithium (Li)-Dissolved (mg/L)	0.0414	0.0306	0.0021	0.0026	0.0016
Magnesium (Mg)-Dissolved (mg/L)	11.9	11.8	5.85	25.9	19.4
Manganese (Mn)-Dissolved (mg/L)	1.49	1.44	0.222	1.31	1.22
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	0.0000052	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	0.000671	0.000265	0.00130	0.00393	0.00202
Nickel (Ni)-Dissolved (mg/L)	0.00572	0.00216	0.00504	0.00355	0.0132
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	7.24	6.65	2.85	6.70	14.9
Rubidium (Rb)-Dissolved (mg/L)	0.00730	0.00622	0.00134	0.00047	0.00569
Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	0.00124	0.000112	0.000394
Silicon (Si)-Dissolved (mg/L)	12.5	11.9	7.37	11.8	6.64
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000020 DLM	<0.000020 DLAI	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	60.8	58.1	14.4	136	52.0
Strontium (Sr)-Dissolved (mg/L)	0.692	0.636	0.328	1.15	0.776
Sulfur (S)-Dissolved (mg/L)	3.66	2.72	7.86	152	1.65
Tellurium (Te)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	0.000027	<0.000010	0.000087
Thorium (Th)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	0.00011	0.00045	0.00021

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2100919-6	L2100919-7			
	Description	WATER	WATER			
	Sampled Date	25-MAY-18	25-MAY-18			
	Sampled Time		12:00			
	Client ID	BH104M	BH134M			
Grouping	**Analyte**					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)		368			
Dissolved Metals	Dissolved Mercury Filtration Location		FIELD			
	Dissolved Metals Filtration Location		LAB			
	Aluminum (Al)-Dissolved (mg/L)		<0.0010			
	Antimony (Sb)-Dissolved (mg/L)		<0.00010			
	Arsenic (As)-Dissolved (mg/L)		0.00123			
	Barium (Ba)-Dissolved (mg/L)		0.0268			
	Beryllium (Be)-Dissolved (mg/L)		<0.00010			
	Bismuth (Bi)-Dissolved (mg/L)		<0.000050			
	Boron (B)-Dissolved (mg/L)		0.117			
	Cadmium (Cd)-Dissolved (mg/L)		0.0000370			
	Calcium (Ca)-Dissolved (mg/L)		120			
	Cesium (Cs)-Dissolved (mg/L)		<0.000010			
	Chromium (Cr)-Dissolved (mg/L)		<0.00010			
	Cobalt (Co)-Dissolved (mg/L)		0.00168			
	Copper (Cu)-Dissolved (mg/L)		0.00087			
	Iron (Fe)-Dissolved (mg/L)		<0.010			
	Lead (Pb)-Dissolved (mg/L)		<0.000050			
	Lithium (Li)-Dissolved (mg/L)		<0.0010			
	Magnesium (Mg)-Dissolved (mg/L)		16.8			
	Manganese (Mn)-Dissolved (mg/L)		4.25			
	Mercury (Hg)-Dissolved (mg/L)		<0.0000050			
	Molybdenum (Mo)-Dissolved (mg/L)		0.00107			
	Nickel (Ni)-Dissolved (mg/L)		<0.00050			
	Phosphorus (P)-Dissolved (mg/L)		<0.050			
	Potassium (K)-Dissolved (mg/L)		3.74			
	Rubidium (Rb)-Dissolved (mg/L)		0.00143			
	Selenium (Se)-Dissolved (mg/L)		0.000057			
	Silicon (Si)-Dissolved (mg/L)		5.46			
	Silver (Ag)-Dissolved (mg/L)		<0.000010			
	Sodium (Na)-Dissolved (mg/L)		17.1			
	Strontium (Sr)-Dissolved (mg/L)		0.898			
	Sulfur (S)-Dissolved (mg/L)		34.0			
	Tellurium (Te)-Dissolved (mg/L)		<0.00020			
	Thallium (Tl)-Dissolved (mg/L)		<0.000010			
	Thorium (Th)-Dissolved (mg/L)		<0.00010			
	Tin (Sn)-Dissolved (mg/L)		0.00013			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2100919-1 WATER 25-MAY-18 12:00 BH101M-S	L2100919-2 WATER 25-MAY-18 12:00 BH101M-D	L2100919-3 WATER 25-MAY-18 12:00 BH102M-S	L2100919-4 WATER 25-MAY-18 12:00 BH102M-D	L2100919-5 WATER 25-MAY-18 BH103M
WATER						
Dissolved Metals	Titanium (Ti)-Dissolved (mg/L)	<0.00030	0.00034	<0.00030	<0.00030	<0.00030
	Tungsten (W)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Uranium (U)-Dissolved (mg/L)	0.000434	0.000330	0.00199	0.00443	0.00355
	Vanadium (V)-Dissolved (mg/L)	0.00068	0.00078	<0.00050	0.00100	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.0015	0.0117	0.0123	0.0023
	Zirconium (Zr)-Dissolved (mg/L)	0.000444	0.000350	0.000105	<0.000060	0.000777
Speciated Metals	Chromium (III)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	
	Chromium (VI)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Volatile Organic Compounds	Benzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bromodichloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Bromoform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Carbon Tetrachloride (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Chlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Dibromochloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chloroform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Chloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	1,2-Dichlorobenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	1,3-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,4-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,2-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	cis-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	trans-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Dichloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	1,2-Dichloropropane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	cis-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	trans-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	1,3-Dichloropropene (cis & trans) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Styrene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	1,1,1,2-Tetrachloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1,2,2-Tetrachloroethane (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Tetrachloroethylene (mg/L)	<0.0010	<0.0010	0.0041	<0.0010	<0.0010
	Toluene (mg/L)	<0.00045	<0.00045	<0.00045	<0.00045	<0.00045

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2100919-6	L2100919-7			
	Description	WATER	WATER			
	Sampled Date	25-MAY-18	25-MAY-18			
	Sampled Time		12:00			
	Client ID	BH104M	BH134M			
Grouping	**Analyte**					
WATER						
Dissolved Metals	Titanium (Ti)-Dissolved (mg/L)		<0.00030			
	Tungsten (W)-Dissolved (mg/L)		<0.00010			
	Uranium (U)-Dissolved (mg/L)		0.000653			
	Vanadium (V)-Dissolved (mg/L)		<0.00050			
	Zinc (Zn)-Dissolved (mg/L)		0.0028			
	Zirconium (Zr)-Dissolved (mg/L)		<0.000060			
Speciated Metals	Chromium (III)-Dissolved (mg/L)					
	Chromium (VI)-Dissolved (mg/L)					
Volatile Organic Compounds	Benzene (mg/L)		<0.00050			
	Bromodichloromethane (mg/L)		<0.0010			
	Bromoform (mg/L)		<0.0010			
	Carbon Tetrachloride (mg/L)		<0.00050			
	Chlorobenzene (mg/L)		<0.0010			
	Dibromochloromethane (mg/L)		<0.0010			
	Chloroethane (mg/L)		<0.0010			
	Chloroform (mg/L)		<0.0010			
	Chloromethane (mg/L)		<0.0050			
	1,2-Dichlorobenzene (mg/L)		<0.00050			
	1,3-Dichlorobenzene (mg/L)		<0.0010			
	1,4-Dichlorobenzene (mg/L)		<0.0010			
	1,1-Dichloroethane (mg/L)		<0.0010			
	1,2-Dichloroethane (mg/L)		<0.0010			
	1,1-Dichloroethylene (mg/L)		<0.0010			
	cis-1,2-Dichloroethylene (mg/L)		<0.0010			
	trans-1,2-Dichloroethylene (mg/L)		<0.0010			
	Dichloromethane (mg/L)		<0.0050			
	1,2-Dichloropropane (mg/L)		<0.0010			
	cis-1,3-Dichloropropylene (mg/L)		<0.00050			
	trans-1,3-Dichloropropylene (mg/L)		<0.00050			
	1,3-Dichloropropene (cis & trans) (mg/L)		<0.0010			
	Ethylbenzene (mg/L)		<0.00050			
	Methyl t-butyl ether (MTBE) (mg/L)		<0.00050			
	Styrene (mg/L)		<0.00050			
	1,1,1,2-Tetrachloroethane (mg/L)		<0.0010			
	1,1,2,2-Tetrachloroethane (mg/L)		<0.00020			
	Tetrachloroethylene (mg/L)		<0.0010			
	Toluene (mg/L)		<0.00045			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2100919-1 WATER 25-MAY-18 12:00 BH101M-S	L2100919-2 WATER 25-MAY-18 12:00 BH101M-D	L2100919-3 WATER 25-MAY-18 12:00 BH102M-S	L2100919-4 WATER 25-MAY-18 12:00 BH102M-D	L2100919-5 WATER 25-MAY-18 BH103M
WATER						
Volatile Organic Compounds	1,1,1-Trichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	1,1,2-Trichloroethane (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Trichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Trichlorofluoromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Vinyl Chloride (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	ortho-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	meta- & para-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Xylenes (mg/L)	<0.00075	<0.00075	<0.00075	<0.00075	<0.00075
	Surrogate: 4-Bromofluorobenzene (SS) (%)	92.0	94.5	93.4	97.9	97.4
	Surrogate: 1,4-Difluorobenzene (SS) (%)	94.4	94.8	93.3	94.2	95.2
Hydrocarbons	EPH10-19 (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
	EPH19-32 (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
	LEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
	HEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	<0.25
	Volatile Hydrocarbons (VH6-10) (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	VPH (C6-C10) (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Surrogate: 2-Bromobenzotrifluoride (%)	100.9	104.0	99.9	105.1	101.5
	Surrogate: 3,4-Dichlorotoluene (SS) (%)	55.9 SURR-ND	87.0	60.3 SURR-ND	108.0	104.3
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010	0.000018	<0.000010
	Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Acridine (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015	<0.000015	<0.000015
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Chrysene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Fluorene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	1-Methylnaphthalene (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	2-Methylnaphthalene (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2100919-6	L2100919-7			
	Description	WATER	WATER			
	Sampled Date	25-MAY-18	25-MAY-18			
	Sampled Time		12:00			
	Client ID	BH104M	BH134M			
Grouping	**Analyte**					
WATER						
Volatile Organic Compounds	1,1,1-Trichloroethane (mg/L)		<0.0010			
	1,1,2-Trichloroethane (mg/L)		<0.00050			
	Trichloroethylene (mg/L)		<0.0010			
	Trichlorofluoromethane (mg/L)		<0.0010			
	Vinyl Chloride (mg/L)		<0.00040			
	ortho-Xylene (mg/L)		<0.00050			
	meta- & para-Xylene (mg/L)		<0.00050			
	Xylenes (mg/L)		<0.00075			
	Surrogate: 4-Bromofluorobenzene (SS) (%)		94.7			
	Surrogate: 1,4-Difluorobenzene (SS) (%)		95.1			
Hydrocarbons	EPH10-19 (mg/L)	<0.25	<0.25			
	EPH19-32 (mg/L)	<0.25	<0.25			
	LEPH (mg/L)	<0.25	<0.25			
	HEPH (mg/L)	<0.25	<0.25			
	Volatile Hydrocarbons (VH6-10) (mg/L)		<0.10			
	VPH (C6-C10) (mg/L)		<0.10			
	Surrogate: 2-Bromobenzotrifluoride (%)	104.5	93.0			
	Surrogate: 3,4-Dichlorotoluene (SS) (%)		103.6			
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/L)	<0.000010	<0.000010			
	Acenaphthylene (mg/L)	<0.000010	<0.000010			
	Acridine (mg/L)	<0.000010	<0.000010			
	Anthracene (mg/L)	<0.000010	<0.000010			
	Benz(a)anthracene (mg/L)	<0.000010	<0.000010			
	Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050			
	Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010			
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015			
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010			
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010			
	Chrysene (mg/L)	<0.000010	<0.000010			
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050			
	Fluoranthene (mg/L)	<0.000010	<0.000010			
	Fluorene (mg/L)	<0.000010	<0.000010			
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010			
	1-Methylnaphthalene (mg/L)	<0.000050	<0.000050			
	2-Methylnaphthalene (mg/L)	<0.000050	<0.000050			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2100919-1	L2100919-2	L2100919-3	L2100919-4	L2100919-5
	Description	WATER	WATER	WATER	WATER	WATER
	Sampled Date	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18
	Sampled Time	12:00	12:00	12:00	12:00	
	Client ID	BH101M-S	BH101M-D	BH102M-S	BH102M-D	BH103M
Grouping	**Analyte**					
WATER						
Polycyclic Aromatic Hydrocarbons	Naphthalene (mg/L)	<0.000050	<0.000050	<0.000050	0.000066	<0.000050
	Phenanthrene (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Quinoline (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Surrogate: Acridine d9 (%)	82.0	78.3	80.6	68.9	66.7
	Surrogate: Chrysene d12 (%)	70.0	61.1	71.9	72.0	60.8
	Surrogate: Naphthalene d8 (%)	93.8	88.7	94.8	92.6	78.6
	Surrogate: Phenanthrene d10 (%)	95.8	84.7	94.2	92.1	79.3
Phenolics	4-Chloro-3-methylphenol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	2-Chlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	3-Chlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	4-Chlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	2,3-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	2,4 & 2,5-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	2,6-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	3,4-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	3,5-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	2,4-Dimethylphenol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	o-Cresol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	m-Cresol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	p-Cresol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Pentachlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Phenol (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	2,3,4,5-Tetrachlorophenol (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	2,3,4,6-Tetrachlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	2,3,5,6-Tetrachlorophenol (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	2,3,4-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	2,3,5-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	2,3,6-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	2,4,5-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	2,4,6-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	3,4,5-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Surrogate: 2-Chlorophenol-d4 (%)	94.3	102.9	99.7	95.7	98.3
	Surrogate: 2,4-Dichlorophenol-d3 (%)	101.3	106.2	101.4	100.4	106.4
	Surrogate: 2,4,6-Tribromophenol (%)	104.4	105.3	104.1	105.9	112.3
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2100919-6	L2100919-7			
	Description	WATER	WATER			
	Sampled Date	25-MAY-18	25-MAY-18			
	Sampled Time		12:00			
	Client ID	BH104M	BH134M			
Grouping	**Analyte**					
WATER						
Polycyclic Aromatic Hydrocarbons	Naphthalene (mg/L)	<0.000050	<0.000050			
	Phenanthrene (mg/L)	<0.000020	<0.000020			
	Pyrene (mg/L)	<0.000010	<0.000010			
	Quinoline (mg/L)	<0.000050	<0.000050			
	Surrogate: Acridine d9 (%)	70.8	67.2			
	Surrogate: Chrysene d12 (%)	65.1	87.2			
	Surrogate: Naphthalene d8 (%)	85.9	103.9			
	Surrogate: Phenanthrene d10 (%)	86.3	104.7			
Phenolics	4-Chloro-3-methylphenol (mg/L)					
	2-Chlorophenol (mg/L)					
	3-Chlorophenol (mg/L)					
	4-Chlorophenol (mg/L)					
	2,3-Dichlorophenol (mg/L)					
	2,4 & 2,5-Dichlorophenol (mg/L)					
	2,6-Dichlorophenol (mg/L)					
	3,4-Dichlorophenol (mg/L)					
	3,5-Dichlorophenol (mg/L)					
	2,4-Dimethylphenol (mg/L)					
	o-Cresol (mg/L)					
	m-Cresol (mg/L)					
	p-Cresol (mg/L)					
	Pentachlorophenol (mg/L)					
	Phenol (mg/L)					
	2,3,4,5-Tetrachlorophenol (mg/L)					
	2,3,4,6-Tetrachlorophenol (mg/L)					
	2,3,5,6-Tetrachlorophenol (mg/L)					
	2,3,4-Trichlorophenol (mg/L)					
	2,3,5-Trichlorophenol (mg/L)					
	2,3,6-Trichlorophenol (mg/L)					
	2,4,5-Trichlorophenol (mg/L)					
	2,4,6-Trichlorophenol (mg/L)					
	3,4,5-Trichlorophenol (mg/L)					
	Surrogate: 2-Chlorophenol-d4 (%)					
	Surrogate: 2,4-Dichlorophenol-d3 (%)					
	Surrogate: 2,4,6-Tribromophenol (%)					
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/L)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2100919-1	L2100919-2	L2100919-3	L2100919-4	L2100919-5
	Description	WATER	WATER	WATER	WATER	WATER
	Sampled Date	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18
	Sampled Time	12:00	12:00	12:00	12:00	
	Client ID	BH101M-S	BH101M-D	BH102M-S	BH102M-D	BH103M
Grouping	**Analyte**					
WATER						
Non-Chlorinated Phenolics	2,6-Dimethylphenol (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	3,4-Dimethylphenol (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	2-Phenylphenol (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2100919-6	L2100919-7			
	Description	WATER	WATER			
	Sampled Date	25-MAY-18	25-MAY-18			
	Sampled Time		12:00			
	Client ID	BH104M	BH134M			
Grouping	**Analyte**					
WATER						
Non-Chlorinated Phenolics	2,6-Dimethylphenol (mg/L)					
	3,4-Dimethylphenol (mg/L)					
	2-Phenylphenol (mg/L)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Thallium (Tl)-Dissolved	MB-LOR	L2100919-1
Method Blank	Uranium (U)-Dissolved	MB-LOR	L2100919-1
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Antimony (Sb)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Boron (B)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Potassium (K)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Silicon (Si)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2100919-1, -2, -3, -4, -5, -7

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLAI	Detection limit raised due to low level analytical interference or background.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CR-CR3-DIS-WT	Water	Dissolved Trivalent Chromium Calculation	EPA SW-846 3005A/7196A

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7196A, published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis for chromium (VI) by colourimetry using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Dissolved Chromium (III) is calculated as the difference between Dissolved Chromium and Dissolved Hexavalent Chromium (Cr(VI)) results. The Limit of Reporting for Chromium (III) varies as a function of the test results.

CR-CR6-DIS-WT	Water	Dissolved Hexavalent Chromium in Water	EPA 7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

EPH-ME-FID-VA	Water	EPH in Water	BC Lab Manual

EPH is extracted from water using a hexane micro-extraction technique, with analysis by GC-FID, as per the BC Lab Manual. EPH results include PAHs and are therefore not equivalent to LEPH or HEPH.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

LEPH/HEPH-CALC-VA	Water	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHw and HEPHw are measures of Light and Heavy Extractable Petroleum Hydrocarbons in water. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHw = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPH = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Reference Information

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

PAH-ME-MS-VA Water PAHs in Water EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PHEN-M-SF-MS-VA Water Misc. Phenolics in Water BC Env. Lab Manual (Phenols in water)

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Chlorinated and Non-Chlorinated Phenols in Water by GC/MS - PBM" (Oct 2013). An entire water sample is acidified and extracted using dichloromethane. The extract is solvent exchanged and derivatized with acetic anhydride and trimethylamine (TMA). The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). The precision and accuracy Data Quality Objectives for the parameter 2,4-dimethylphenol have broader acceptance criteria than for most other phenolic compounds, reflecting difficulties commonly encountered during extraction and analysis.

PHEN-SF-MS-VA Water Phenolics in Water by GCMS BC Env. Lab Manual (Phenols in water)

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Chlorinated and Non-Chlorinated Phenols in Water by GC/MS - PBM" (Oct 2013). An entire water sample is acidified and extracted using dichloromethane. The extract is solvent exchanged and derivatized with acetic anhydride and trimethylamine (TMA). The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). The precision and accuracy Data Quality Objectives for the parameter 2,4-dimethylphenol have broader acceptance criteria than for most other phenolic compounds, reflecting difficulties commonly encountered during extraction and analysis.

VH-HSFID-VA Water VH in Water by Headspace GCFID BC Env. Lab Manual (VH in Water)

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Compounds eluting between n-hexane and n-decane are measured and summed together using flame-ionization detection.

VH-SURR-FID-VA Water VH Surrogates for Waters BC Env. Lab Manual (VH in Solids)

VOC-HSMS-VA Water VOCs in water by Headspace GCMS EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7-HSMS-VA Water BTEX/MTBE/Styrene by Headspace GCMS EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA Water VOC7 and/or VOC Surrogates for Waters EPA 5035A/5021A/8260C

VPH-CALC-VA Water VPH is VH minus select aromatics BC MOE VPH

VPHw measures Volatile Petroleum Hydrocarbons in water. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure.
VPHw = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene

XYLENES-CALC-VA Water Sum of Xylene Isomer Concentrations CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-692294

Reference Information

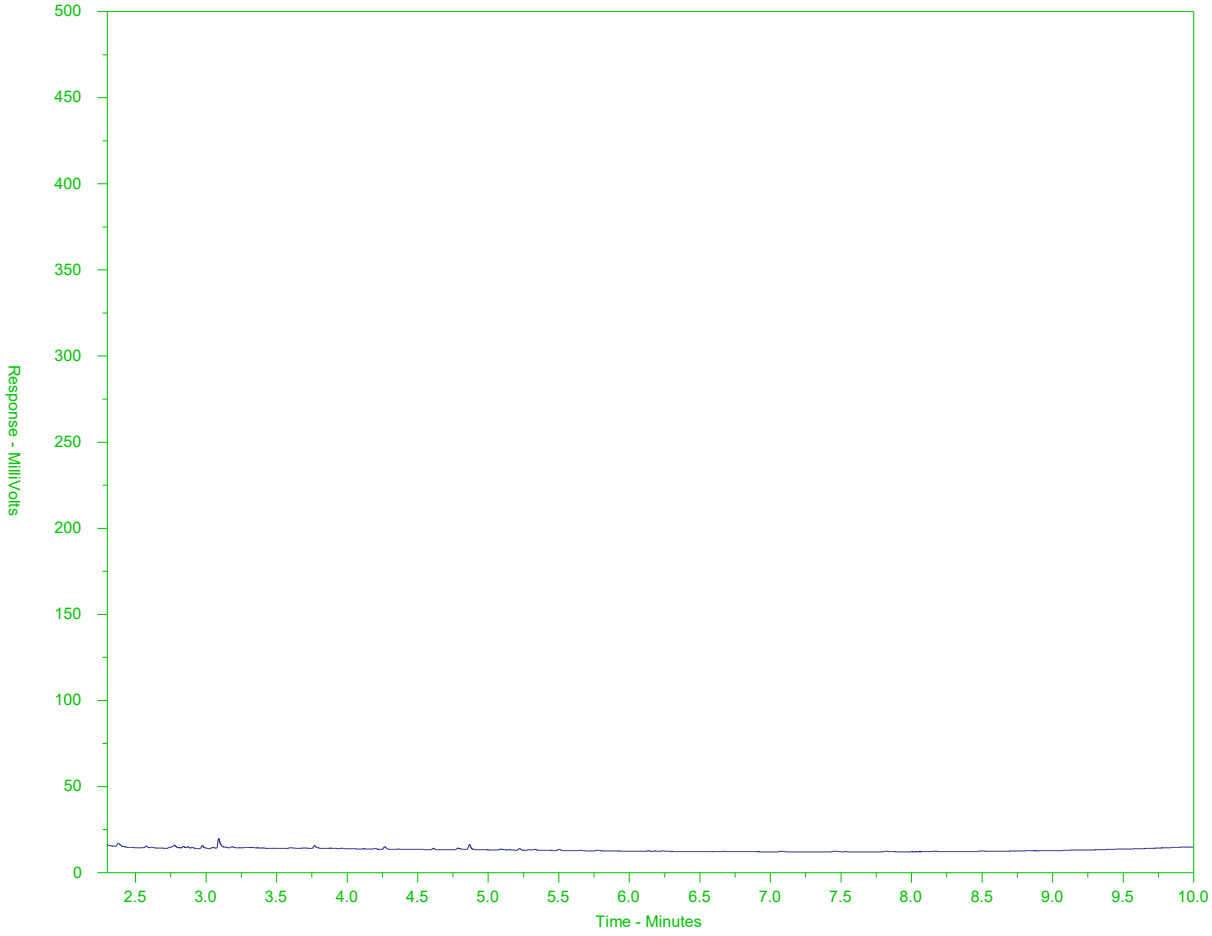
GLOSSARY OF REPORT TERMS

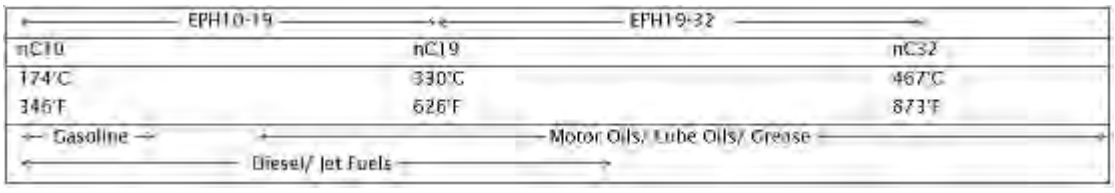
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2100919-1
Client Sample ID: BH101M-S





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

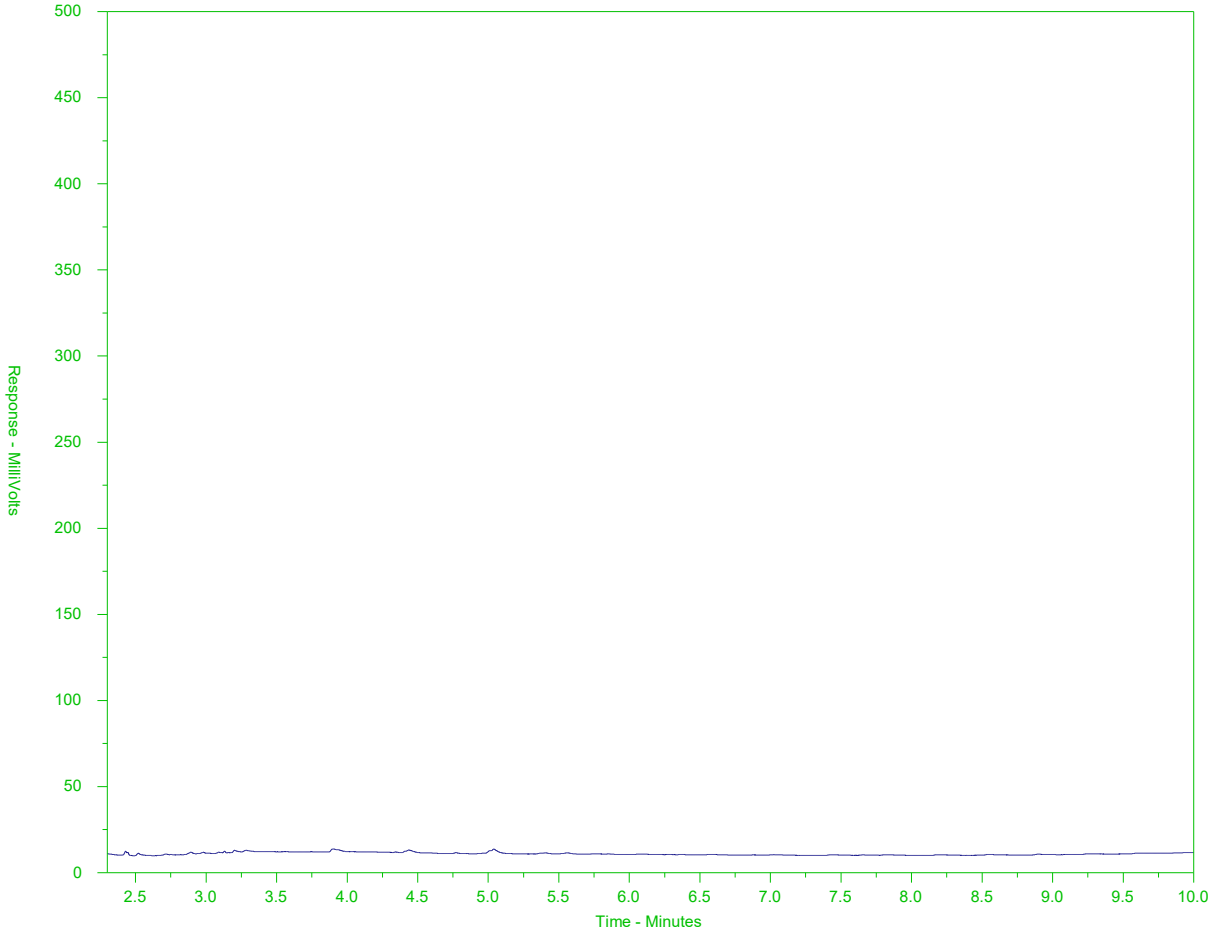
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2100919-2
Client Sample ID: BH101M-D



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

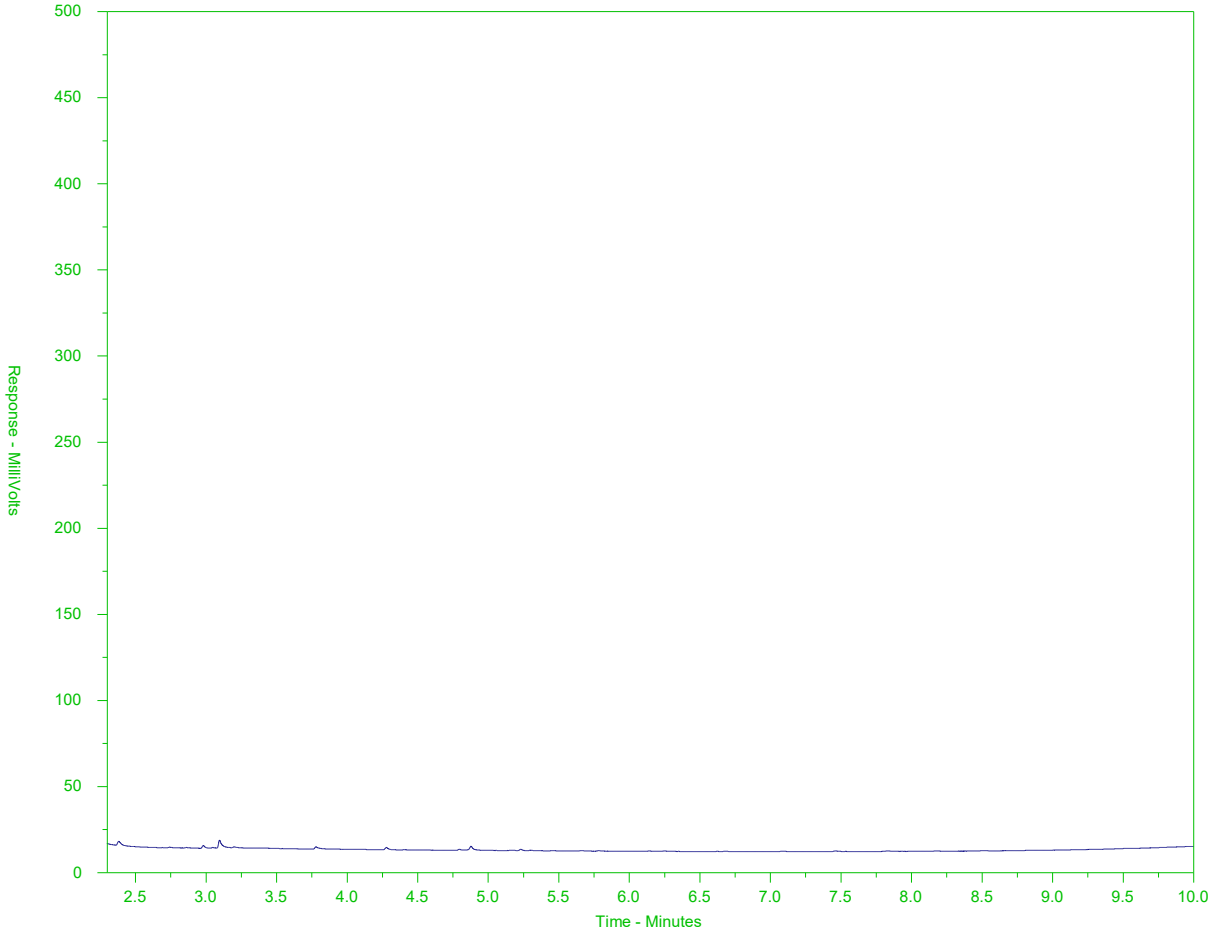
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2100919-3
Client Sample ID: BH102M-S



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

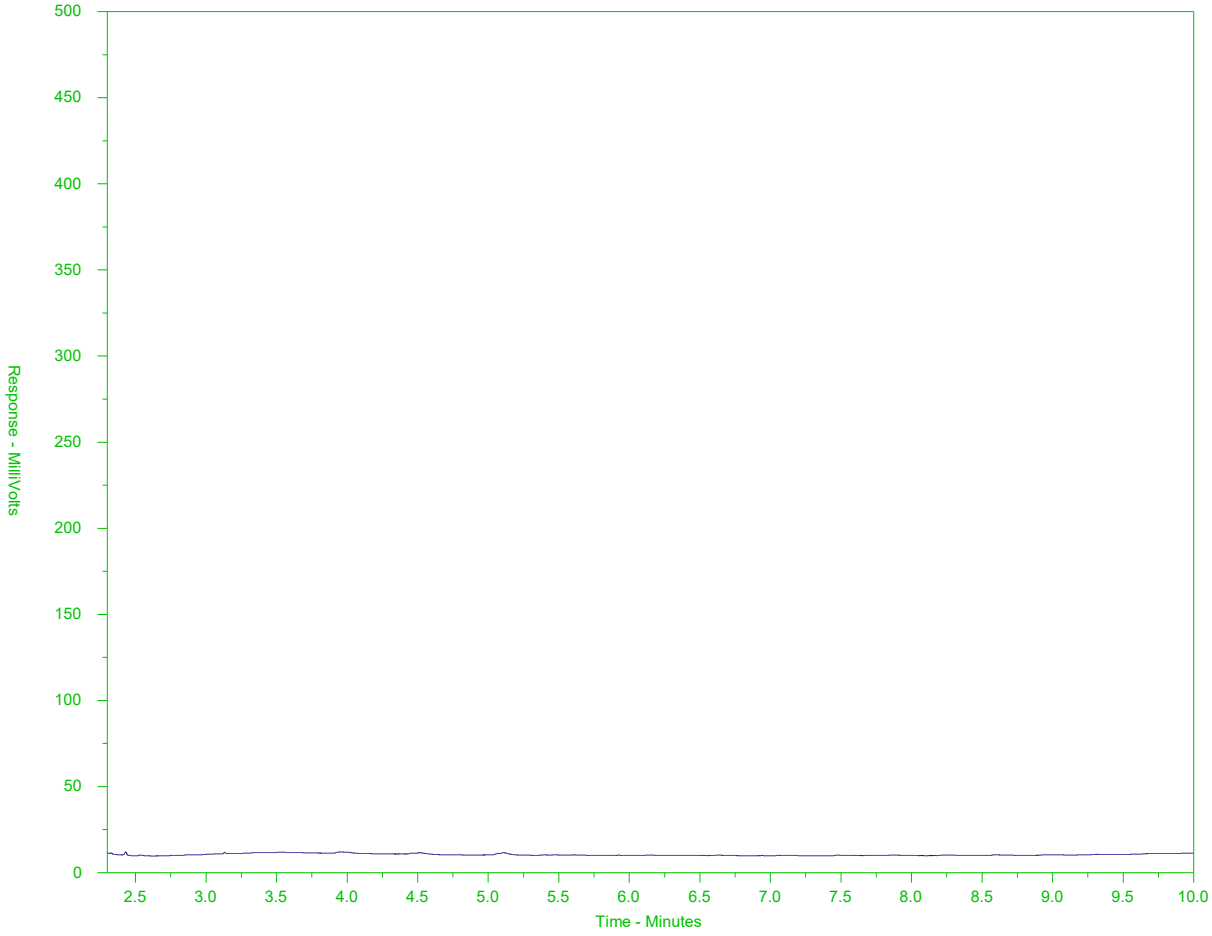
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2100919-4
Client Sample ID: BH102M-D



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

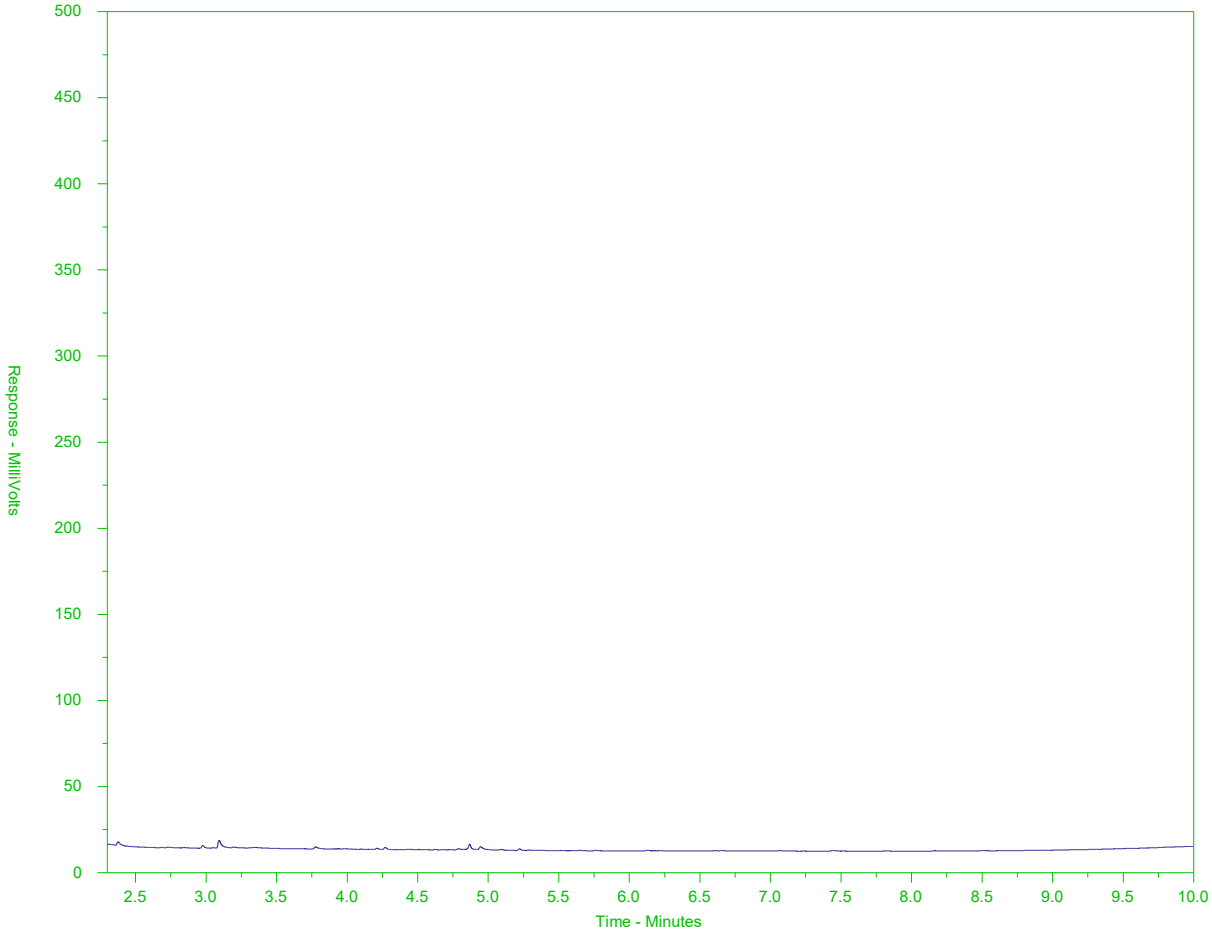
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

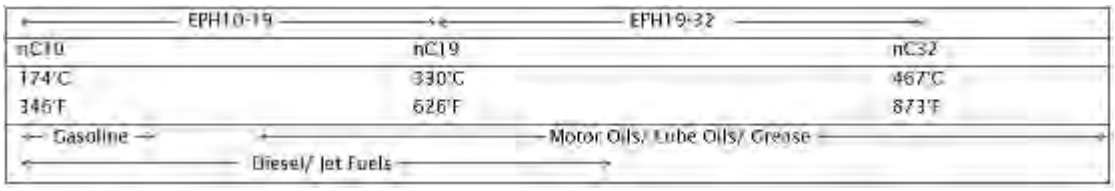
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2100919-5
Client Sample ID: BH103M





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

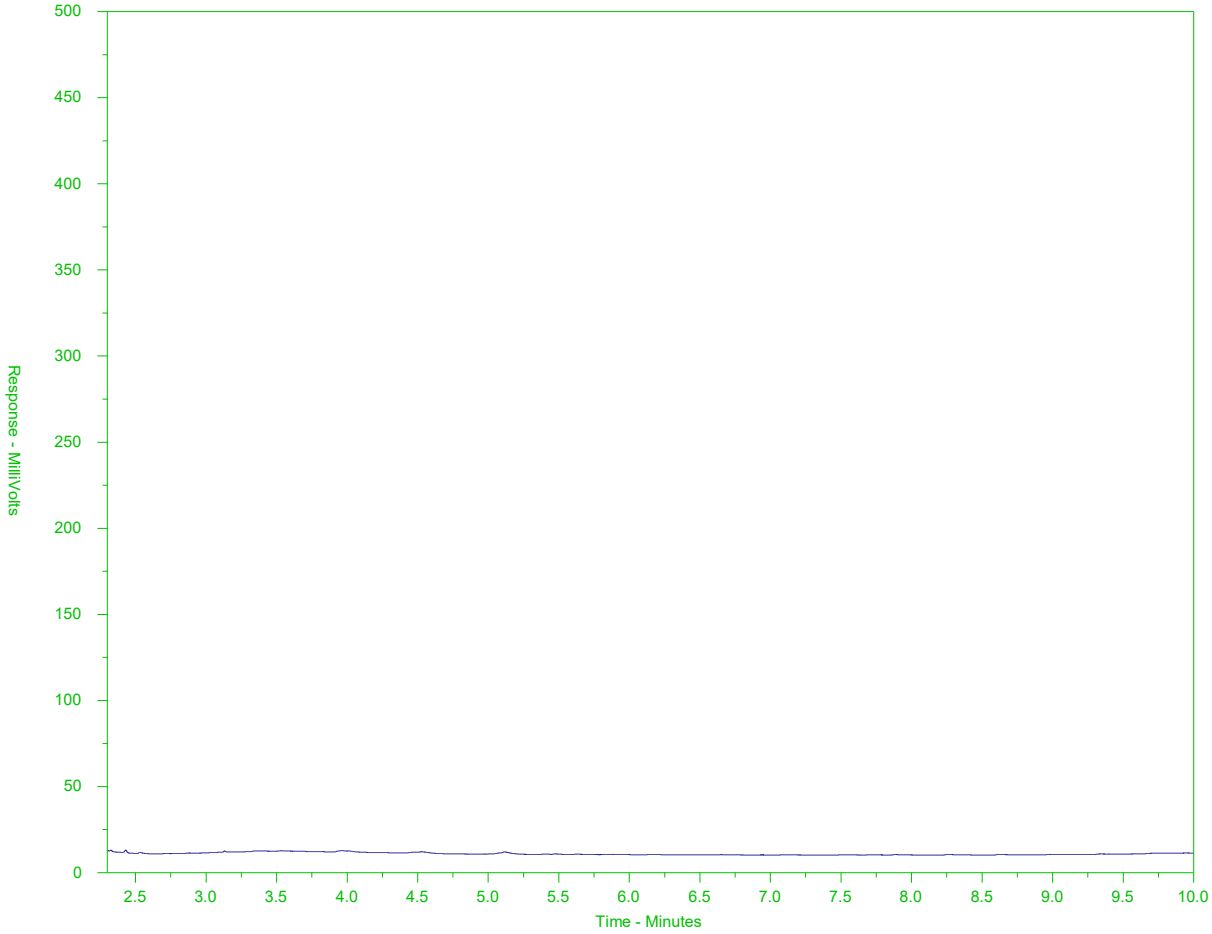
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2100919-6
Client Sample ID: BH104M



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

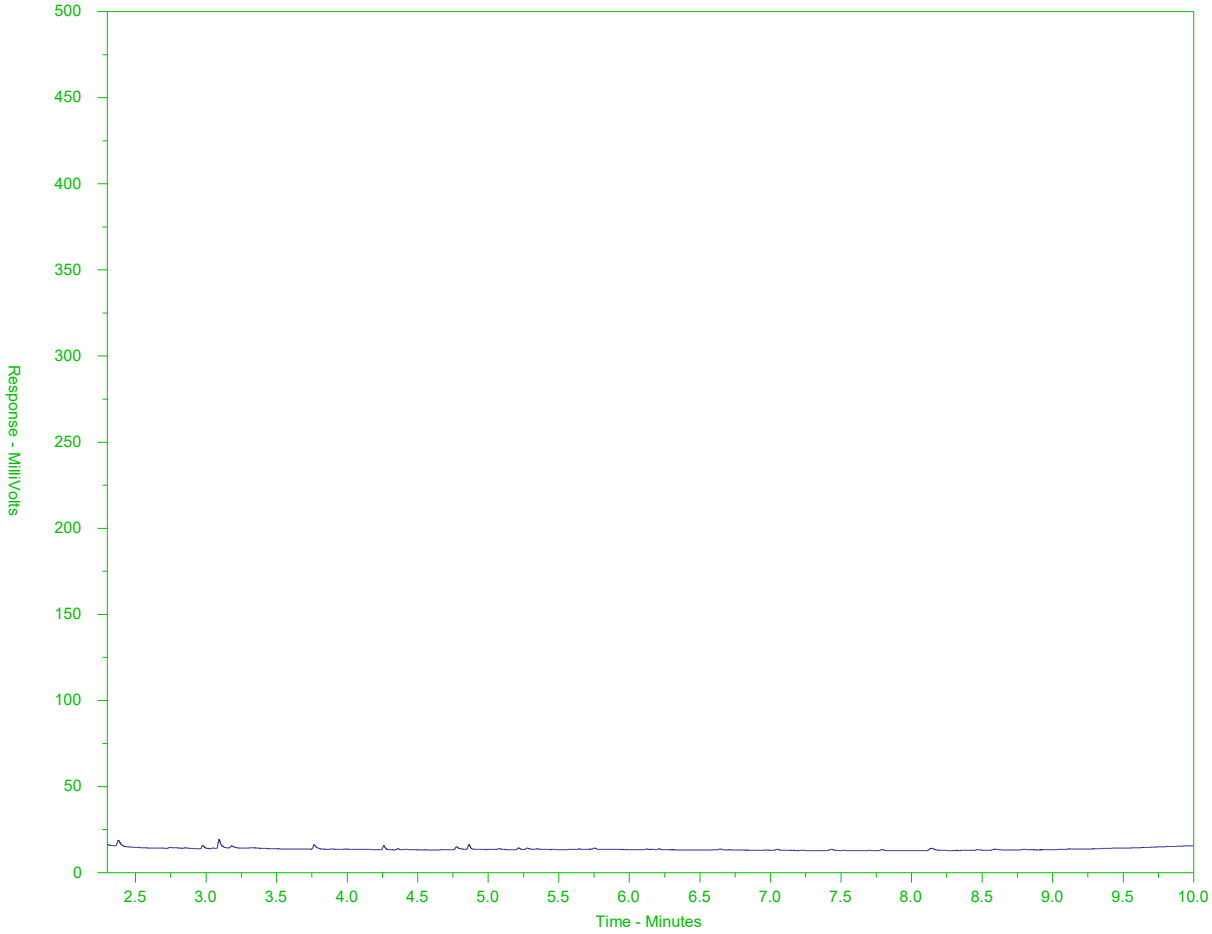
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

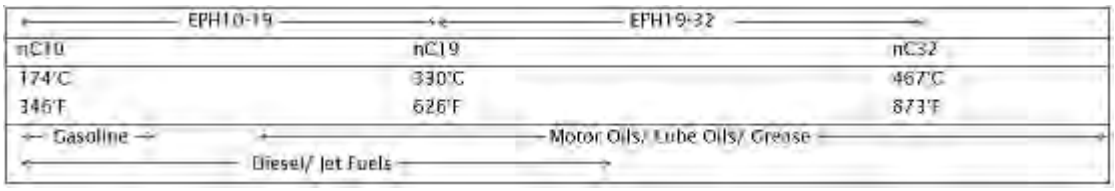
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2100919-7
Client Sample ID: BH134M





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2100919-COFC

COC Number: 17 - 692294

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Turnaround Time (TAT) Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL ENVIRONMENTAL LTD	Select Report Format: [Y] PDF [Y] EXCEL [Y] EDD (DIGITAL)	Regular [R] [Y] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	ZAYED MOHAMED	Quality Control (QC) Report with Report [ ] YES [ ] NO	PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:		[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	1500 - 1185 W GEORGIA ST.	Email 1 or Fax: ZMOHAMED@PGLGROUP.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	VANCOUVER	Email 2: ARIVERS@PGLGROUP.com	
Postal Code:		Email 3: SSINGH@PGLGROUP.com	
Invoice To	Same as Report To [X] YES [ ] NO	**Invoice Distribution**	**Analysis Request**
	Copy of Invoice with Report [ ] YES [ ] NO	Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	~~1500-01-1185~~ 5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler: Simratpal Singh

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	LEPH/HEPH	VOC/VPH	Dissolved metals +Hg	F	Speciated CR	F/P	PHEN-CL-FULL-VA	PHEN-NONCL-VA	PHEN-SF-MS-VA	PHEN-M-SF-MS-VA	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH101M-S	25-May-18	pm	WATER	X	X	X		X		X	X	X	X			
	BH101M-D		pm		X	X	X		X		X	X	X	X			
	BH102M-S		pm		X	X	X		X		X	X	X	X			
	BH102M-D		pm		X	X	X		X		X	X	X	X			
	BH103M		am		X	X	X				X	X	X	X			
	BH104M		am		X	X	X				X	X	X	X			
	BH134M.		pm		X	X	X										

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [X] NO	Regular TAT
Are samples for human consumption/ use? [ ] YES [X] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]
Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			18				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Simratpal Singh	Date: May 25, 2018	Time: 6:31 pm	Received by:	Date:	Time:	Received by: HA	Date: 5/25	Time: 6:34p

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 26-MAY-18
Report Date: 11-JUN-18 10:40 (MT)
Version: FINAL REV. 2

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2101052

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-672172
Legal Site Desc:

Comments:

11-JUN-2018 This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101052-1	L2101052-2	L2101052-3	L2101052-4	L2101052-5
Description	GW	GW	GW	GW	GW
Sampled Date	24-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18
Sampled Time					
Client ID	BH100M-S	BH100M-D	Z02	BH104M	BH105M-D
Grouping / **Analyte**					
WATER					
Physical Tests Hardness (as CaCO3) (mg/L)	238	509	498	270	314
Dissolved Metals Dissolved Mercury Filtration Location	LAB	LAB	LAB	LAB	LAB
Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	LAB
Aluminum (Al)-Dissolved (mg/L)	0.0114	0.0041	0.0036	0.0014	<0.0010
Antimony (Sb)-Dissolved (mg/L)	0.00182	0.00082	0.00086	0.00028	<0.00010
Arsenic (As)-Dissolved (mg/L)	0.00140	0.00230	0.00206	0.00141	0.00202
Barium (Ba)-Dissolved (mg/L)	0.0755	0.105	0.0943	0.108	0.541
Boron (B)-Dissolved (mg/L)	0.587	0.570	0.570	0.249	0.489
Cadmium (Cd)-Dissolved (mg/L)	<0.000040 DLM	<0.000010 DLA	<0.000010 DLA	0.0000100	<0.0000050
Calcium (Ca)-Dissolved (mg/L)	76.7	131	133	91.5	75.6
Chromium (Cr)-Dissolved (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.00020 DLA	<0.00010	0.00017
Cobalt (Co)-Dissolved (mg/L)	0.00278	0.00213	0.00199	0.00250	0.00129
Copper (Cu)-Dissolved (mg/L)	0.00210	<0.00040 DLA	<0.00040 DLA	<0.00020	<0.00020
Iron (Fe)-Dissolved (mg/L)	0.079	<0.020 DLA	<0.020 DLA	0.026	11.2
Lead (Pb)-Dissolved (mg/L)	0.00047	<0.00010 DLA	<0.00010 DLA	<0.000050	<0.000050
Magnesium (Mg)-Dissolved (mg/L)	11.4	43.8	40.5	10.2	30.5
Manganese (Mn)-Dissolved (mg/L)	1.20	3.96	3.67	1.39	1.75
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	0.0509	0.00421	0.00415	0.00183	0.000456
Nickel (Ni)-Dissolved (mg/L)	0.0026	<0.0010 DLA	<0.0010 DLA	0.00210	<0.00050
Selenium (Se)-Dissolved (mg/L)	0.00020	<0.00010 DLA	<0.00010 DLA	<0.000050	<0.000050
Silver (Ag)-Dissolved (mg/L)	<0.000020 DLA	<0.000020 DLA	<0.000020 DLA	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	202	88.1	81.9	13.2	110
Strontium (Sr)-Dissolved (mg/L)	0.726	1.24	1.25	0.645	0.953
Thallium (Tl)-Dissolved (mg/L)	<0.000020 DLA	<0.000020 DLA	<0.000020 DLA	<0.000010	<0.000010
Tin (Sn)-Dissolved (mg/L)	<0.00020 DLA	0.00029	0.00027	<0.00010	<0.00010
Titanium (Ti)-Dissolved (mg/L)	<0.00060 DLA	<0.00060 DLA	<0.00060 DLA	<0.00030	<0.00030
Tungsten (W)-Dissolved (mg/L)	<0.00020 DLA	<0.00020 DLA	<0.00020 DLA	<0.00010	<0.00010
Uranium (U)-Dissolved (mg/L)	0.0185	0.00335	0.00346	0.00132	0.000092
Zinc (Zn)-Dissolved (mg/L)	0.0044	0.0082	0.0071	0.0145	0.0037
Speciated Metals Chromium (III)-Dissolved (mg/L)	<0.010	<0.010	<0.010		
Chromium (VI)-Dissolved (mg/L)	<0.0010	<0.0010	<0.0010		
Volatile Organic Compounds Benzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Bromodichloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Bromoform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Carbon Tetrachloride (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Chlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101052-6	L2101052-7	L2101052-8	L2101052-9	
Description	GW	GW	GW	GW	
Sampled Date	24-MAY-18	24-MAY-18	24-MAY-18	24-MAY-18	
Sampled Time					
Client ID	BH110M	BH115M	BH119M	BH125M	
Grouping / **Analyte**					
WATER					
Physical Tests Hardness (as CaCO3) (mg/L)	161	88.1	785	450	
Dissolved Metals Dissolved Mercury Filtration Location	LAB	LAB	LAB	LAB	
Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	
Aluminum (Al)-Dissolved (mg/L)	0.0016	0.0015	0.0035	0.0018	
Antimony (Sb)-Dissolved (mg/L)	0.00038	<0.00010	<0.00010	0.00028	
Arsenic (As)-Dissolved (mg/L)	0.00048	<0.00010	0.00219	0.00154	
Barium (Ba)-Dissolved (mg/L)	0.0174	0.00561	0.453	0.110	
Boron (B)-Dissolved (mg/L)	0.036	0.022	1.05	0.114	
Cadmium (Cd)-Dissolved (mg/L)	0.000645	0.0000261	<0.0000050	<0.0000050	
Calcium (Ca)-Dissolved (mg/L)	52.5	27.6	253	141	
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	0.00017	0.00022	
Cobalt (Co)-Dissolved (mg/L)	0.00150	0.00021	0.00140	0.00437	
Copper (Cu)-Dissolved (mg/L)	0.00371	0.00205	<0.00020	0.00026	
Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	0.035	0.030	
Lead (Pb)-Dissolved (mg/L)	<0.000050	0.000099	<0.000050	<0.000050	
Magnesium (Mg)-Dissolved (mg/L)	7.32	4.66	37.4	23.5	
Manganese (Mn)-Dissolved (mg/L)	0.750	0.278	2.90	2.41	
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Molybdenum (Mo)-Dissolved (mg/L)	0.00232	0.000261	0.00268	0.00151	
Nickel (Ni)-Dissolved (mg/L)	0.00099	<0.00050	0.00136	0.00582	
Selenium (Se)-Dissolved (mg/L)	0.000093	<0.000050	0.000147	0.000122	
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium (Na)-Dissolved (mg/L)	7.59	4.62	98.4	40.6	
Strontium (Sr)-Dissolved (mg/L)	0.368	0.260	1.86	0.900	
Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
Tin (Sn)-Dissolved (mg/L)	0.00022	0.00032	<0.00010	<0.00010	
Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	
Tungsten (W)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
Uranium (U)-Dissolved (mg/L)	0.000143	<0.000010	0.00267	0.00260	
Zinc (Zn)-Dissolved (mg/L)	0.0136	0.0037	0.0014	0.0057	
Speciated Metals Chromium (III)-Dissolved (mg/L)					
Chromium (VI)-Dissolved (mg/L)					
Volatile Organic Compounds Benzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Bromodichloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Bromoform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Carbon Tetrachloride (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Chlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101052-1	L2101052-2	L2101052-3	L2101052-4	L2101052-5
Description	GW	GW	GW	GW	GW
Sampled Date	24-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18
Sampled Time					
Client ID	BH100M-S	BH100M-D	Z02	BH104M	BH105M-D
Grouping / **Analyte**					
WATER					
Volatile Organic Compounds / Dibromochloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Chloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Chloroform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Chloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
1,2-Dichlorobenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
1,3-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,4-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,1-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,2-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,1-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
cis-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
trans-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Dichloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
1,2-Dichloropropane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
cis-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
trans-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
1,3-Dichloropropene (cis & trans) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Styrene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
1,1,1,2-Tetrachloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,1,2,2-Tetrachloroethane (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
Tetrachloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Toluene (mg/L)	0.00082	<0.00045	<0.00045	<0.00045	
1,1,1-Trichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,1,2-Trichloroethane (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Trichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Trichlorofluoromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Vinyl Chloride (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	
ortho-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
meta- & para-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Xylenes (mg/L)	<0.00075	<0.00075	<0.00075	<0.00075	
Surrogate: 4-Bromofluorobenzene (SS) (%)	89.9	90.3	100.2	96.2	
Surrogate: 1,4-Difluorobenzene (SS) (%)	95.0	95.3	98.0	97.2	
Hydrocarbons / EPH10-19 (mg/L)	<0.25	<0.25	<0.25		<0.25
EPH19-32 (mg/L)	<0.25	<0.25	<0.25		<0.25
LEPH (mg/L)	<0.25	<0.25	<0.25		<0.25

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101052-6	L2101052-7	L2101052-8	L2101052-9	
Description	GW	GW	GW	GW	
Sampled Date	24-MAY-18	24-MAY-18	24-MAY-18	24-MAY-18	
Sampled Time					
Client ID	BH110M	BH115M	BH119M	BH125M	
Grouping / **Analyte**					
WATER					
Volatile Organic Compounds / Dibromochloromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Chloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Chloroform (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Chloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
1,2-Dichlorobenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
1,3-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,4-Dichlorobenzene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,1-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,2-Dichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,1-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
cis-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
trans-1,2-Dichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Dichloromethane (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
1,2-Dichloropropane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
cis-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
trans-1,3-Dichloropropylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
1,3-Dichloropropene (cis & trans) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Ethylbenzene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Methyl t-butyl ether (MTBE) (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Styrene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
1,1,1,2-Tetrachloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,1,2,2-Tetrachloroethane (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
Tetrachloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Toluene (mg/L)	<0.00045	<0.00045	0.00048	<0.00045	
1,1,1-Trichloroethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
1,1,2-Trichloroethane (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Trichloroethylene (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Trichlorofluoromethane (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Vinyl Chloride (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	
ortho-Xylene (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
meta- & para-Xylene (mg/L)	<0.00050	<0.00050	0.00052	<0.00050	
Xylenes (mg/L)	<0.00075	<0.00075	<0.00075	<0.00075	
Surrogate: 4-Bromofluorobenzene (SS) (%)	94.1	103.1	91.8	97.8	
Surrogate: 1,4-Difluorobenzene (SS) (%)	99.2	97.4	91.1	91.4	
Hydrocarbons / EPH10-19 (mg/L)	<0.25	<0.25	<0.25	<0.25	
EPH19-32 (mg/L)	<0.25	<0.25	<0.25	<0.25	
LEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101052-1	L2101052-2	L2101052-3	L2101052-4	L2101052-5
Description	GW	GW	GW	GW	GW
Sampled Date	24-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18
Sampled Time					
Client ID	BH100M-S	BH100M-D	Z02	BH104M	BH105M-D
Grouping / **Analyte**					
WATER					
Hydrocarbons HEPH (mg/L)	<0.25	<0.25	<0.25		<0.25
Volatile Hydrocarbons (VH6-10) (mg/L)	<0.10	<0.10	<0.10	<0.10	
VPH (C6-C10) (mg/L)	<0.10	<0.10	<0.10	<0.10	
Surrogate: 2-Bromobenzotrifluoride (%)	82.3	95.1	97.5		79.8
Surrogate: 3,4-Dichlorotoluene (SS) (%)	56.7 SURR-ND	53.1 SURR-ND	91.1	95.8	
Polycyclic Aromatic Hydrocarbons Acenaphthene (mg/L)	<0.000010	<0.000010	<0.000010		0.000101
Acenaphthylene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Acridine (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Anthracene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Benz(a)anthracene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	<0.0000050		<0.0000050
Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015		<0.000015
Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Chrysene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050		<0.0000050
Fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Fluorene (mg/L)	<0.000010	<0.000010	<0.000010		0.000030
Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
1-Methylnaphthalene (mg/L)	<0.000050	<0.000050	<0.000050		0.000226
2-Methylnaphthalene (mg/L)	<0.000050	<0.000050	<0.000050		0.000080
Naphthalene (mg/L)	0.000062	0.000083	0.000079		<0.00020 DLQ
Phenanthrene (mg/L)	<0.000020	<0.000020	<0.000020		0.000035
Pyrene (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
Quinoline (mg/L)	<0.000050	<0.000050	<0.000050		<0.000050
Surrogate: Acridine d9 (%)	81.0	87.6	77.5		84.8
Surrogate: Chrysene d12 (%)	85.2	82.9	86.9		76.9
Surrogate: Naphthalene d8 (%)	100.3	99.9	105.2		90.9
Surrogate: Phenanthrene d10 (%)	103.9	102.4	101.8		99.7
Phenolics Catechol (mg/L)	<0.0050	<0.10 AOCR	<0.0050	<0.0050	
4-Chloro-3-methylphenol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
2-Chlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
3-Chlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
4-Chlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
2,3-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101052-6	L2101052-7	L2101052-8	L2101052-9	
Description	GW	GW	GW	GW	
Sampled Date	24-MAY-18	24-MAY-18	24-MAY-18	24-MAY-18	
Sampled Time					
Client ID	BH110M	BH115M	BH119M	BH125M	
Grouping / **Analyte**					
WATER					
Hydrocarbons HEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	
Volatile Hydrocarbons (VH6-10) (mg/L)	<0.10	<0.10	<0.10	<0.10	
VPH (C6-C10) (mg/L)	<0.10	<0.10	<0.10	<0.10	
Surrogate: 2-Bromobenzotrifluoride (%)	76.7	92.6	93.4	105.2	
Surrogate: 3,4-Dichlorotoluene (SS) (%)	104.6	109.3	74.3	90.2	
Polycyclic Aromatic Hydrocarbons Acenaphthene (mg/L)	<0.000010	<0.000010	0.00400	0.000014	
Acenaphthylene (mg/L)	<0.000010	<0.000010	0.000077	<0.000010	
Acridine (mg/L)	<0.000010	<0.000010	<0.000030 DLCI	<0.000010	
Anthracene (mg/L)	<0.000010	<0.000010	0.000260	<0.000010	
Benz(a)anthracene (mg/L)	<0.000010	<0.000010	0.000023	<0.000010	
Benzo(a)pyrene (mg/L)	<0.0000050	<0.0000050	0.0000124	<0.0000050	
Benzo(b&j)fluoranthene (mg/L)	<0.000010	<0.000010	0.000013	<0.000010	
Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	<0.000015	<0.000015	
Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
Chrysene (mg/L)	<0.000010	<0.000010	0.000020	<0.000010	
Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	
Fluoranthene (mg/L)	<0.000010	<0.000010	0.000381	<0.000010	
Fluorene (mg/L)	<0.000010	<0.000010	0.00171	0.000021	
Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
1-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.00187	0.000082	
2-Methylnaphthalene (mg/L)	<0.000050	<0.000050	0.000798	0.000060	
Naphthalene (mg/L)	0.000054	0.000057	0.00296	0.000165	
Phenanthrene (mg/L)	<0.000020	<0.000020	0.00161	<0.000020	
Pyrene (mg/L)	<0.000010	<0.000010	0.000280	<0.000010	
Quinoline (mg/L)	<0.000050	<0.000050	<0.000080 DLCI	<0.000050	
Surrogate: Acridine d9 (%)	65.2	78.1	83.0	76.9	
Surrogate: Chrysene d12 (%)	79.5	77.5	78.3	80.4	
Surrogate: Naphthalene d8 (%)	96.7	97.5	96.6	95.5	
Surrogate: Phenanthrene d10 (%)	95.4	99.5	98.5	97.5	
Phenolics Catechol (mg/L)					
4-Chloro-3-methylphenol (mg/L)					
2-Chlorophenol (mg/L)					
3-Chlorophenol (mg/L)					
4-Chlorophenol (mg/L)					
2,3-Dichlorophenol (mg/L)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101052-1	L2101052-2	L2101052-3	L2101052-4	L2101052-5
Description	GW	GW	GW	GW	GW
Sampled Date	24-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18	25-MAY-18
Sampled Time					
Client ID	BH100M-S	BH100M-D	Z02	BH104M	BH105M-D
Grouping / **Analyte**					
WATER					
Phenolics 2,4 & 2,5-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
2,6-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
3,4-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
3,5-Dichlorophenol (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	
2,4-Dimethylphenol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Hydroquinone (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
o-Cresol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
m-Cresol (mg/L)	0.00052	<0.00050	<0.00050	<0.00050	
p-Cresol (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	
Pentachlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
Phenol (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	
Resorcinol (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	
2,3,4,5-Tetrachlorophenol (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
2,3,4,6-Tetrachlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
2,3,5,6-Tetrachlorophenol (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
2,3,4-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
2,3,5-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
2,3,6-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
2,4,5-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
2,4,6-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
3,4,5-Trichlorophenol (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	
Surrogate: 2-Chlorophenol-d4 (%)	91.2	97.8	94.5	98.4	
Surrogate: 2,4-Dichlorophenol-d3 (%)	98.6	105.7	105.2	105.5	
Surrogate: 2,4,6-Tribromophenol (%)	102.6	108.3	108.7	110.7	
Non-Chlorinated Phenolics Butylated Hydroxytoluene (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
2,6-Dimethylphenol (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
3,4-Dimethylphenol (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	
2-Phenylphenol (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101052-6	L2101052-7	L2101052-8	L2101052-9	
Description	GW	GW	GW	GW	
Sampled Date	24-MAY-18	24-MAY-18	24-MAY-18	24-MAY-18	
Sampled Time					
Client ID	BH110M	BH115M	BH119M	BH125M	
Grouping	**Analyte**				
WATER					
Phenolics	2,4 & 2,5-Dichlorophenol (mg/L)				
	2,6-Dichlorophenol (mg/L)				
	3,4-Dichlorophenol (mg/L)				
	3,5-Dichlorophenol (mg/L)				
	2,4-Dimethylphenol (mg/L)				
	Hydroquinone (mg/L)				
	o-Cresol (mg/L)				
	m-Cresol (mg/L)				
	p-Cresol (mg/L)				
	Pentachlorophenol (mg/L)				
	Phenol (mg/L)				
	Resorcinol (mg/L)				
	2,3,4,5-Tetrachlorophenol (mg/L)				
	2,3,4,6-Tetrachlorophenol (mg/L)				
	2,3,5,6-Tetrachlorophenol (mg/L)				
	2,3,4-Trichlorophenol (mg/L)				
	2,3,5-Trichlorophenol (mg/L)				
	2,3,6-Trichlorophenol (mg/L)				
	2,4,5-Trichlorophenol (mg/L)				
	2,4,6-Trichlorophenol (mg/L)				
	3,4,5-Trichlorophenol (mg/L)				
	Surrogate: 2-Chlorophenol-d4 (%)				
	Surrogate: 2,4-Dichlorophenol-d3 (%)				
	Surrogate: 2,4,6-Tribromophenol (%)				
Non-Chlorinated Phenolics	Butylated Hydroxytoluene (mg/L)				
	2,6-Dimethylphenol (mg/L)				
	3,4-Dimethylphenol (mg/L)				
	2-Phenylphenol (mg/L)				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Control Sample	Hydroquinone	LCS-ND	L2101052-1, -2, -3, -4

Qualifiers for Individual Parameters Listed:

Qualifier	Description
AOCR	Approximate result: Outside calibration range. Analysis could not be repeated.
DLA	Detection Limit adjusted for required dilution
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.
SURR-ND	Surrogate recovery marginally exceeded ALS DQO. Reported non-detect results for associated samples were deemed to be unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CR-CR3-DIS-WT	Water	Dissolved Trivalent Chromium Calculation	EPA SW-846 3005A/7196A

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7196A, published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis for chromium (VI) by colourimetry using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Dissolved Chromium (III) is calculated as the difference between Dissolved Chromium and Dissolved Hexavalent Chromium (Cr(VI)) results. The Limit of Reporting for Chromium (III) varies as a function of the test results.

CR-CR6-DIS-WT	Water	Dissolved Hexavalent Chromium in Water	EPA 7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

EPH-ME-FID-VA	Water	EPH in Water	BC Lab Manual

EPH is extracted from water using a hexane micro-extraction technique, with analysis by GC-FID, as per the BC Lab Manual. EPH results include PAHs and are therefore not equivalent to LEPH or HEPH.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HPHEN-SF-MS-VA	Water	Hydroxyphenolics in Water by GCMS	BC Env. Lab Manual (Phenols in water)

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Chlorinated and Non-Chlorinated Phenols in Water by GC/MS Œ PBMfl (Oct 2013). An entire water sample is acidified and extracted using MTBE. The extract is solvent exchanged and derivatized with acetic anhydride and trimethylamine (TMA). The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS).

LEPH/HEPH-CALC-VA	Water	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHw and HEPHw are measures of Light and Heavy Extractable Petroleum Hydrocarbons in water. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHw = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPH = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

PAH-ME-MS-VA	Water	PAHs in Water	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Reference Information

PHEN-M-SF-MS-VA	Water	Misc. Phenolics in Water	BC Env. Lab Manual (Phenols in water)

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Chlorinated and Non-Chlorinated Phenols in Water by GC/MS - PBM" (Oct 2013). An entire water sample is acidified and extracted using dichloromethane. The extract is solvent exchanged and derivatized with acetic anhydride and trimethylamine (TMA). The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). The precision and accuracy Data Quality Objectives for the parameter 2,4-dimethylphenol have broader acceptance criteria than for most other phenolic compounds, reflecting difficulties commonly encountered during extraction and analysis.

PHEN-SF-MS-VA	Water	Phenolics in Water by GCMS	BC Env. Lab Manual (Phenols in water)

This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Chlorinated and Non-Chlorinated Phenols in Water by GC/MS - PBM" (Oct 2013). An entire water sample is acidified and extracted using dichloromethane. The extract is solvent exchanged and derivatized with acetic anhydride and trimethylamine (TMA). The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). The precision and accuracy Data Quality Objectives for the parameter 2,4-dimethylphenol have broader acceptance criteria than for most other phenolic compounds, reflecting difficulties commonly encountered during extraction and analysis.

VH-HSFID-VA	Water	VH in Water by Headspace GCFID	BC Env. Lab Manual (VH in Water)

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Compounds eluting between n-hexane and n-decane are measured and summed together using flame-ionization detection.

VH-SURR-FID-VA	Water	VH Surrogates for Waters	BC Env. Lab Manual (VH in Solids)
VOC-HSMS-VA	Water	VOCs in water by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7-HSMS-VA	Water	BTEX/MTBE/Styrene by Headspace GCMS	EPA 5021A/8260C

The water sample, with added reagents, is heated in a sealed vial to equilibrium. The headspace from the vial is transfered into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Water	VOC7 and/or VOC Surrogates for Waters	EPA 5035A/5021A/8260C
VPH-CALC-VA	Water	VPH is VH minus select aromatics	BC MOE VPH

VPHw measures Volatile Petroleum Hydrocarbons in water. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure.
VPHw = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene

XYLENES-CALC-VA	Water	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-672172

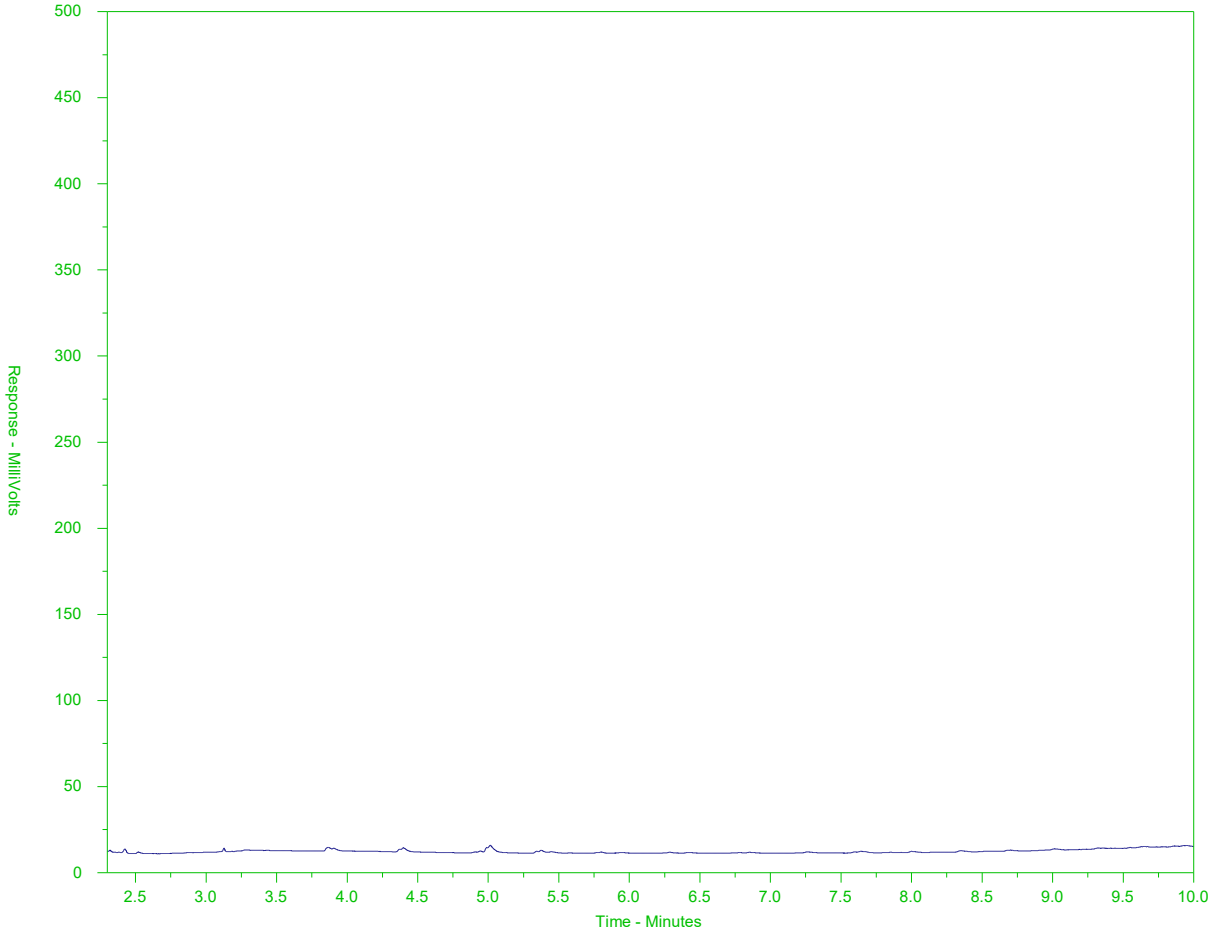
GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101052-1
Client Sample ID: BH100M-S



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

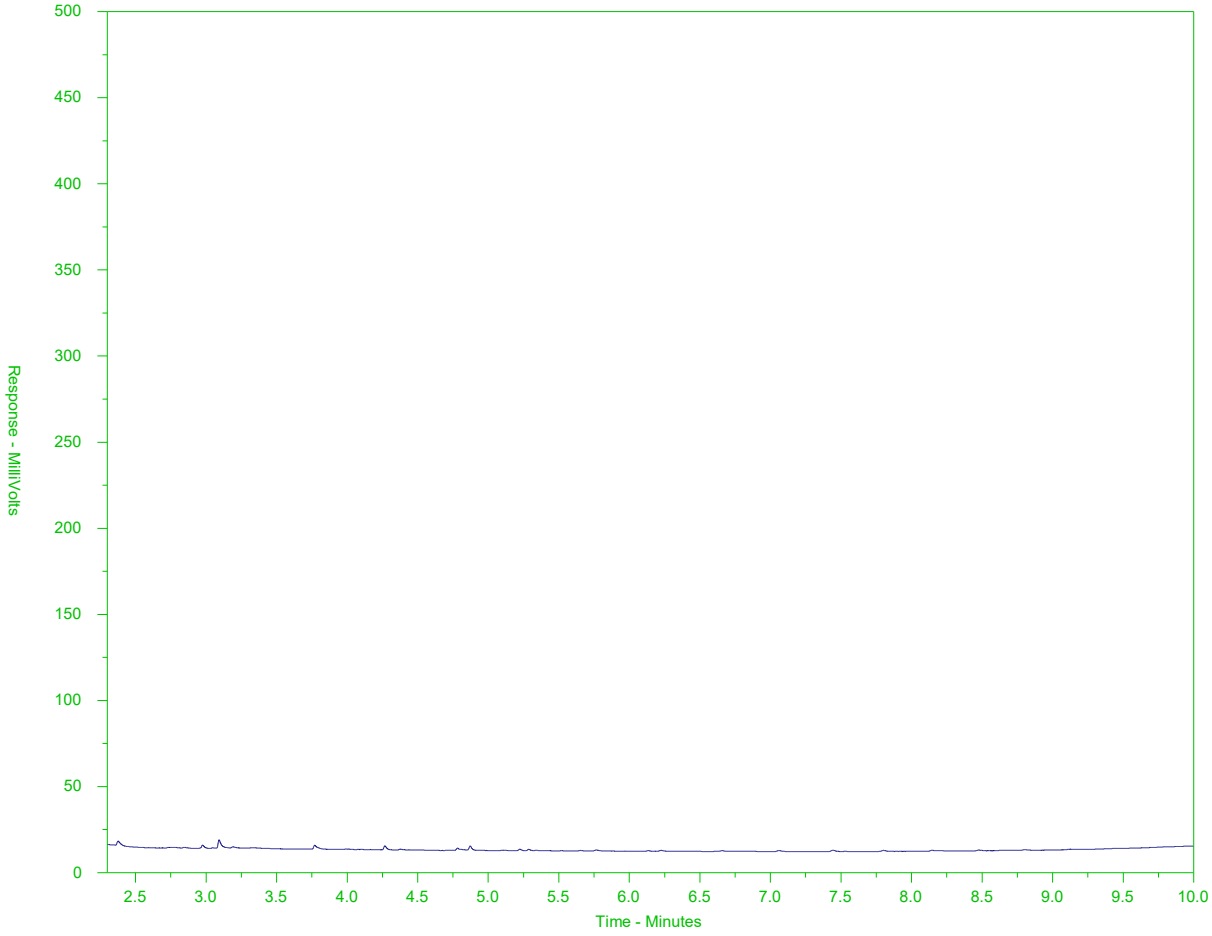
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101052-2
Client Sample ID: BH100M-D



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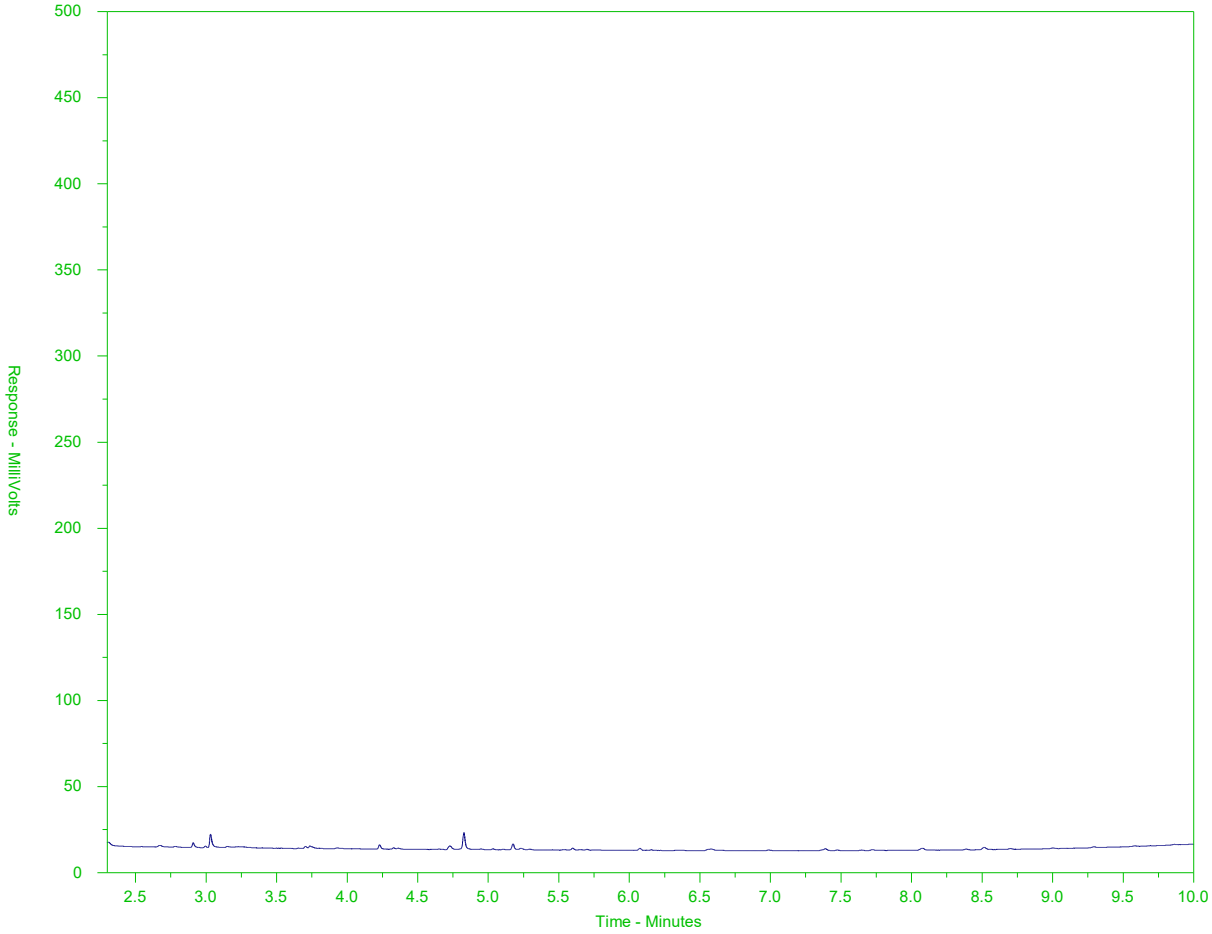
BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101052-3
Client Sample ID: Z02



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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

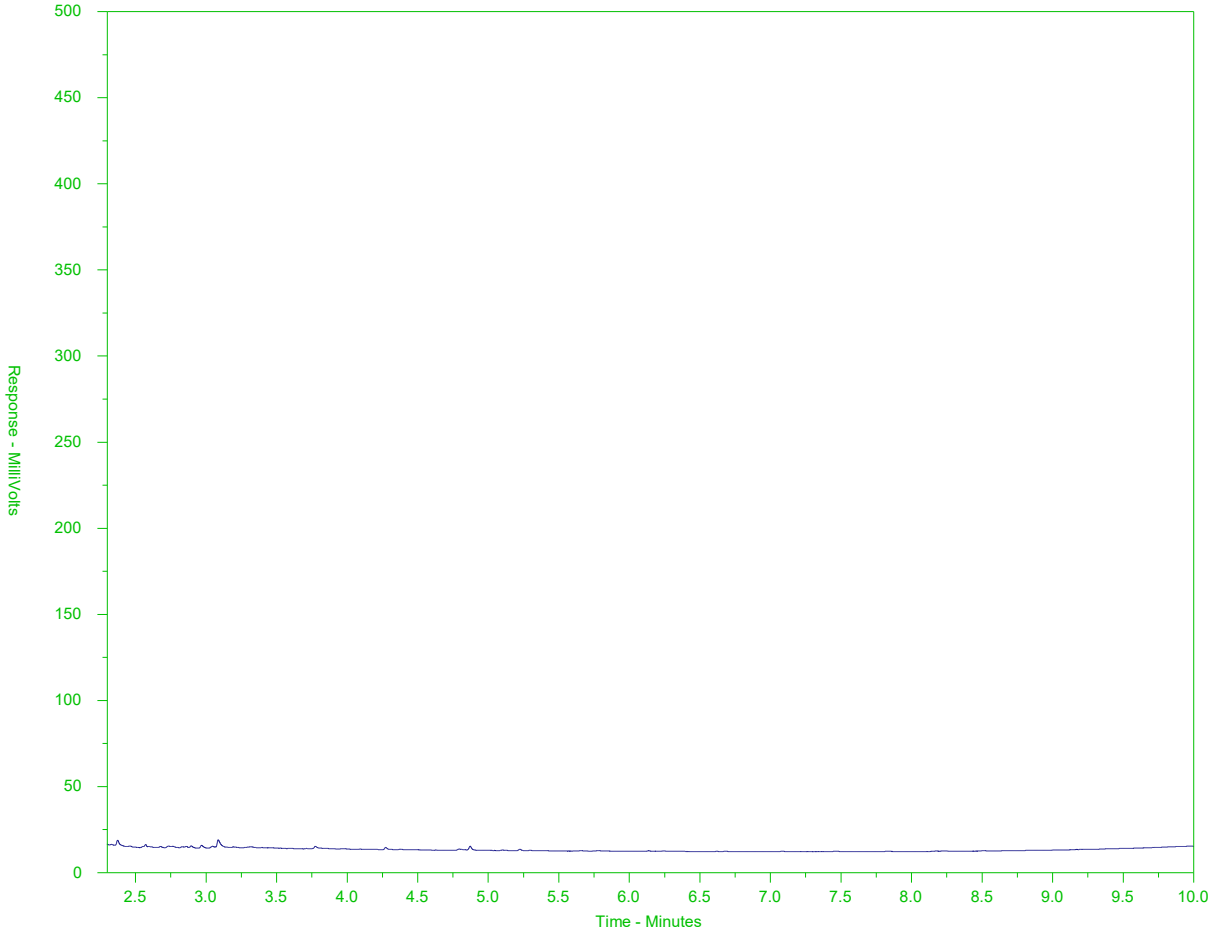
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

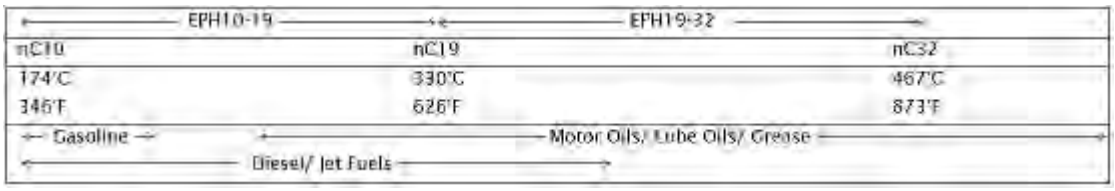
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101052-5
Client Sample ID: BH105M-D





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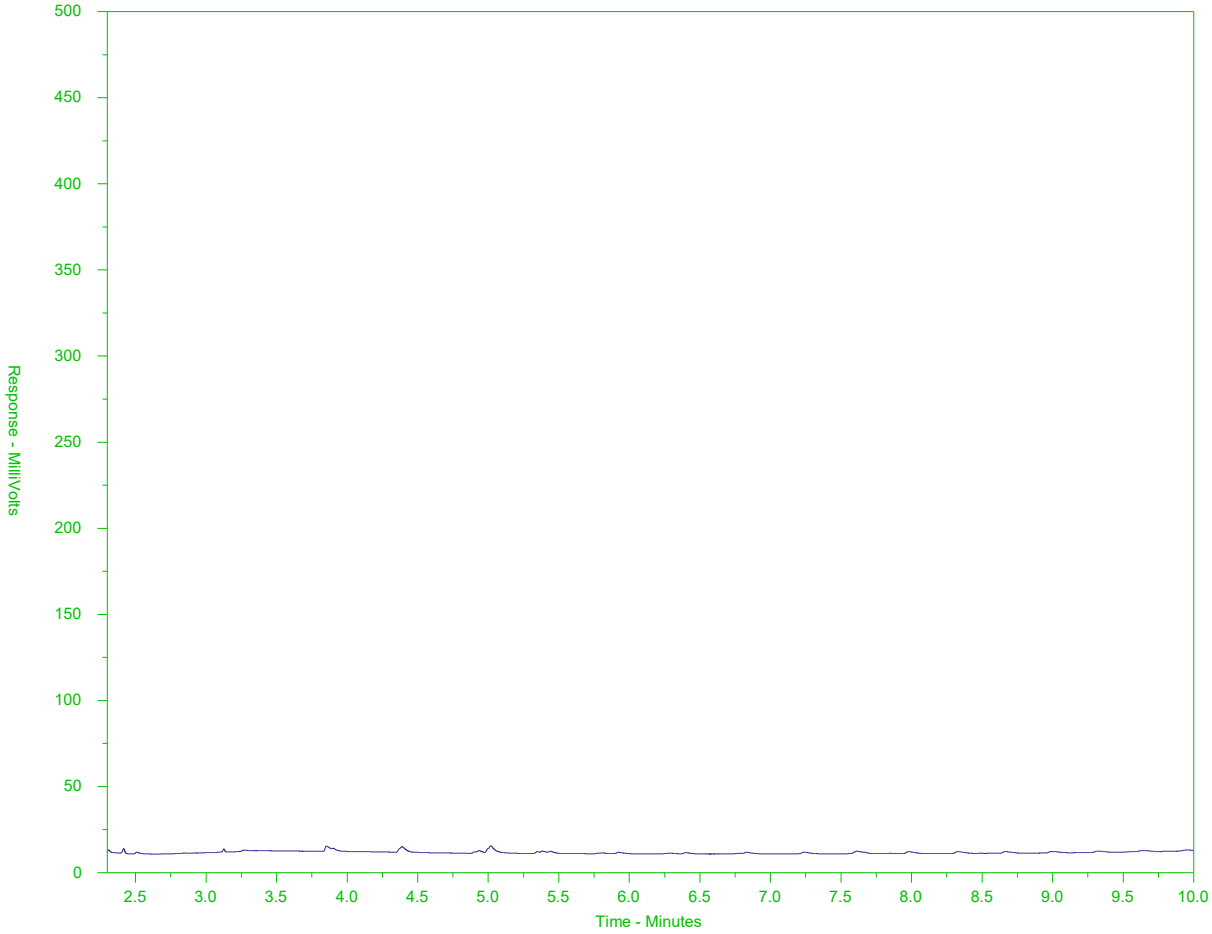
BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101052-6
Client Sample ID: BH110M



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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

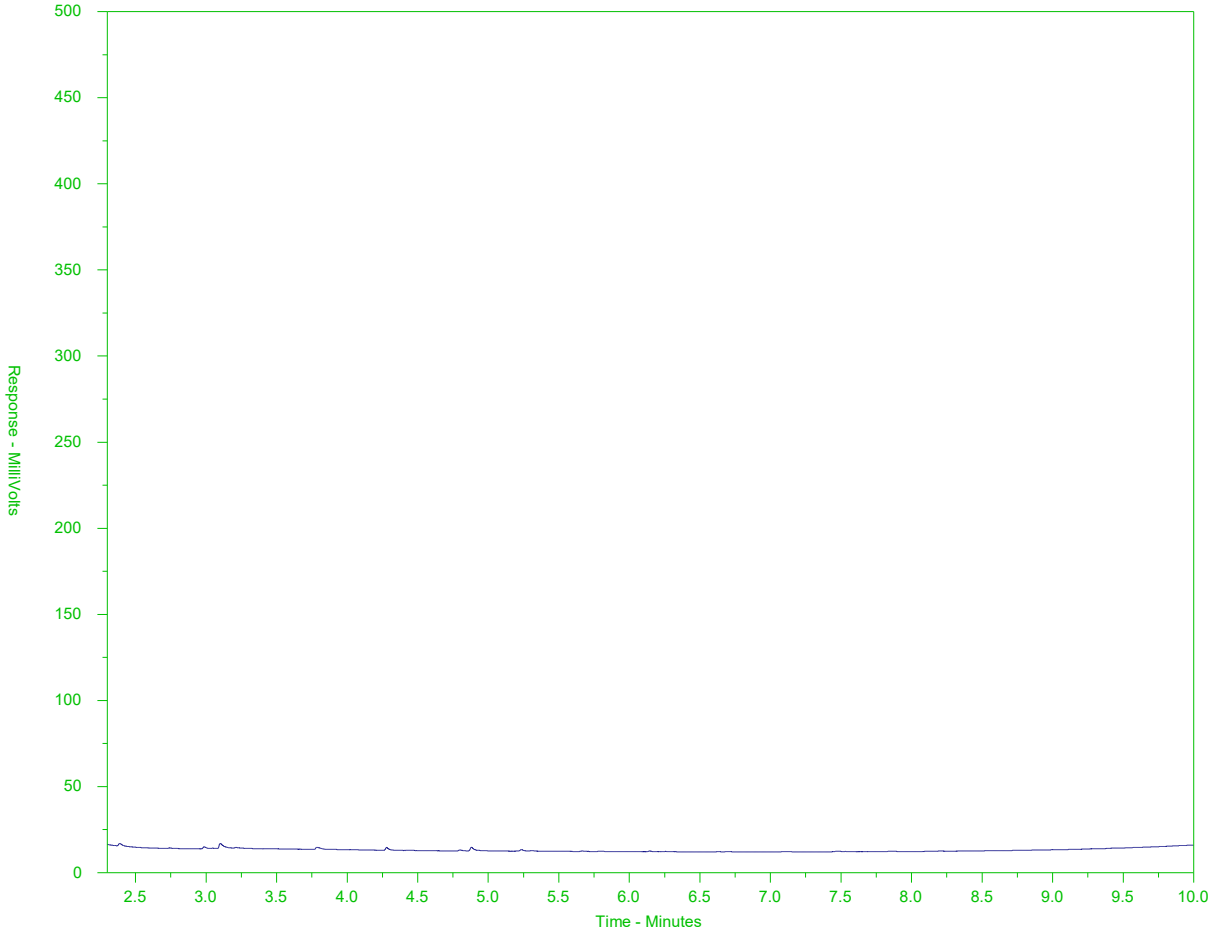
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

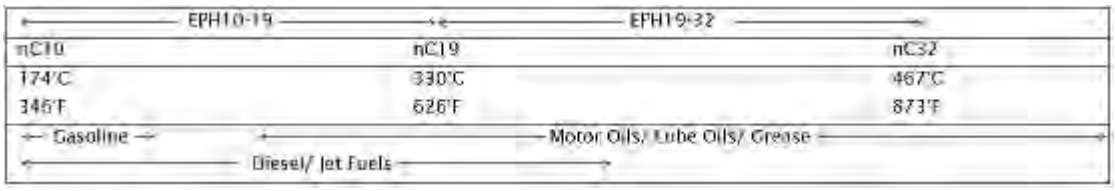
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101052-7
Client Sample ID: BH115M





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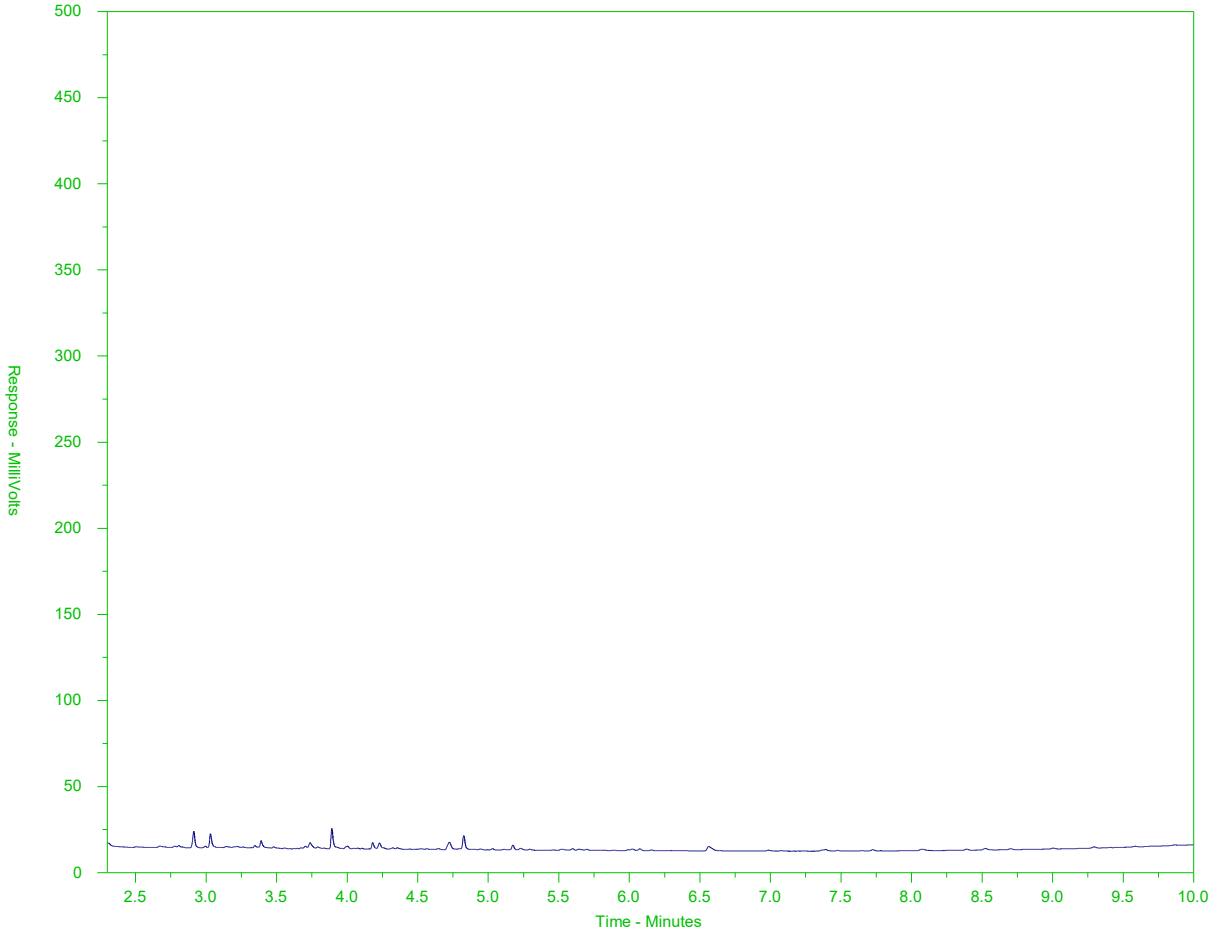
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

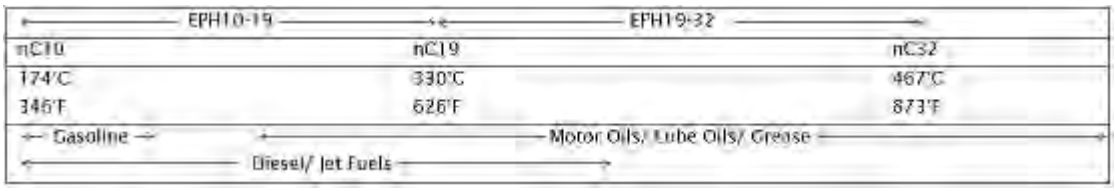
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101052-8
Client Sample ID: BH119M





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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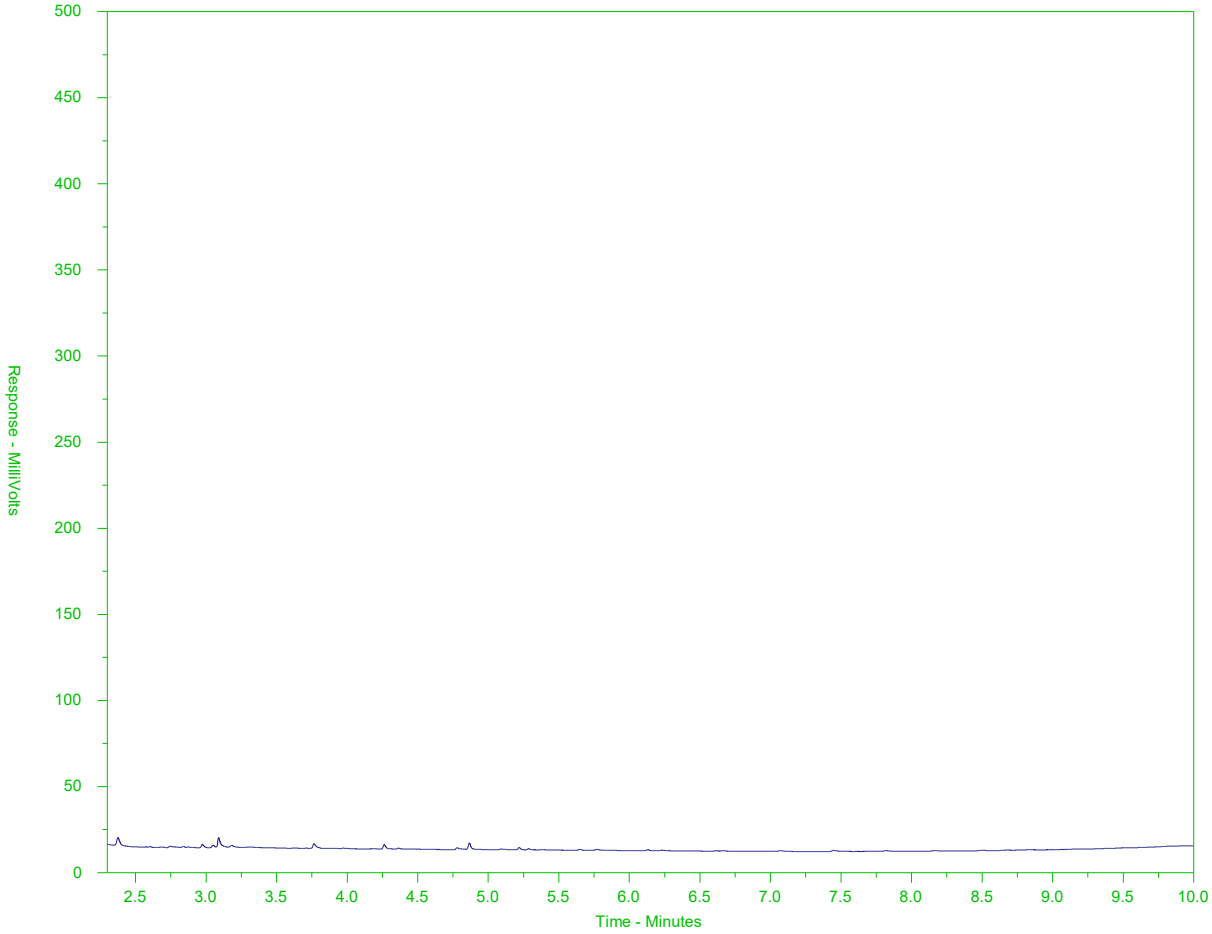
Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101052-9
Client Sample ID: BH125M



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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2101052-COFC

COC Number: 17 - 672172

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	PGL Environmental
Contact:	Zaigel Mohamed
Phone:	604 682 3709
	Company address below will appear on the final report
Street:	
City/Province:	Vancouver, BC
Postal Code:	
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Report Format / D...

Select Report Format: ☐ PDF ☐ EXCEL | EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☐ EMAIL | MAIL ☐ FAX
Email 1 or Fax: Qrivers@pgenvp.com
Email 2: zmohamed@pgenvp.com
Email 3: sbovr@pgenvp.com

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax:
Email 2:

Project Information

ALS Account # / Quote #:	Q66350
Job #:	6355-01.01
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):
ALS Contact:
Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days):
- 4 day [P4-20%] ☐
- 3 day [P3-25%] ☐
- 2 day [P2-50%] ☐

EMERGENCY:
- 1 Business day [E-100%] ☐
- Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	L/H VA	Pot100-Kel-DIS-VA	VOC-VPH-MTBE-WATER	Specialty CR	PHEN-TCL-FULL-VA	PHEN-NONCL-VA	PHEN-SF-MS-VA	PHEN-M-SF-MS-VA	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH100M-S	24 May 18		GW	X	X	✓	X	X	X	X	X			9
	BH100M-D	25 May 18			X	X	X	X	X	X	X	X			9
	202	25 May 13			X	X	X	X	X	X	X	X			9
	BH104M	25 May 18			X	X	X		X	X	X	X			8
	BH105M-D	25 May 13			X	X									4
	BH110M	24 May 18			X	X	X								6
	BH115M	24 May 18			X	✓	X								6
	BH119M	24 May 13			X	X	X								6
	BH125M	24 May 18			X	X	X								6

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☐ YES ☐ NO

Are samples for human consumption/ use?
| | YES | | NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
							7/8 C

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:
	May 26/18	1530

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
Lady	May 26	3:40PM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 28-MAY-18
Report Date: 04-JUN-18 10:28 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2101539

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-692282
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2101539-1	L2101539-2	L2101539-3	L2101539-4	
Description	GW	GW	GW	GW	
Sampled Date	28-MAY-18	28-MAY-18	28-MAY-18	28-MAY-18	
Sampled Time					
Client ID	BH105M-S	BH129M	BH135M	Z02	
Grouping / **Analyte**					
WATER					
Physical Tests Hardness (as CaCO3) (mg/L)	295	395	667	400	
Dissolved Metals Dissolved Mercury Filtration Location	LAB	LAB	FIELD	LAB	
Dissolved Metals Filtration Location	LAB	LAB	LAB	LAB	
Aluminum (Al)-Dissolved (mg/L)	0.0032	<0.0010	0.0050	<0.0010	
Antimony (Sb)-Dissolved (mg/L)	0.00107	0.00026	0.00122	0.00025	
Arsenic (As)-Dissolved (mg/L)	0.00509	0.00068	0.00588	0.00065	
Barium (Ba)-Dissolved (mg/L)	0.123	0.0460	0.306	0.0461	
Boron (B)-Dissolved (mg/L)	0.130	0.371	1.59	0.409	
Cadmium (Cd)-Dissolved (mg/L)	0.0000146	<0.0000050	<0.0000050	<0.0000050	
Calcium (Ca)-Dissolved (mg/L)	96.6	133	200	136	
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	0.00021	<0.00010	
Cobalt (Co)-Dissolved (mg/L)	0.00048	0.00091	0.00544	0.00090	
Copper (Cu)-Dissolved (mg/L)	0.00039	<0.00020	0.00049	<0.00020	
Iron (Fe)-Dissolved (mg/L)	0.070	0.280	0.100	0.084	
Lead (Pb)-Dissolved (mg/L)	0.000132	<0.000050	<0.000050	<0.000050	
Magnesium (Mg)-Dissolved (mg/L)	13.0	15.0	40.8	14.8	
Manganese (Mn)-Dissolved (mg/L)	0.329	2.36	2.89	2.32	
Mercury (Hg)-Dissolved (mg/L)	<0.000010 DLM	<0.0000050	<0.0000050	<0.0000050	
Molybdenum (Mo)-Dissolved (mg/L)	0.0202	0.00140	0.00415	0.00147	
Nickel (Ni)-Dissolved (mg/L)	0.00139	<0.00050	0.00312	0.00181	
Selenium (Se)-Dissolved (mg/L)	0.000156	0.000074	0.000318	0.000079	
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
Sodium (Na)-Dissolved (mg/L)	26.7	35.1	75.2	34.9	
Strontium (Sr)-Dissolved (mg/L)	0.549	1.04	1.91	1.04	
Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	
Tin (Sn)-Dissolved (mg/L)	0.00049	<0.00010	<0.00010	<0.00010	
Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	
Tungsten (W)-Dissolved (mg/L)	0.00061	<0.00010	<0.00010	<0.00010	
Uranium (U)-Dissolved (mg/L)	0.00184	0.000854	0.00430	0.000866	
Zinc (Zn)-Dissolved (mg/L)	0.0025	<0.0010	0.0055	<0.0010	
Hydrocarbons EPH10-19 (mg/L)	<0.25	<0.25	<0.25	<0.25	
EPH19-32 (mg/L)	<0.25	<0.25	<0.25	<0.25	
LEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	
HEPH (mg/L)	<0.25	<0.25	<0.25	<0.25	
Surrogate: 2-Bromobenzotrifluoride (%)	87.7	68.7	76.7	62.7	
Polycyclic Aromatic Hydrocarbons Acenaphthene (mg/L)	0.000157	0.00122	0.000192	0.00117	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L2101539-1 Description: GW Sampled Date: 28-MAY-18 Sampled Time: Client ID: BH105M-S	L2101539-2 GW 28-MAY-18 BH129M	L2101539-3 GW 28-MAY-18 BH135M	L2101539-4 GW 28-MAY-18 Z02	
WATER						
Polycyclic Aromatic Hydrocarbons	Acenaphthylene (mg/L)	<0.000030 DLCI	0.000020	0.000016	0.000019	
	Acridine (mg/L)	<0.000030 DLCI	<0.000040 DLCI	<0.000030 DLCI	<0.000030 DLCI	
	Anthracene (mg/L)	<0.000030 DLQ	0.000498	0.000069	0.000482	
	Benz(a)anthracene (mg/L)	<0.000010	0.000029	0.000098	0.000036	
	Benzo(a)pyrene (mg/L)	<0.0000050	0.0000124	0.0000956	0.0000204	
	Benzo(b&j)fluoranthene (mg/L)	<0.000010	0.000014	0.000112	0.000021	
	Benzo(b+j+k)fluoranthene (mg/L)	<0.000015	<0.000015	0.000164	0.000035	
	Benzo(g,h,i)perylene (mg/L)	<0.000010	<0.000010	0.000077	0.000012	
	Benzo(k)fluoranthene (mg/L)	<0.000010	<0.000010	0.000052	0.000014	
	Chrysene (mg/L)	<0.000010	0.000032	0.000112	0.000038	
	Dibenz(a,h)anthracene (mg/L)	<0.0000050	<0.0000050	0.0000152	<0.0000050	
	Fluoranthene (mg/L)	0.000027	0.000756	0.000374	0.000724	
	Fluorene (mg/L)	0.000155	0.000939	0.000085	0.000873	
	Indeno(1,2,3-c,d)pyrene (mg/L)	<0.000010	<0.000010	0.000076	0.000013	
	1-Methylnaphthalene (mg/L)	0.00197	0.000414	0.000050	0.000386	
	2-Methylnaphthalene (mg/L)	0.000758	0.000328	<0.000050	0.000308	
	Naphthalene (mg/L)	<0.00080 DLQ	0.000428	0.000144	0.000401	
	Phenanthrene (mg/L)	0.000076	0.00235	0.000326	0.00224	
	Pyrene (mg/L)	0.000026	0.000532	0.000367	0.000523	
	Quinoline (mg/L)	<0.00020 DLCI	<0.000050	<0.000050	<0.000050	
	Surrogate: Acridine d9 (%)	82.3	84.5	81.8	81.7	
	Surrogate: Chrysene d12 (%)	87.9	78.9	88.8	77.3	
	Surrogate: Naphthalene d8 (%)	110.3	89.4	96.9	81.2	
	Surrogate: Phenanthrene d10 (%)	96.9	101.2	104.7	94.9	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L2101539-1, -2, -3, -4
Matrix Spike	Calcium (Ca)-Dissolved	MS-B	L2101539-1, -2, -3, -4
Matrix Spike	Magnesium (Mg)-Dissolved	MS-B	L2101539-1, -2, -3, -4
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L2101539-1, -2, -3, -4
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L2101539-1, -2, -3, -4

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-ME-FID-VA	Water	EPH in Water	BC Lab Manual

EPH is extracted from water using a hexane micro-extraction technique, with analysis by GC-FID, as per the BC Lab Manual. EPH results include PAHs and are therefore not equivalent to LEPH or HEPH.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

LEPH/HEPH-CALC-VA	Water	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHw and HEPHw are measures of Light and Heavy Extractable Petroleum Hydrocarbons in water. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHw = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPH = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

PAH-ME-MS-VA	Water	PAHs in Water	EPA 3511/8270D (mod)

PAHs are extracted from water using a hexane micro-extraction technique, with analysis by GC/MS. Because the two isomers cannot be readily separated chromatographically, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-692282

Reference Information

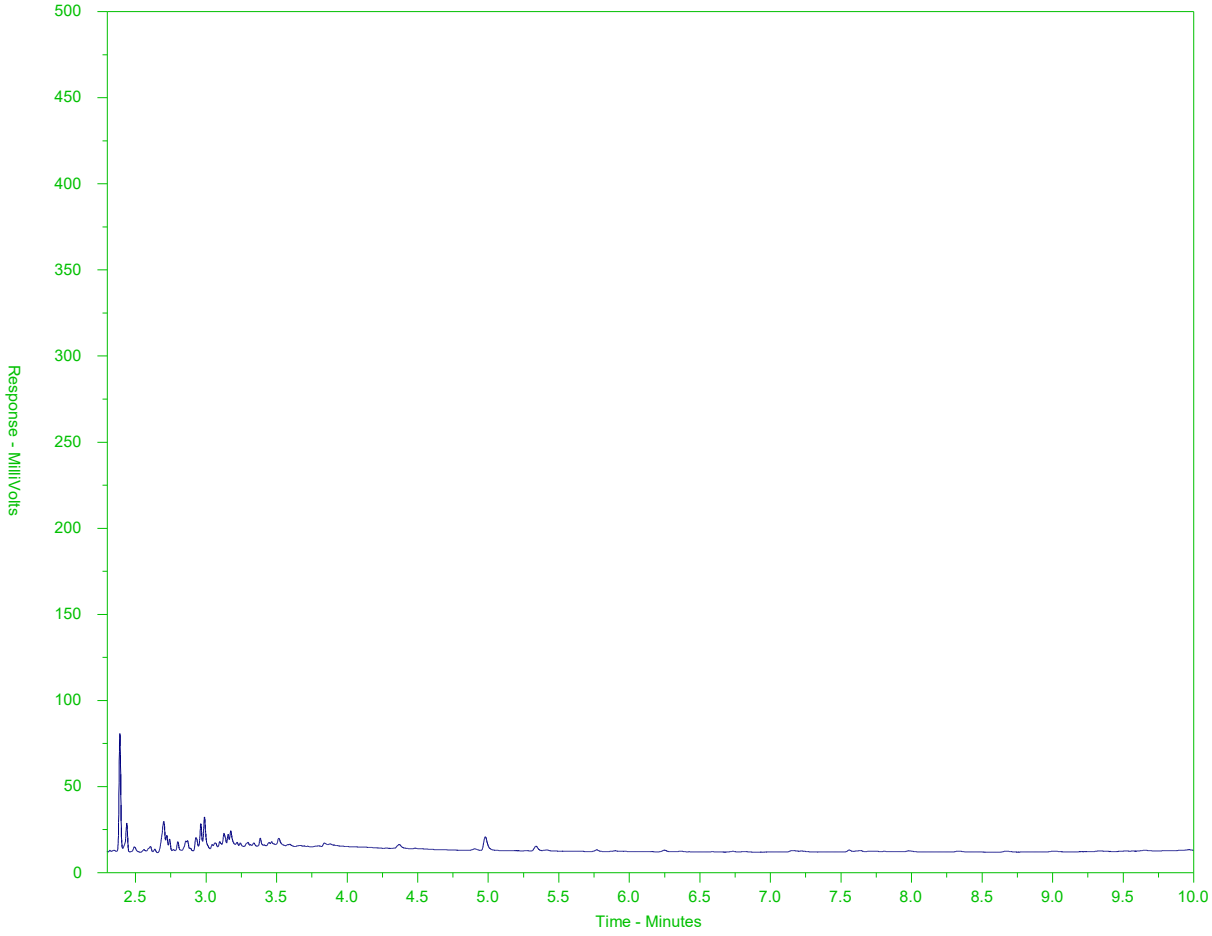
GLOSSARY OF REPORT TERMS

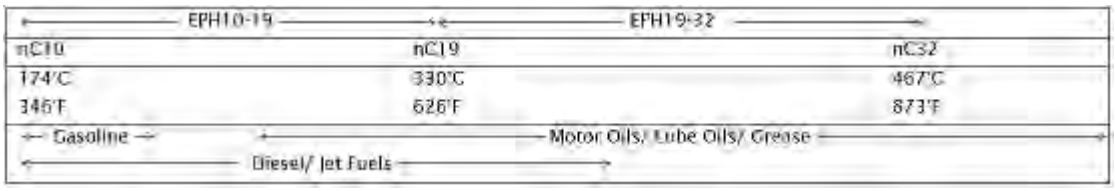
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101539-1
Client Sample ID: BH105M-S





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

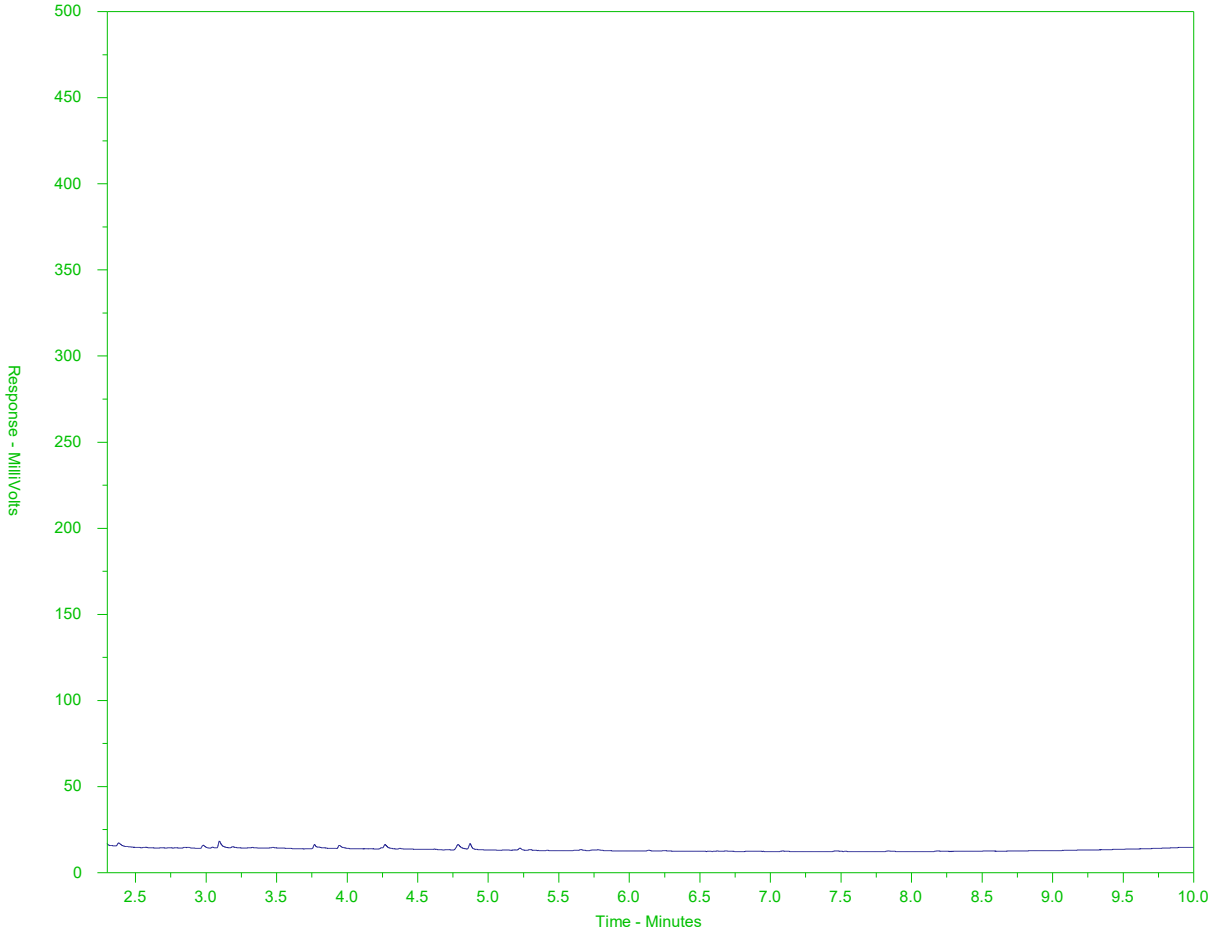
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101539-2
Client Sample ID: BH129M



EPH10-19		EPH19-32
nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
Gasoline	Motor Oils/ Lube Oils/ Grease	
Diesel/ Jet Fuels		

The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

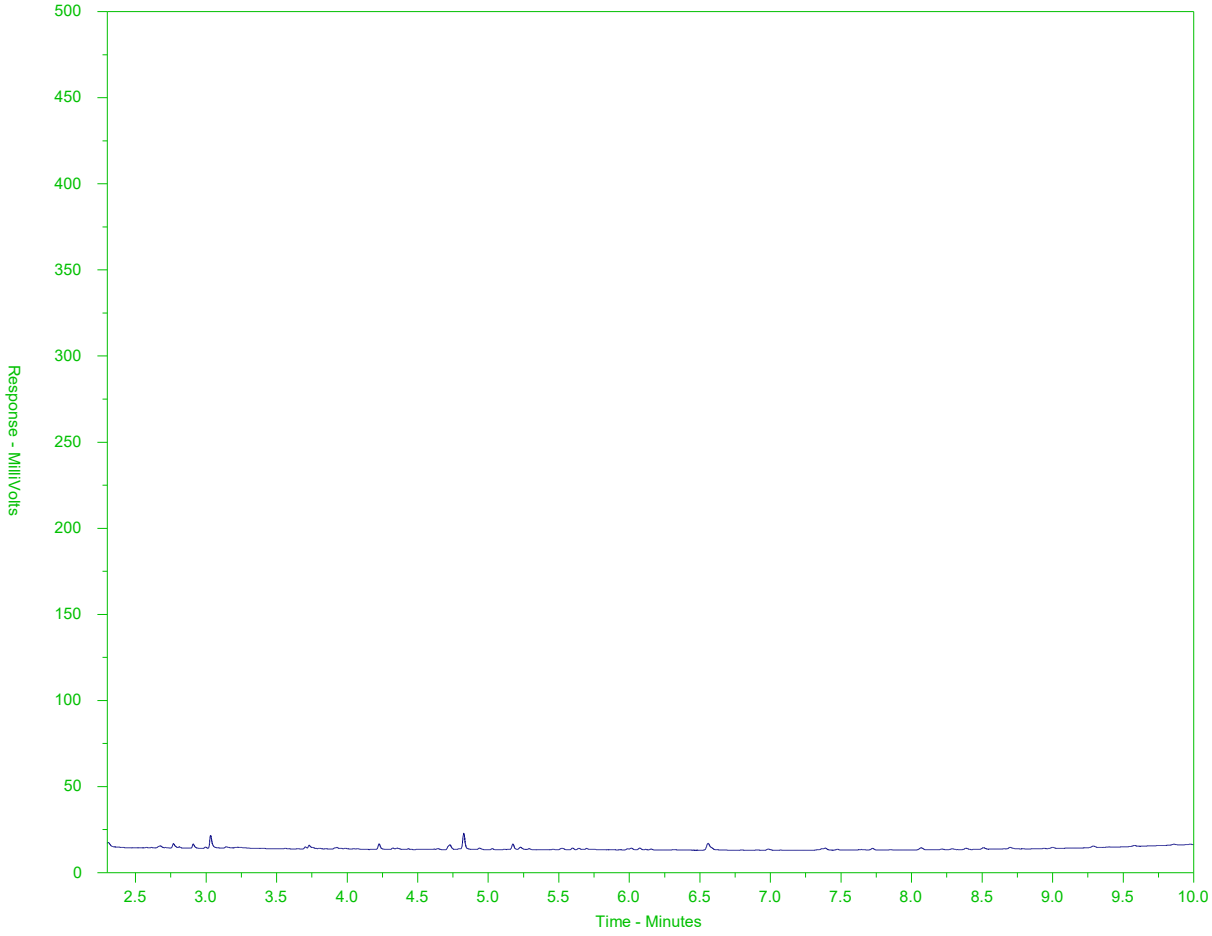
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101539-3
Client Sample ID: BH135M



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

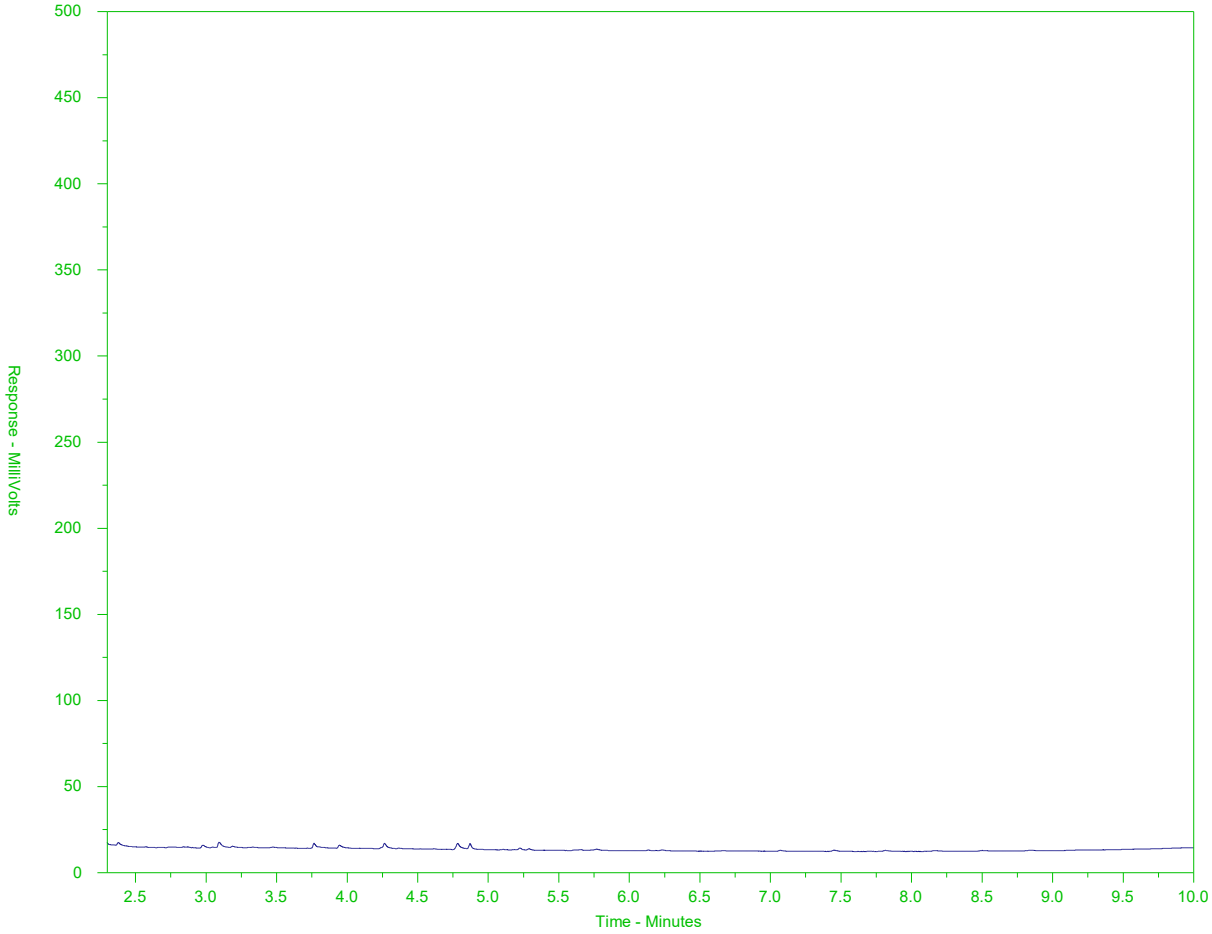
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2101539-4
Client Sample ID: Z02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2101539-COFC

COC Number: 17 - 692282

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Turnaround Time (TAT) Requested - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL Environmental	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	604 682 3707	☐ Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:		Email 1 or Fax arwers@pgleap.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver	Email 2 zmohamed@pgleap.com	
Postal Code:		Email 3 sborr@pgleap.com	

Invoice To		Invoice Distribution	
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Analysis Request: Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below — Metals (Filtered)	Pot 100 - Diss Metals	L/H/P	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH105M-S	28-May-18		GW		x	x			3
	BH129M	↓		↓		x	x			4
	BH135M					x	x			3
	702					x	x			4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☒ NO	BH105M-S - limited sample
Are samples for human consumption/ use? ☐ YES ☒ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			10				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	May 23	16:00				HA	5/28	5:10p

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 14-AUG-18
Report Date: 04-SEP-18 11:58 (MT)
Version: FINAL REV. 2

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2146560

Project P.O. #:	NOT SUBMITTED
Job Reference:	5355-01.01
C of C Numbers:	17-691987, 17-691988, 17-691989, 17-717275, 17-717277, 17-717278, 17-717279
Legal Site Desc:	

Comments:

4-SEP-2018 This report replaces the previous version and contains additional analyses, as requested.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2146560-1	L2146560-4	L2146560-6	L2146560-9	L2146560-11
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
	Sampled Time					
	Client ID	BH160-01	BH160-04	BH161-01	BH161-04	Z201
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	20.4	19.8	15.4	13.5	16.5
	pH (1:2 soil:water) (pH)					
Metals	Aluminum (Al) (mg/kg)					
	Antimony (Sb) (mg/kg)					
	Arsenic (As) (mg/kg)					
	Barium (Ba) (mg/kg)					
	Beryllium (Be) (mg/kg)					
	Boron (B) (mg/kg)					
	Cadmium (Cd) (mg/kg)					
	Chromium (Cr) (mg/kg)					
	Cobalt (Co) (mg/kg)					
	Copper (Cu) (mg/kg)					
	Iron (Fe) (mg/kg)					
	Lead (Pb) (mg/kg)					
	Lithium (Li) (mg/kg)					
	Manganese (Mn) (mg/kg)					
	Mercury (Hg) (mg/kg)					
	Molybdenum (Mo) (mg/kg)					
	Nickel (Ni) (mg/kg)					
	Selenium (Se) (mg/kg)					
	Silver (Ag) (mg/kg)					
	Strontium (Sr) (mg/kg)					
	Thallium (Tl) (mg/kg)					
	Tin (Sn) (mg/kg)					
	Tungsten (W) (mg/kg)					
	Uranium (U) (mg/kg)					
	Vanadium (V) (mg/kg)					
	Zinc (Zn) (mg/kg)					
Volatile Organic Compounds	VOC Sample Container					
	Benzene (mg/kg)					
	Ethylbenzene (mg/kg)					
	Methyl t-butyl ether (MTBE) (mg/kg)					
	Styrene (mg/kg)					
	Toluene (mg/kg)					
	ortho-Xylene (mg/kg)					
	meta- & para-Xylene (mg/kg)					
	Xylenes (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2146560-12 SOIL 13-AUG-18 BH162-01	L2146560-14 SOIL 13-AUG-18 BH162-03	L2146560-16 SOIL 13-AUG-18 BH163-01	L2146560-19 SOIL 13-AUG-18 BH164-01	L2146560-21 SOIL 13-AUG-18 BH165-01
SOIL						
Physical Tests	Moisture (%)	15.5	19.0	5.23	8.67	7.81
	pH (1:2 soil:water) (pH)					
Metals	Aluminum (Al) (mg/kg)					
	Antimony (Sb) (mg/kg)					
	Arsenic (As) (mg/kg)					
	Barium (Ba) (mg/kg)					
	Beryllium (Be) (mg/kg)					
	Boron (B) (mg/kg)					
	Cadmium (Cd) (mg/kg)					
	Chromium (Cr) (mg/kg)					
	Cobalt (Co) (mg/kg)					
	Copper (Cu) (mg/kg)					
	Iron (Fe) (mg/kg)					
	Lead (Pb) (mg/kg)					
	Lithium (Li) (mg/kg)					
	Manganese (Mn) (mg/kg)					
	Mercury (Hg) (mg/kg)					
	Molybdenum (Mo) (mg/kg)					
	Nickel (Ni) (mg/kg)					
	Selenium (Se) (mg/kg)					
	Silver (Ag) (mg/kg)					
	Strontium (Sr) (mg/kg)					
	Thallium (Tl) (mg/kg)					
	Tin (Sn) (mg/kg)					
	Tungsten (W) (mg/kg)					
	Uranium (U) (mg/kg)					
	Vanadium (V) (mg/kg)					
	Zinc (Zn) (mg/kg)					
Volatile Organic Compounds	VOC Sample Container					
	Benzene (mg/kg)					
	Ethylbenzene (mg/kg)					
	Methyl t-butyl ether (MTBE) (mg/kg)					
	Styrene (mg/kg)					
	Toluene (mg/kg)					
	ortho-Xylene (mg/kg)					
	meta- & para-Xylene (mg/kg)					
	Xylenes (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2146560-23 SOIL 13-AUG-18 BH166-01	L2146560-24 SOIL 13-AUG-18 BH166-02	L2146560-25 SOIL 13-AUG-18 BH166-03	L2146560-29 SOIL 13-AUG-18 BH168-01	L2146560-30 SOIL 13-AUG-18 BH168-02
SOIL						
Physical Tests	Moisture (%)	6.13	6.49	24.2		
	pH (1:2 soil:water) (pH)				7.59	7.48
Metals	Aluminum (Al) (mg/kg)				10800	20300
	Antimony (Sb) (mg/kg)				0.26	0.26
	Arsenic (As) (mg/kg)				2.33	2.86
	Barium (Ba) (mg/kg)				51.3	78.5
	Beryllium (Be) (mg/kg)				0.13	0.28
	Boron (B) (mg/kg)				<5.0	<5.0
	Cadmium (Cd) (mg/kg)				0.055	0.042
	Chromium (Cr) (mg/kg)				13.9	19.1
	Cobalt (Co) (mg/kg)				4.67	8.27
	Copper (Cu) (mg/kg)				13.6	20.8
	Iron (Fe) (mg/kg)				16400	21900
	Lead (Pb) (mg/kg)				7.01	3.43
	Lithium (Li) (mg/kg)				4.7	6.5
	Manganese (Mn) (mg/kg)				248	404
	Mercury (Hg) (mg/kg)				0.0104	0.0145
	Molybdenum (Mo) (mg/kg)				0.29	0.30
	Nickel (Ni) (mg/kg)				7.68	13.4
	Selenium (Se) (mg/kg)				<0.20	<0.20
	Silver (Ag) (mg/kg)				<0.10	<0.10
	Strontium (Sr) (mg/kg)				33.6	38.6
	Thallium (Tl) (mg/kg)				<0.050	0.059
	Tin (Sn) (mg/kg)				<2.0	<2.0
	Tungsten (W) (mg/kg)				<0.50	<0.50
	Uranium (U) (mg/kg)				0.321	0.347
	Vanadium (V) (mg/kg)				46.4	59.5
	Zinc (Zn) (mg/kg)				30.8	39.1
Volatile Organic Compounds	VOC Sample Container	Field MeOH	Field MeOH			
	Benzene (mg/kg)	0.0058	<0.0050			
	Ethylbenzene (mg/kg)	0.026	0.022			
	Methyl t-butyl ether (MTBE) (mg/kg)	<0.20	<0.20			
	Styrene (mg/kg)	<0.050	<0.050			
	Toluene (mg/kg)	<0.050	<0.050			
	ortho-Xylene (mg/kg)	<0.050	<0.050			
	meta- & para-Xylene (mg/kg)	0.057	<0.050			
	Xylenes (mg/kg)	<0.075	<0.075			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-32	L2146560-34	L2146560-35	L2146560-36	L2146560-39
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH168-04	BH169-01	BH169-02	BH169-03	BH170-01
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)					
pH (1:2 soil:water) (pH)	7.39	9.95	8.44	8.21	6.93
Metals Aluminum (Al) (mg/kg)	10300	12300	12300	14000	16900
Antimony (Sb) (mg/kg)	0.11	0.35	0.16	0.18	1.27
Arsenic (As) (mg/kg)	1.73	3.38	2.17	2.05	4.67
Barium (Ba) (mg/kg)	43.3	75.6	49.9	61.1	160
Beryllium (Be) (mg/kg)	0.13	0.17	0.16	0.18	0.26
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	10.3
Cadmium (Cd) (mg/kg)	0.035	0.159	0.047	0.055	0.217
Chromium (Cr) (mg/kg)	10.6	16.1	13.8	16.5	19.9
Cobalt (Co) (mg/kg)	4.36	5.59	5.22	5.98	6.89
Copper (Cu) (mg/kg)	13.8	18.5	13.5	16.4	34.8
Iron (Fe) (mg/kg)	14500	18000	16100	18900	19300
Lead (Pb) (mg/kg)	2.05	33.0	3.00	2.89	40.8
Lithium (Li) (mg/kg)	4.8	7.9	5.2	6.0	10.1
Manganese (Mn) (mg/kg)	207	299	245	274	294
Mercury (Hg) (mg/kg)	0.0068	0.0232	0.0145	0.0124	0.755
Molybdenum (Mo) (mg/kg)	0.19	0.49	0.20	0.23	1.24
Nickel (Ni) (mg/kg)	7.09	12.7	8.87	10.8	16.7
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium (Sr) (mg/kg)	28.5	73.4	35.6	61.4	86.2
Thallium (Tl) (mg/kg)	<0.050	<0.050	<0.050	<0.050	0.063
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	4.4
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.276	0.419	0.329	0.396	0.451
Vanadium (V) (mg/kg)	41.2	46.7	46.1	53.6	57.7
Zinc (Zn) (mg/kg)	23.6	68.9	26.7	31.7	63.3
Volatile Organic Compounds VOC Sample Container					
Benzene (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
Toluene (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-41	L2146560-42	L2146560-43	L2146560-45	L2146560-47
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH170-03	BH170-04	BH170-05	BH171-02	BH171-04
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)					
pH (1:2 soil:water) (pH)	7.57	7.66	7.69	7.16	7.23
Metals Aluminum (Al) (mg/kg)	10700	12400	11200	10000	10600
Antimony (Sb) (mg/kg)	0.18	0.23	0.15	0.14	0.17
Arsenic (As) (mg/kg)	1.83	2.32	1.97	1.88	2.04
Barium (Ba) (mg/kg)	45.8	57.8	46.3	44.0	33.6
Beryllium (Be) (mg/kg)	0.13	0.19	0.14	0.12	0.12
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.045	0.052	0.043	0.037	0.041
Chromium (Cr) (mg/kg)	14.4	13.3	23.5	12.5	10.8
Cobalt (Co) (mg/kg)	4.52	5.28	4.66	4.55	4.88
Copper (Cu) (mg/kg)	12.5	15.3	15.1	12.2	14.5
Iron (Fe) (mg/kg)	14600	16800	14900	13800	14100
Lead (Pb) (mg/kg)	4.17	4.61	3.06	5.03	4.72
Lithium (Li) (mg/kg)	4.7	5.5	6.2	4.6	5.3
Manganese (Mn) (mg/kg)	215	254	199	207	208
Mercury (Hg) (mg/kg)	0.0427	0.0643	0.0291	0.0097	0.0102
Molybdenum (Mo) (mg/kg)	0.26	0.32	0.23	0.19	0.22
Nickel (Ni) (mg/kg)	7.51	9.14	8.95	7.24	7.37
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	<0.10
Strontium (Sr) (mg/kg)	27.2	37.1	22.6	26.0	23.5
Thallium (Tl) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.364	0.348	0.334	0.260	0.232
Vanadium (V) (mg/kg)	40.6	46.5	41.0	37.2	40.1
Zinc (Zn) (mg/kg)	24.6	31.3	26.8	25.7	27.1
Volatile Organic Compounds VOC Sample Container					
Benzene (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
Toluene (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-50	L2146560-53	L2146560-56	L2146560-62	L2146560-66
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH172-02	BH172-05	BH173-02	BH174-02	BH175-01
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)					
pH (1:2 soil:water) (pH)	7.23	7.24	8.04	7.85	7.11
Metals Aluminum (Al) (mg/kg)	14100	10400	12300	10100	13500
Antimony (Sb) (mg/kg)	0.55	0.22	0.45	0.22	1.80
Arsenic (As) (mg/kg)	3.84	1.83	3.46	2.01	5.46
Barium (Ba) (mg/kg)	65.5	43.8	63.9	48.8	95.7
Beryllium (Be) (mg/kg)	0.20	0.13	0.19	0.12	0.21
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.646	0.110	0.222	0.052	0.718
Chromium (Cr) (mg/kg)	19.3	12.5	30.9	11.4	28.5
Cobalt (Co) (mg/kg)	6.83	4.69	7.04	4.14	7.50
Copper (Cu) (mg/kg)	57.6	16.7	72.8	11.8	71.9
Iron (Fe) (mg/kg)	19400	14800	19600	14400	21800
Lead (Pb) (mg/kg)	13.5	2.71	13.4	5.42	89.0
Lithium (Li) (mg/kg)	6.9	4.7	7.5	4.3	8.0
Manganese (Mn) (mg/kg)	335	210	411	202	360
Mercury (Hg) (mg/kg)	0.0435	0.0120	0.140	0.0100	0.0412
Molybdenum (Mo) (mg/kg)	0.41	0.17	0.48	0.34	1.05
Nickel (Ni) (mg/kg)	16.2	8.49	21.8	7.00	25.2
Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	<0.10	<0.10	0.14
Strontium (Sr) (mg/kg)	36.6	26.9	44.0	29.7	57.2
Thallium (Tl) (mg/kg)	0.058	<0.050	0.060	<0.050	0.064
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	2.6
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.409	0.292	0.352	0.274	0.326
Vanadium (V) (mg/kg)	51.0	43.2	46.9	40.3	45.7
Zinc (Zn) (mg/kg)	164	53.4	86.5	27.0	162
Volatile Organic Compounds VOC Sample Container					
Benzene (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
Toluene (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-67	L2146560-69	L2146560-71	L2146560-72	L2146560-73
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH175-02	BH175-04	BH176-01	BH176-02	BH176-03
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)					
pH (1:2 soil:water) (pH)	7.18	6.96	7.60	7.72	7.14
Metals Aluminum (Al) (mg/kg)	15900	12300	12600	10700	9200
Antimony (Sb) (mg/kg)	0.62	0.21	7.07	1.33	0.37
Arsenic (As) (mg/kg)	3.09	2.05	179	21.0	3.48
Barium (Ba) (mg/kg)	78.7	51.4	123	52.7	42.5
Beryllium (Be) (mg/kg)	0.19	0.16	0.18	0.14	0.10
Boron (B) (mg/kg)	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd) (mg/kg)	0.178	0.059	0.558	0.148	0.044
Chromium (Cr) (mg/kg)	19.6	15.1	18.8	13.7	9.36
Cobalt (Co) (mg/kg)	6.76	5.51	10.6	5.08	4.38
Copper (Cu) (mg/kg)	25.3	14.6	164	35.2	13.0
Iron (Fe) (mg/kg)	21200	16500	21400	16000	13000
Lead (Pb) (mg/kg)	18.0	3.41	632	60.2	8.50
Lithium (Li) (mg/kg)	6.7	5.2	8.2	4.7	4.3
Manganese (Mn) (mg/kg)	299	212	333	221	198
Mercury (Hg) (mg/kg)	0.0188	0.0116	0.174	0.0215	0.0106
Molybdenum (Mo) (mg/kg)	0.44	0.22	0.49	0.31	0.17
Nickel (Ni) (mg/kg)	14.2	10.4	20.0	9.80	7.13
Selenium (Se) (mg/kg)	<0.20	<0.20	0.30	<0.20	<0.20
Silver (Ag) (mg/kg)	<0.10	<0.10	0.18	<0.10	<0.10
Strontium (Sr) (mg/kg)	55.8	43.9	37.4	27.9	23.8
Thallium (Tl) (mg/kg)	0.057	<0.050	0.057	<0.050	<0.050
Tin (Sn) (mg/kg)	<2.0	<2.0	8.4	<2.0	<2.0
Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U) (mg/kg)	0.332	0.348	0.297	0.304	0.240
Vanadium (V) (mg/kg)	56.9	46.1	45.4	45.6	35.4
Zinc (Zn) (mg/kg)	54.4	30.7	306	55.8	28.0
Volatile Organic Compounds VOC Sample Container					
Benzene (mg/kg)					
Ethylbenzene (mg/kg)					
Methyl t-butyl ether (MTBE) (mg/kg)					
Styrene (mg/kg)					
Toluene (mg/kg)					
ortho-Xylene (mg/kg)					
meta- & para-Xylene (mg/kg)					
Xylenes (mg/kg)					

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-1	L2146560-4	L2146560-6	L2146560-9	L2146560-11
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH160-01	BH160-04	BH161-01	BH161-04	Z201
Grouping / **Analyte**					
SOIL					
Volatile Organic Compounds — Surrogate: 4-Bromofluorobenzene (SS) (%)					
Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons — EPH10-19 (mg/kg)	<200	<200	<200	<200	<200
EPH19-32 (mg/kg)	350	<200	<200	<200	<200
LEPH (mg/kg)	<200	<200	<200	<200	<200
HEPH (mg/kg)	340	<200	<200	<200	<200
Volatile Hydrocarbons (VH6-10) (mg/kg)					
VPH (C6-C10) (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)	92.2	91.4	90.9	93.9	91.7
Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons — Acenaphthene (mg/kg)	0.0588	<0.0050	0.0202	<0.0050	0.0222
Acenaphthylene (mg/kg)	0.0571	<0.0050	0.0584	<0.0050	0.0633
Anthracene (mg/kg)	0.362	<0.0040	0.0819	<0.0040	0.0802
Benz(a)anthracene (mg/kg)	0.916	<0.010	0.354	<0.010	0.359
Benzo(a)pyrene (mg/kg)	1.04	<0.010	0.449	<0.010	0.443
Benzo(b&j)fluoranthene (mg/kg)	1.34	<0.010	0.582	<0.010	0.581
Benzo(b+j+k)fluoranthene (mg/kg)	1.98	<0.015	0.837	<0.015	0.825
Benzo(g,h,i)perylene (mg/kg)	0.634	<0.010	0.251	<0.010	0.248
Benzo(k)fluoranthene (mg/kg)	0.642	<0.010	0.256	<0.010	0.244
Chrysene (mg/kg)	1.15	<0.010	0.507	<0.010	0.497
Dibenz(a,h)anthracene (mg/kg)	0.138	<0.0050	0.0665	<0.0050	0.0666
Fluoranthene (mg/kg)	2.16	<0.010	0.688	<0.010	0.716
Fluorene (mg/kg)	0.076	<0.010	0.019	<0.010	0.024
Indeno(1,2,3-c,d)pyrene (mg/kg)	0.641	<0.010	0.291	<0.010	0.287
1-Methylnaphthalene (mg/kg)	<0.050	<0.050	0.082	<0.050	0.090
2-Methylnaphthalene (mg/kg)	0.038	<0.010	0.082	<0.010	0.098
Naphthalene (mg/kg)	0.067	<0.010	0.067	<0.010	0.082
Phenanthrene (mg/kg)	1.31	<0.010	0.395	<0.010	0.422
Pyrene (mg/kg)	1.94	<0.010	0.819	<0.010	0.802
Quinoline (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Surrogate: Acenaphthene d10 (%)	96.4	84.0	71.3	89.0	71.0
Surrogate: Chrysene d12 (%)	100.2	95.8	69.2	99.9	67.5
Surrogate: Naphthalene d8 (%)	82.0	80.5	63.6	85.5	63.4
Surrogate: Phenanthrene d10 (%)	102.6	86.3	76.7	92.8	74.9
B(a)P Total Potency Equivalent (mg/kg)	1.55	<0.020	0.671	<0.020	0.664
IACR (CCME) (mg/kg)	19.4	<0.15	8.20	<0.15	8.11

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID / Description / Sampled Date / Sampled Time / Client ID				
		L2146560-12 SOIL 13-AUG-18 BH162-01	L2146560-14 SOIL 13-AUG-18 BH162-03	L2146560-16 SOIL 13-AUG-18 BH163-01	L2146560-19 SOIL 13-AUG-18 BH164-01	L2146560-21 SOIL 13-AUG-18 BH165-01
SOIL						
Volatile Organic Compounds	Surrogate: 4-Bromofluorobenzene (SS) (%)					
	Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons	EPH10-19 (mg/kg)	350	<200	<200	<200	<200
	EPH19-32 (mg/kg)	2400	<200	<200	<200	<200
	LEPH (mg/kg)	350	<200	<200	<200	<200
	HEPH (mg/kg)	2390	<200	<200	<200	<200
	Volatile Hydrocarbons (VH6-10) (mg/kg)					
	VPH (C6-C10) (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)	94.1	91.3	93.6	89.3	93.0
	Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	0.301	<0.0050	<0.0050	<0.0050	<0.0050
	Acenaphthylene (mg/kg)	0.103	<0.0050	<0.0050	<0.0050	<0.0050
	Anthracene (mg/kg)	0.672	<0.0040	<0.0040	<0.0040	<0.0040
	Benz(a)anthracene (mg/kg)	1.64	<0.010	<0.010	<0.010	<0.010
	Benzo(a)pyrene (mg/kg)	2.21	0.012	0.011	<0.010	<0.010
	Benzo(b&j)fluoranthene (mg/kg)	3.41	0.021	0.019	<0.010	<0.010
	Benzo(b+j+k)fluoranthene (mg/kg)	4.77	0.021	0.019	<0.015	<0.015
	Benzo(g,h,i)perylene (mg/kg)	1.64	0.012	0.011	<0.010	<0.010
	Benzo(k)fluoranthene (mg/kg)	1.36	<0.010	<0.010	<0.010	<0.010
	Chrysene (mg/kg)	2.42	0.012	0.016	<0.010	<0.010
	Dibenz(a,h)anthracene (mg/kg)	0.415	<0.0050	<0.0050	<0.0050	<0.0050
	Fluoranthene (mg/kg)	4.18	<0.010	0.019	<0.010	<0.010
	Fluorene (mg/kg)	0.336	<0.010	<0.010	<0.010	<0.010
	Indeno(1,2,3-c,d)pyrene (mg/kg)	1.65	0.012	0.010	<0.010	<0.010
	1-Methylnaphthalene (mg/kg)	0.405	<0.050	<0.050	<0.050	<0.050
	2-Methylnaphthalene (mg/kg)	0.429	<0.010	0.023	<0.010	<0.010
	Naphthalene (mg/kg)	0.506	<0.010	0.019	<0.010	<0.010
	Phenanthrene (mg/kg)	4.51	<0.010	0.016	<0.010	<0.010
	Pyrene (mg/kg)	3.82	<0.010	0.021	<0.010	<0.010
	Quinoline (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Surrogate: Acenaphthene d10 (%)	86.8	90.9	87.8	87.4	84.7
	Surrogate: Chrysene d12 (%)	80.6	102.0	99.2	97.8	95.1
	Surrogate: Naphthalene d8 (%)	72.3	88.2	83.4	84.1	83.2
	Surrogate: Phenanthrene d10 (%)	88.1	94.6	99.6	92.4	90.0
	B(a)P Total Potency Equivalent (mg/kg)	3.47	<0.020	<0.020	<0.020	<0.020
	IACR (CCME) (mg/kg)	44.6	0.23	0.22	<0.15	<0.15

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2146560-23	L2146560-24	L2146560-25	L2146560-29	L2146560-30
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
	Sampled Time					
	Client ID	BH166-01	BH166-02	BH166-03	BH168-01	BH168-02
Grouping	**Analyte**					
SOIL						
Volatile Organic Compounds	Surrogate: 4-Bromofluorobenzene (SS) (%)	100.7	107.1			
	Surrogate: 1,4-Difluorobenzene (SS) (%)	106.5	116.5			
Hydrocarbons	EPH10-19 (mg/kg)	600	710	<200		
	EPH19-32 (mg/kg)	3810	3160	280		
	LEPH (mg/kg)	600	710			
	HEPH (mg/kg)	3810	3160			
	Volatile Hydrocarbons (VH6-10) (mg/kg)	<100	130			
	VPH (C6-C10) (mg/kg)	<100	130			
	Surrogate: 2-Bromobenzotrifluoride (%)	96.2	103.5	92.2		
	Surrogate: 3,4-Dichlorotoluene (SS) (%)	95.0	118.8			
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	0.0257	0.0179			
	Acenaphthylene (mg/kg)	<0.020 DLQ	<0.010 DLCI			
	Anthracene (mg/kg)	<0.030 DLQ	<0.030 DLCI			
	Benz(a)anthracene (mg/kg)	0.049	<0.030 DLCI			
	Benzo(a)pyrene (mg/kg)	0.087	<0.040 DLCI			
	Benzo(b&j)fluoranthene (mg/kg)	<0.20 DLQ	<0.060 DLCI			
	Benzo(b+j+k)fluoranthene (mg/kg)	<0.21	<0.067			
	Benzo(g,h,i)perylene (mg/kg)	0.065	<0.030 DLCI			
	Benzo(k)fluoranthene (mg/kg)	<0.050 DLQ	<0.030 DLCI			
	Chrysene (mg/kg)	<0.20 DLCI	<0.080 DLCI			
	Dibenz(a,h)anthracene (mg/kg)	<0.020 DLQ	<0.0090 DLCI			
	Fluoranthene (mg/kg)	0.115	0.054			
	Fluorene (mg/kg)	0.021	0.032			
	Indeno(1,2,3-c,d)pyrene (mg/kg)	0.068	<0.030 DLCI			
	1-Methylnaphthalene (mg/kg)	<0.050	<0.050			
	2-Methylnaphthalene (mg/kg)	0.048	0.025			
	Naphthalene (mg/kg)	0.070	<0.090 DLCI			
	Phenanthrene (mg/kg)	<0.20 DLCI	<0.20 DLQ			
	Pyrene (mg/kg)	0.234	0.109			
	Quinoline (mg/kg)	<0.050	<0.050			
	Surrogate: Acenaphthene d10 (%)	83.8	100.4			
	Surrogate: Chrysene d12 (%)	77.3	92.0			
	Surrogate: Naphthalene d8 (%)	67.9	85.3			
	Surrogate: Phenanthrene d10 (%)	77.9	93.3			
	B(a)P Total Potency Equivalent (mg/kg)	0.123	<0.033			
	IACR (CCME) (mg/kg)	1.29	<0.43			

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2146560-32	L2146560-34	L2146560-35	L2146560-36	L2146560-39
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
	Sampled Time					
	Client ID	BH168-04	BH169-01	BH169-02	BH169-03	BH170-01
Grouping	**Analyte**					
SOIL						
Volatile Organic Compounds	Surrogate: 4-Bromofluorobenzene (SS) (%)					
	Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
	Volatile Hydrocarbons (VH6-10) (mg/kg)					
	VPH (C6-C10) (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)					
	Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b&j)fluoranthene (mg/kg)					
	Benzo(b+j+k)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	1-Methylnaphthalene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Quinoline (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					
	B(a)P Total Potency Equivalent (mg/kg)					
	IACR (CCME) (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2146560-41	L2146560-42	L2146560-43	L2146560-45	L2146560-47
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
	Sampled Time					
	Client ID	BH170-03	BH170-04	BH170-05	BH171-02	BH171-04
Grouping	**Analyte**					
SOIL						
Volatile Organic Compounds	Surrogate: 4-Bromofluorobenzene (SS) (%)					
	Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
	Volatile Hydrocarbons (VH6-10) (mg/kg)					
	VPH (C6-C10) (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)					
	Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b&j)fluoranthene (mg/kg)					
	Benzo(b+j+k)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	1-Methylnaphthalene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Quinoline (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					
	B(a)P Total Potency Equivalent (mg/kg)					
	IACR (CCME) (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2146560-50	L2146560-53	L2146560-56	L2146560-62	L2146560-66
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
	Sampled Time					
	Client ID	BH172-02	BH172-05	BH173-02	BH174-02	BH175-01
Grouping	**Analyte**					
SOIL						
Volatile Organic Compounds	Surrogate: 4-Bromofluorobenzene (SS) (%)					
	Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
	Volatile Hydrocarbons (VH6-10) (mg/kg)					
	VPH (C6-C10) (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)					
	Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b&j)fluoranthene (mg/kg)					
	Benzo(b+j+k)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	1-Methylnaphthalene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Quinoline (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					
	B(a)P Total Potency Equivalent (mg/kg)					
	IACR (CCME) (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2146560-67	L2146560-69	L2146560-71	L2146560-72	L2146560-73
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
	Sampled Time					
	Client ID	BH175-02	BH175-04	BH176-01	BH176-02	BH176-03
Grouping	**Analyte**					
SOIL						
Volatile Organic Compounds	Surrogate: 4-Bromofluorobenzene (SS) (%)					
	Surrogate: 1,4-Difluorobenzene (SS) (%)					
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
	Volatile Hydrocarbons (VH6-10) (mg/kg)					
	VPH (C6-C10) (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)					
	Surrogate: 3,4-Dichlorotoluene (SS) (%)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b&j)fluoranthene (mg/kg)					
	Benzo(b+j+k)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					
	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	1-Methylnaphthalene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Quinoline (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					
	B(a)P Total Potency Equivalent (mg/kg)					
	IACR (CCME) (mg/kg)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-1	L2146560-4	L2146560-6	L2146560-9	L2146560-11
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH160-01	BH160-04	BH161-01	BH161-04	Z201
Grouping **Analyte**					
SOIL					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-12	L2146560-14	L2146560-16	L2146560-19	L2146560-21
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH162-01	BH162-03	BH163-01	BH164-01	BH165-01
Grouping **Analyte**					
SOIL					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-23	L2146560-24	L2146560-25	L2146560-29	L2146560-30
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH166-01	BH166-02	BH166-03	BH168-01	BH168-02
Grouping **Analyte**					
SOIL					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-32	L2146560-34	L2146560-35	L2146560-36	L2146560-39
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH168-04	BH169-01	BH169-02	BH169-03	BH170-01
Grouping **Analyte**					
SOIL					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-41	L2146560-42	L2146560-43	L2146560-45	L2146560-47
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH170-03	BH170-04	BH170-05	BH171-02	BH171-04
Grouping **Analyte**					
SOIL					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-50	L2146560-53	L2146560-56	L2146560-62	L2146560-66
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH172-02	BH172-05	BH173-02	BH174-02	BH175-01
Grouping **Analyte**					
SOIL					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2146560-67	L2146560-69	L2146560-71	L2146560-72	L2146560-73
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18	13-AUG-18
Sampled Time					
Client ID	BH175-02	BH175-04	BH176-01	BH176-02	BH176-03
Grouping **Analyte**					
SOIL					

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Antimony (Sb)	DUP-H	L2146560-71
Duplicate	Arsenic (As)	DUP-H	L2146560-71
Duplicate	Arsenic (As)	DUP-H	L2146560-71
Duplicate	Cadmium (Cd)	DUP-H	L2146560-71
Duplicate	Cobalt (Co)	DUP-H	L2146560-71
Duplicate	Copper (Cu)	DUP-H	L2146560-71
Duplicate	Iron (Fe)	DUP-H	L2146560-71
Duplicate	Lead (Pb)	DUP-H	L2146560-71
Duplicate	Lead (Pb)	DUP-H	L2146560-71
Duplicate	Molybdenum (Mo)	DUP-H	L2146560-71
Duplicate	Tin (Sn)	DUP-H	L2146560-71
Duplicate	Zinc (Zn)	DUP-H	L2146560-71

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LEPH/HEPH

LEPHs and HEPHs are measures of Light and Heavy Extractable Petroleum Hydrocarbons in soil. Results are calculated by subtraction of applicable PAH concentrations from EPH10-19 and EPH19-32, as per the BC Lab Manual LEPH/HEPH calculation procedure.
LEPHs = EPH10-19 minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene.
HEPHs = EPH19-32 minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

MOISTURE-VA	Soil	Moisture content	CWS for PHC in Soil - Tier 1

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA	Soil	PAH - Rotary Extraction (Hexane/Acetone)	EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3570 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

Benzo(a)pyrene Total Potency Equivalents [B(a)P TPE] represents the sum of estimated cancer potency relative to B(a)P for all potentially carcinogenic unsubstituted PAHs, and is calculated as per the CCME PAH Soil Quality Guidelines reference document (2010).

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

Reference Information

VH-HSFID-VA	Soil	VH in soil by Headspace GCFID	BC Env. Lab Manual (VH in Solids)

This analysis involves the extraction of a subsample of the sediment/soil with methanol. Aliquots of the methanol extract are then added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is analyzed for Volatile Hydrocarbons (VH) by capillary column gas chromatography with flame-ionization detection (GC/FID). The methanol extraction and VH analysis are carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Volatile Hydrocarbons in Solids by GC/FID" (Version 2.1 July 1999).

VH-SURR-FID-VA	Soil	VH Surrogates for Soils	BC Env. Lab Manual (VH in Solids)
VOC7-L-HSMS-VA	Soil	VOCs in soil by Headspace GCMS	EPA 5035A/5021A/8260C

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

VOC7/VOC-SURR-MS-VA	Soil	VOC7 and/or VOC Surrogates for Soils	EPA 5035A/5021A/8260C
VPH-CALC-VA	Soil	VPH is VH minus select aromatics	BC MOE VPH

VPHs measures Volatile Petroleum Hydrocarbons in soil. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VH6-10, as per the BC Lab Manual VPH calculation procedure.
VPHs = VH6-10 minus Benzene, Toluene, Ethylbenzene, Xylenes, and Styrene

XYLENES-CALC-VA	Soil	Sum of Xylene Isomer Concentrations	EPA 8260B & 524.2

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-691987	17-691988	17-691989	17-717275	17-717277
17-717278	17-717279			

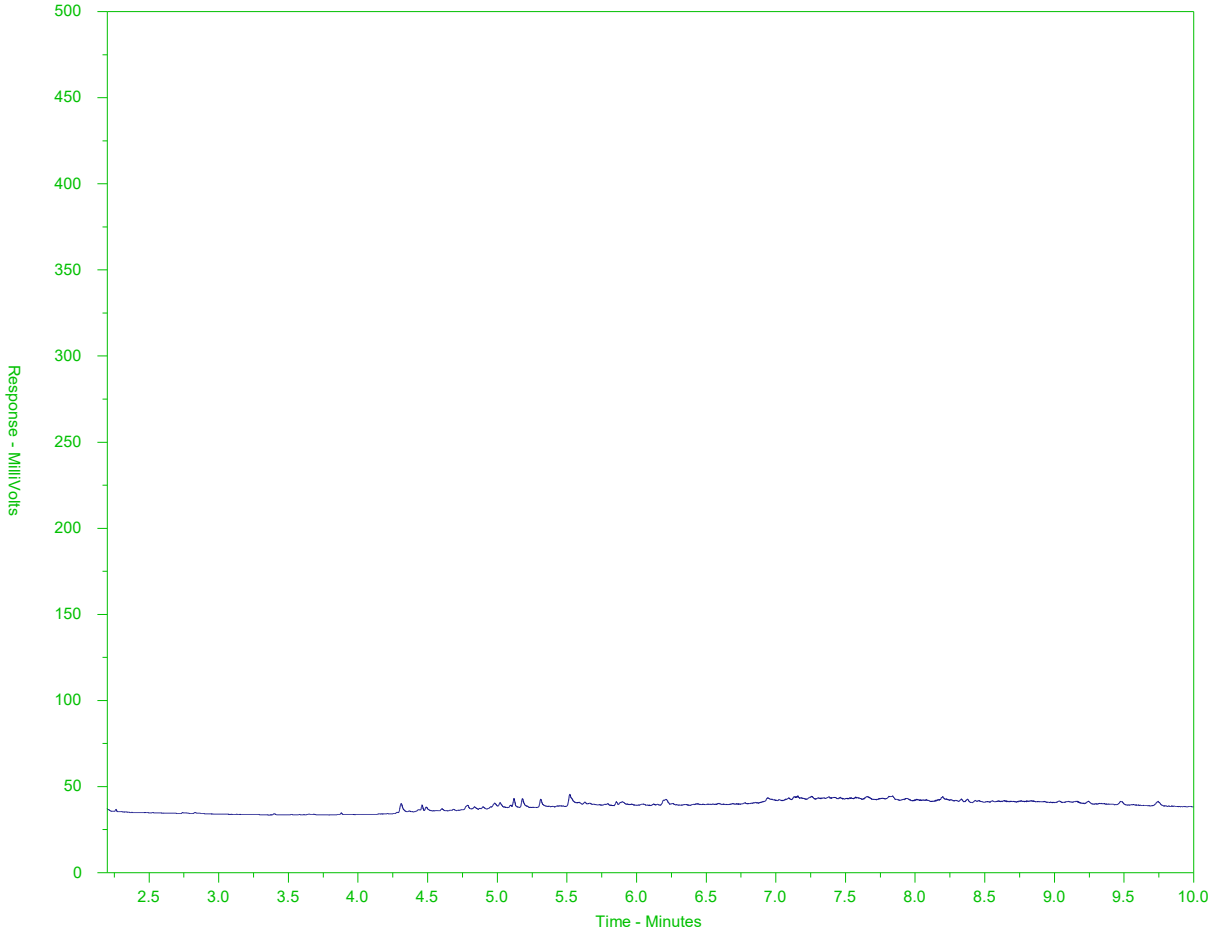
GLOSSARY OF REPORT TERMS

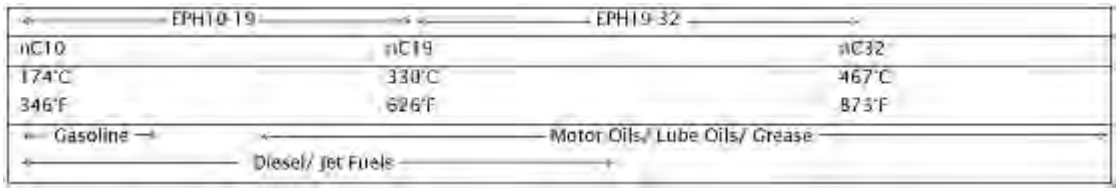
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-1
Client Sample ID: BH160-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

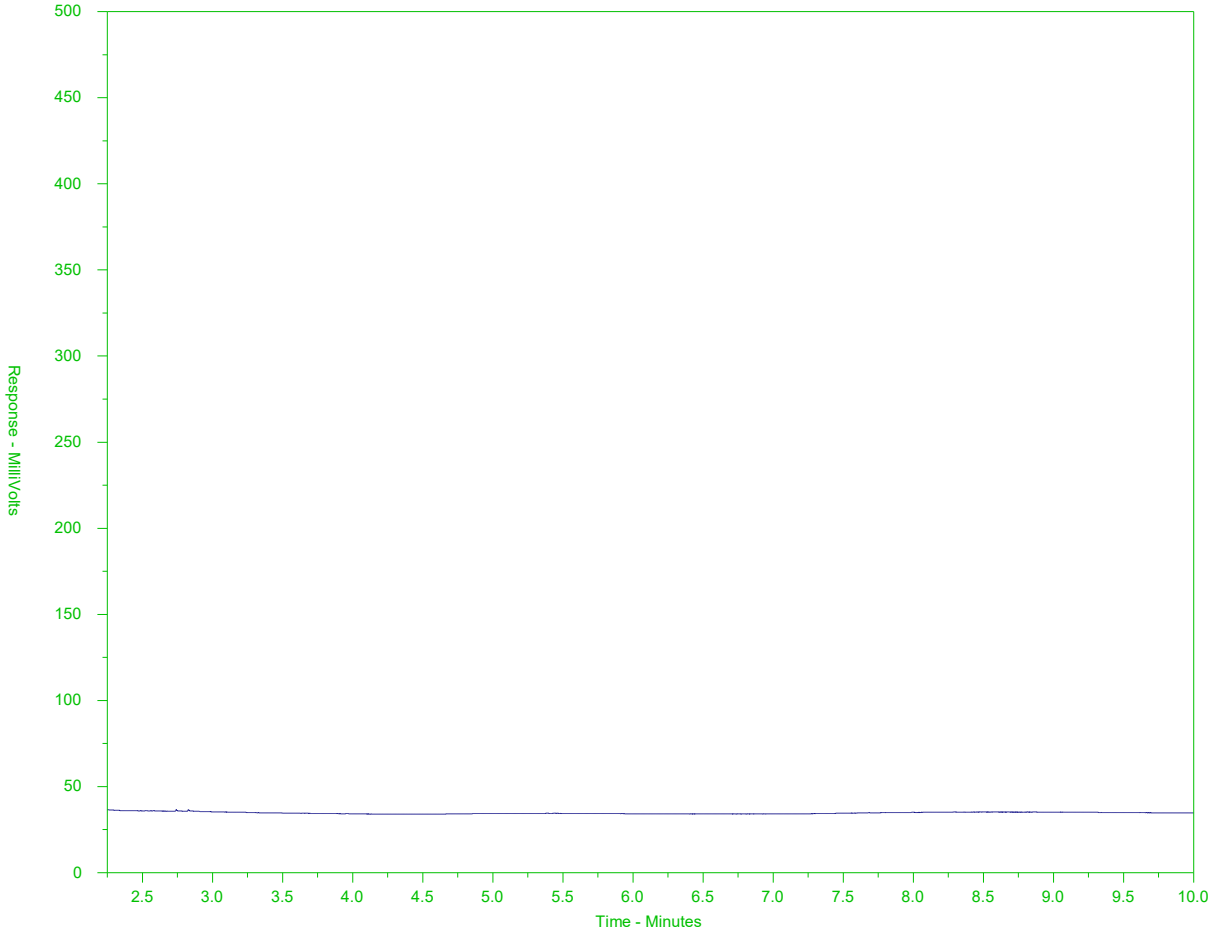
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

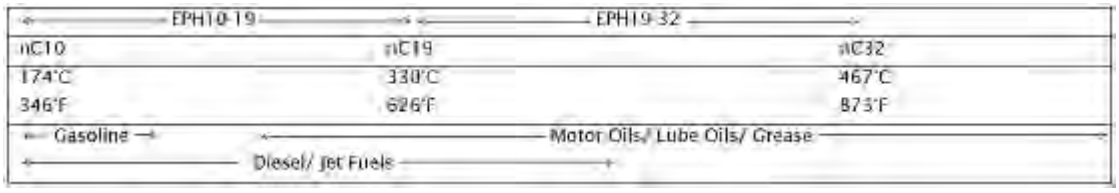
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-4
Client Sample ID: BH160-04





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

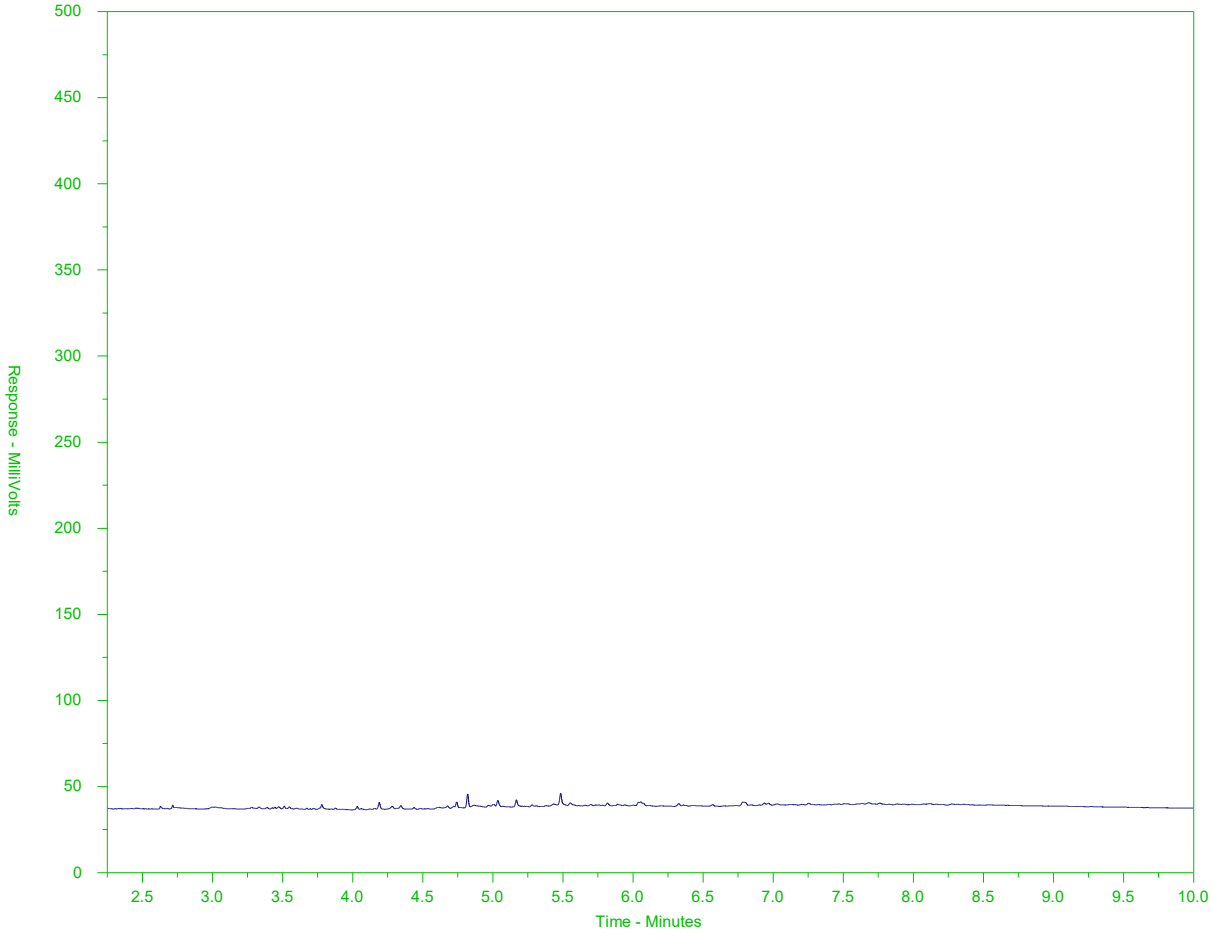
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

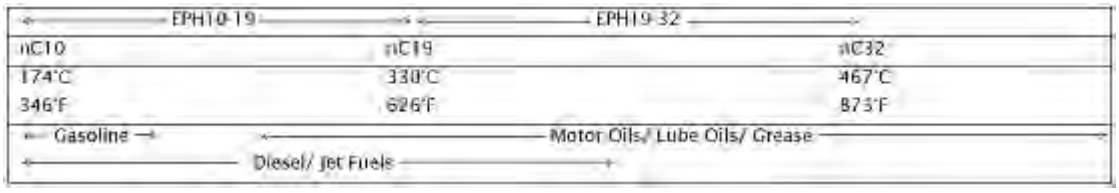
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-6
Client Sample ID: BH161-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

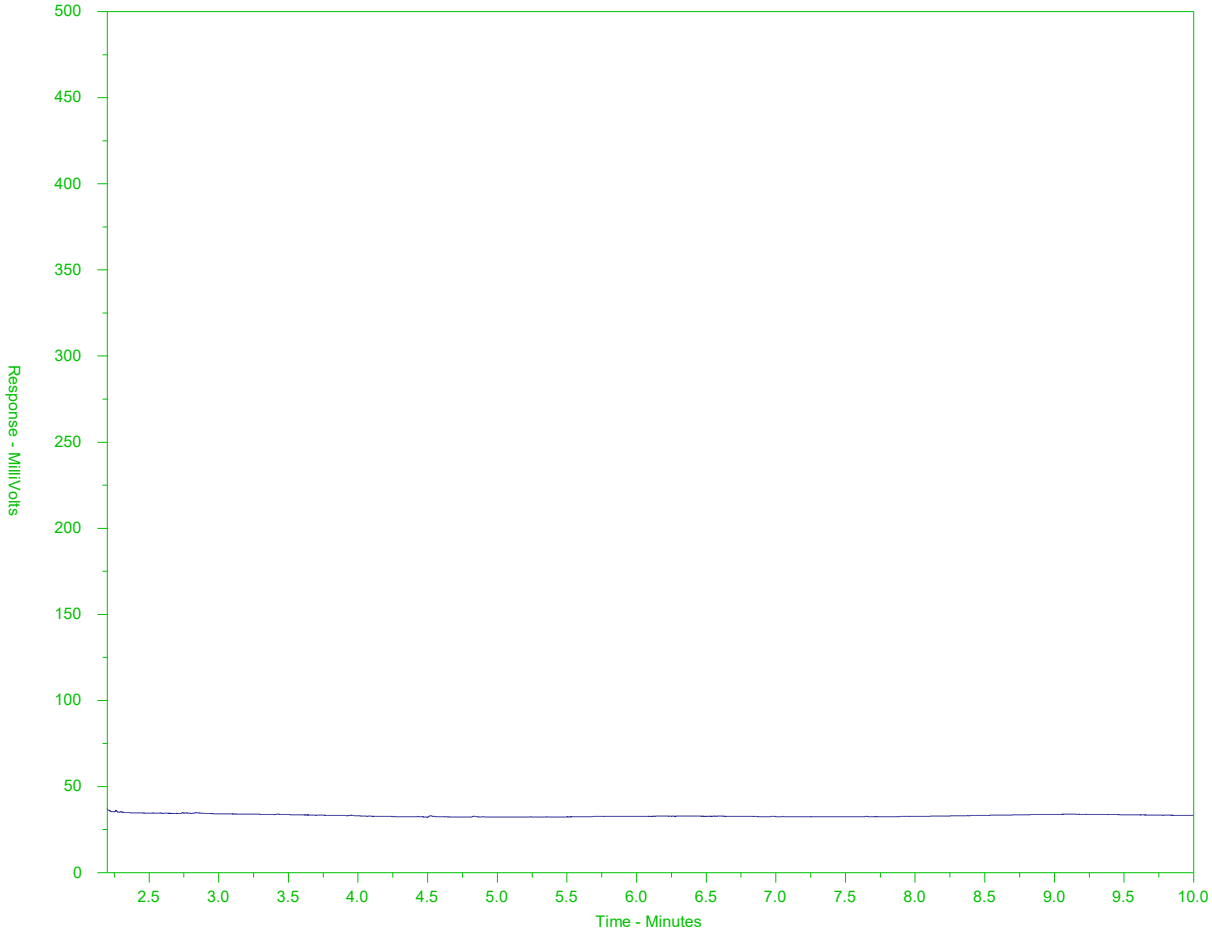
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

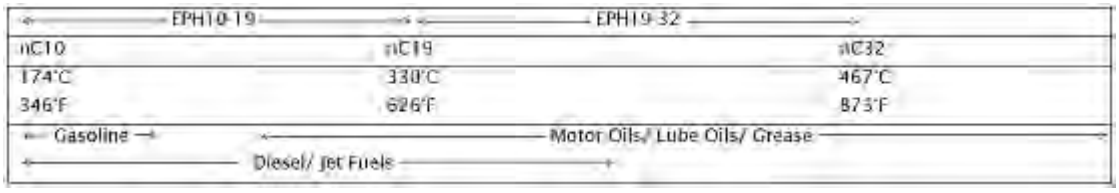
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-9
Client Sample ID: BH161-04





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

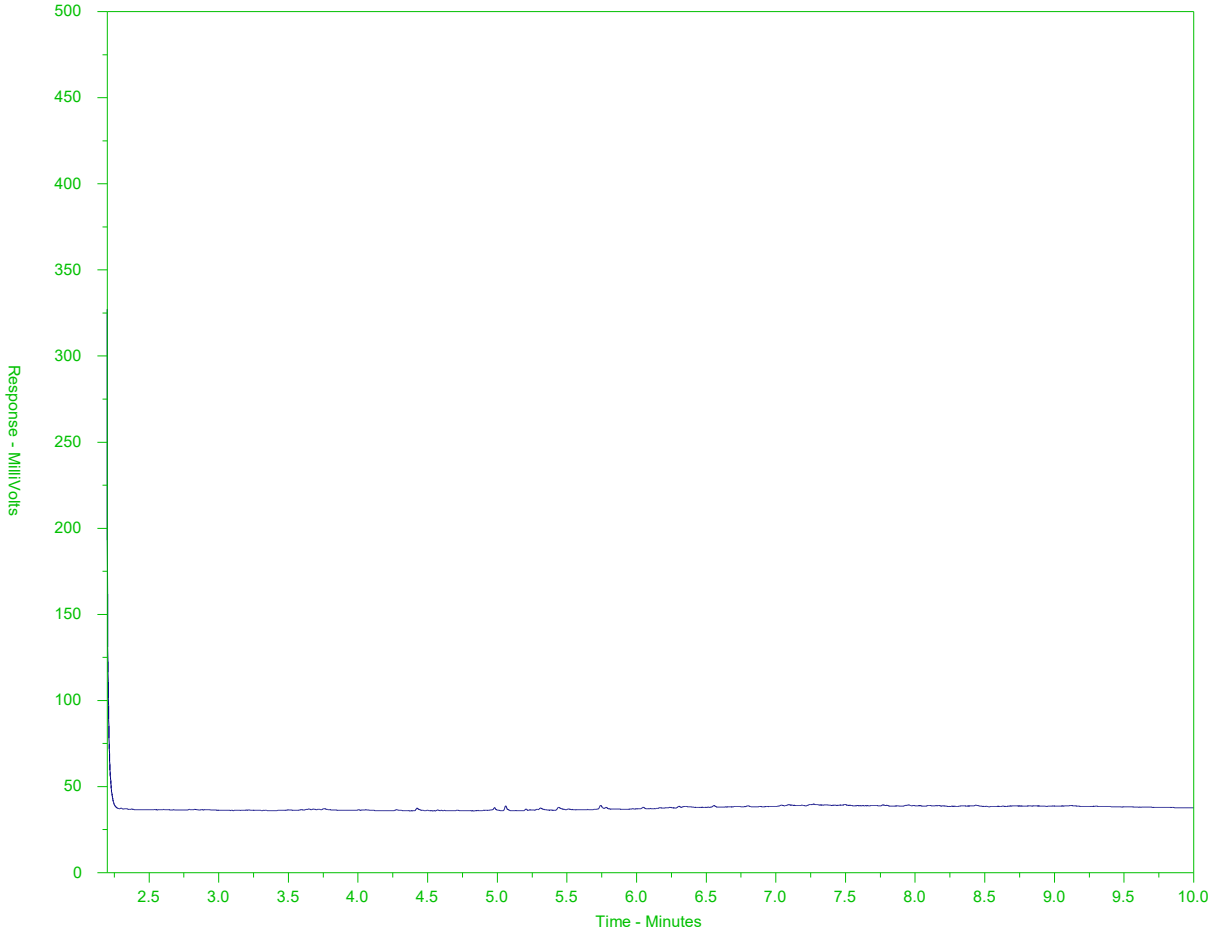
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

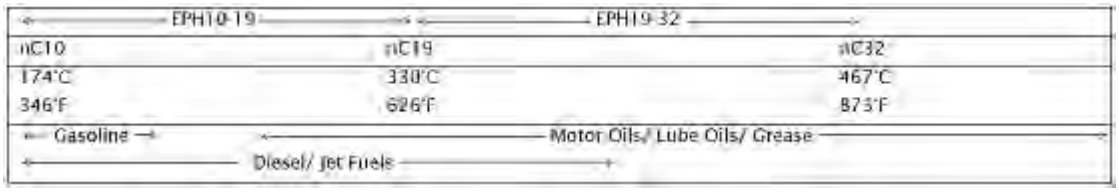
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-11
Client Sample ID: Z201





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

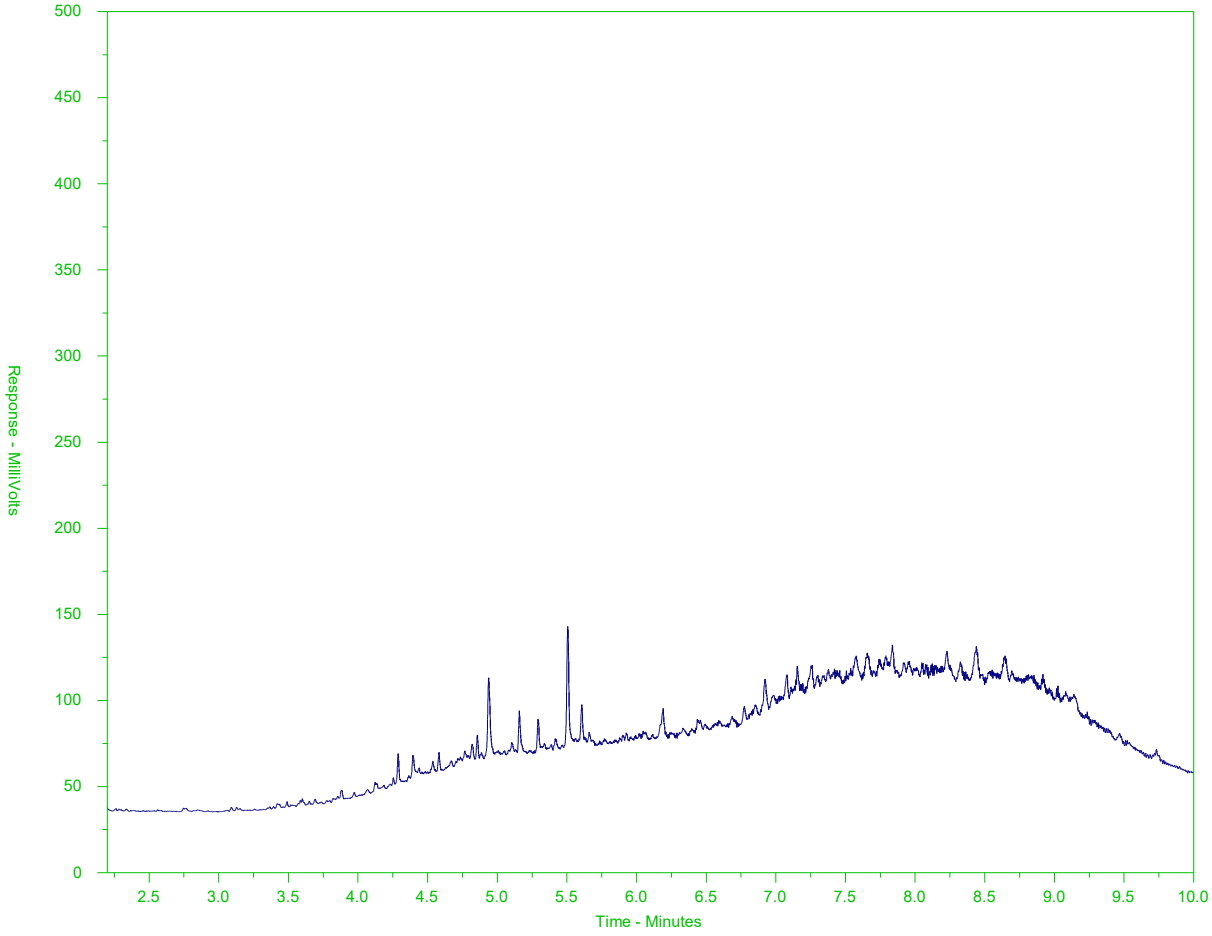
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

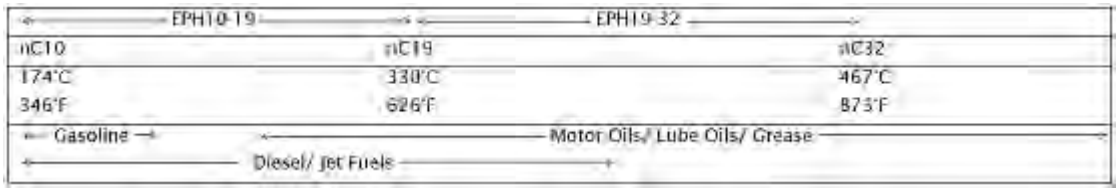
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-12
Client Sample ID: BH162-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

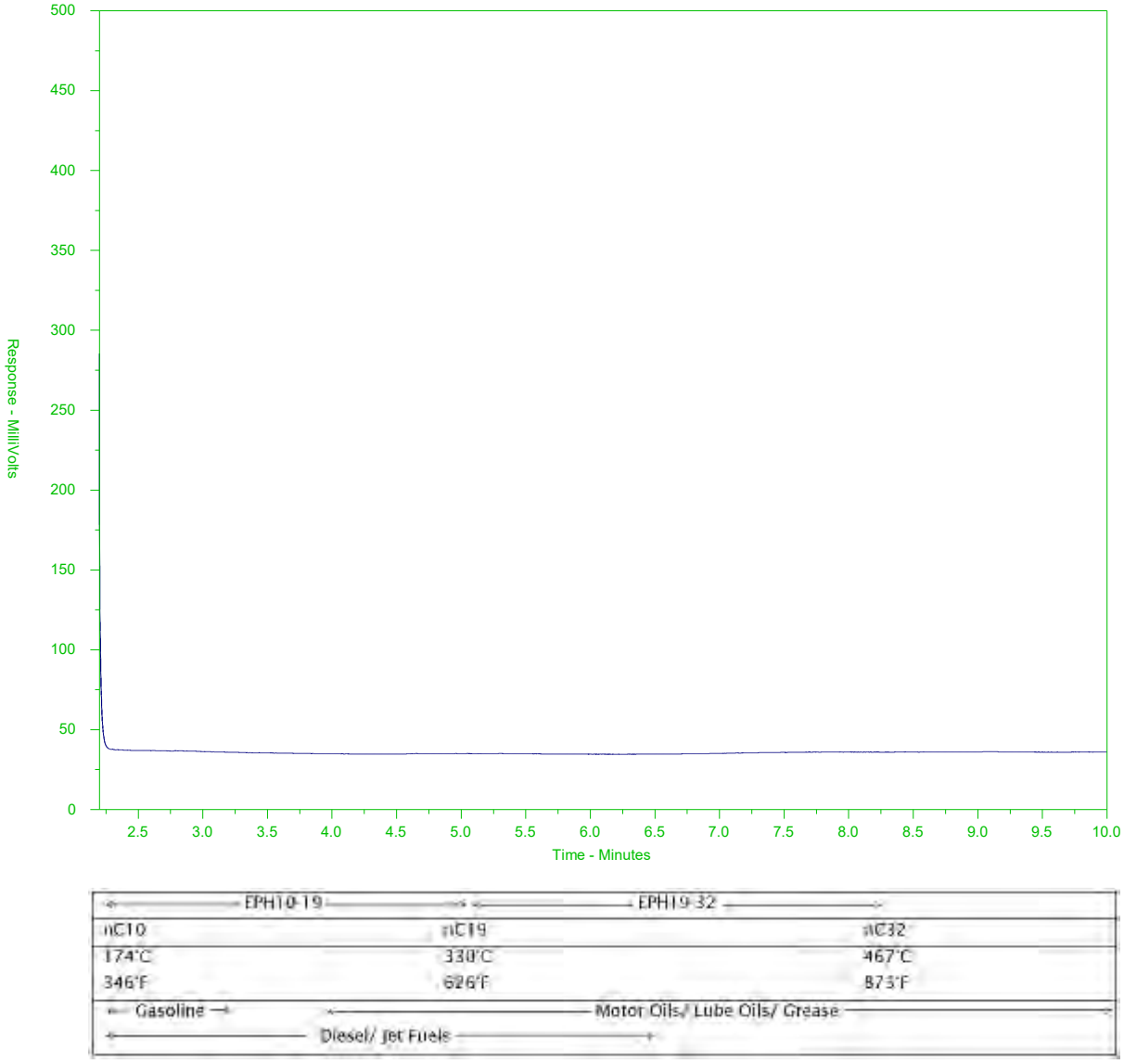
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-14
Client Sample ID: BH162-03



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

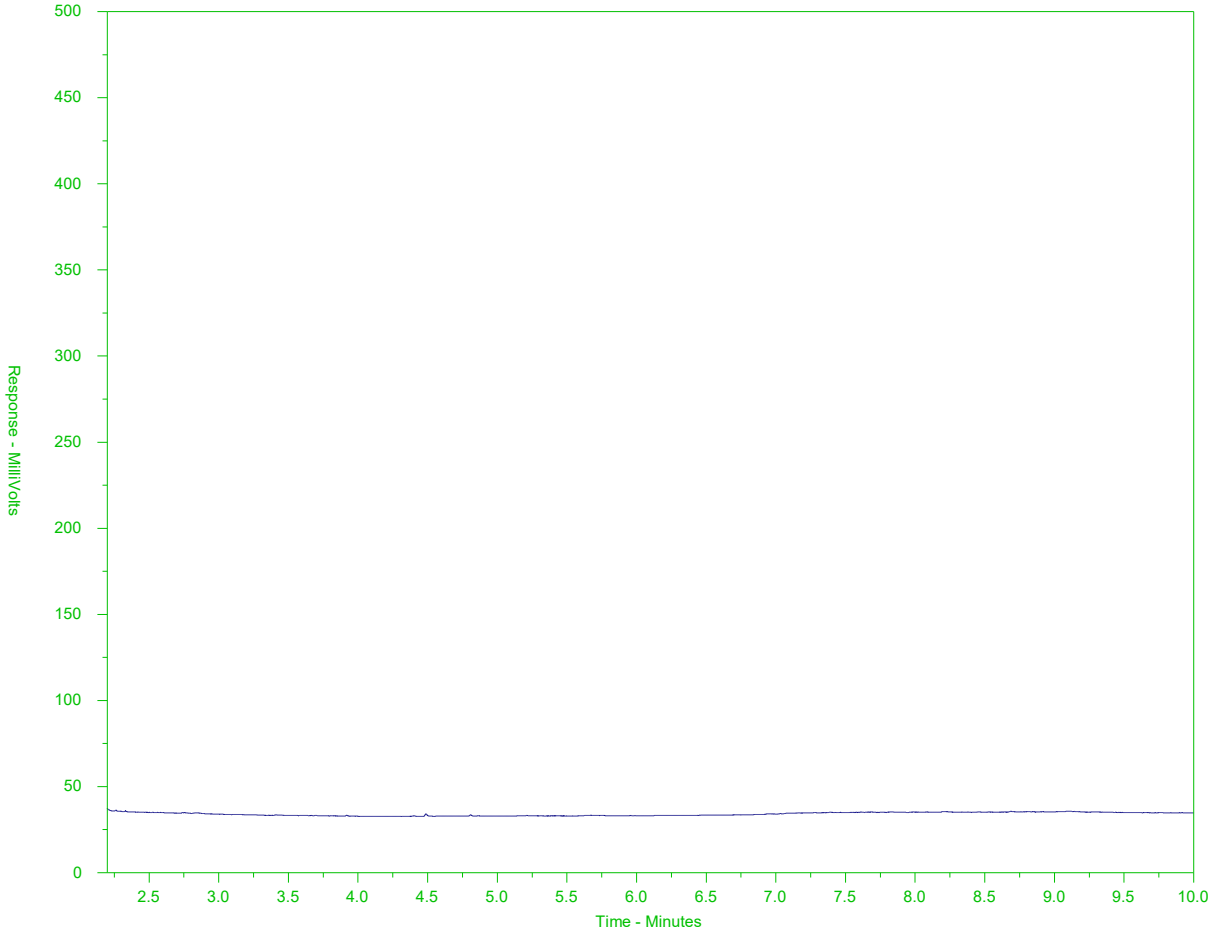
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

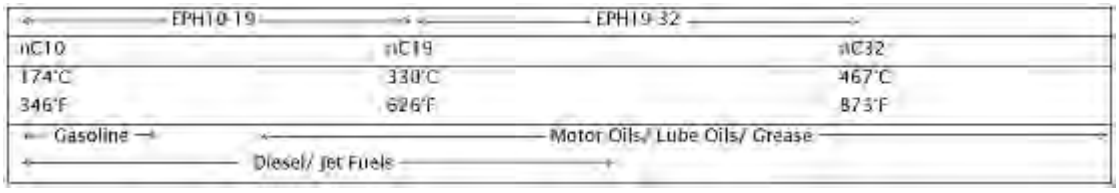
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-16
Client Sample ID: BH163-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

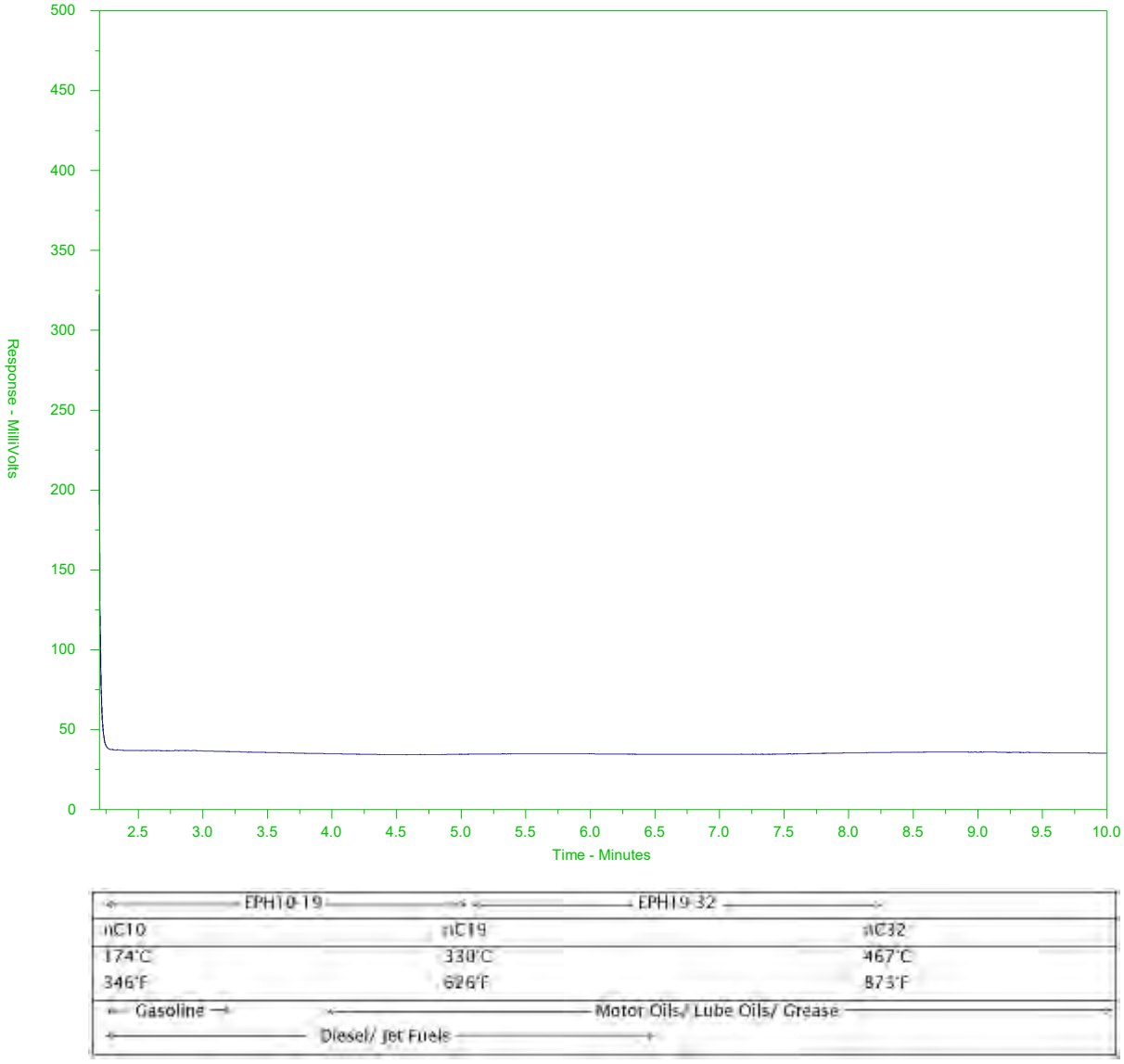
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-19
Client Sample ID: BH164-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

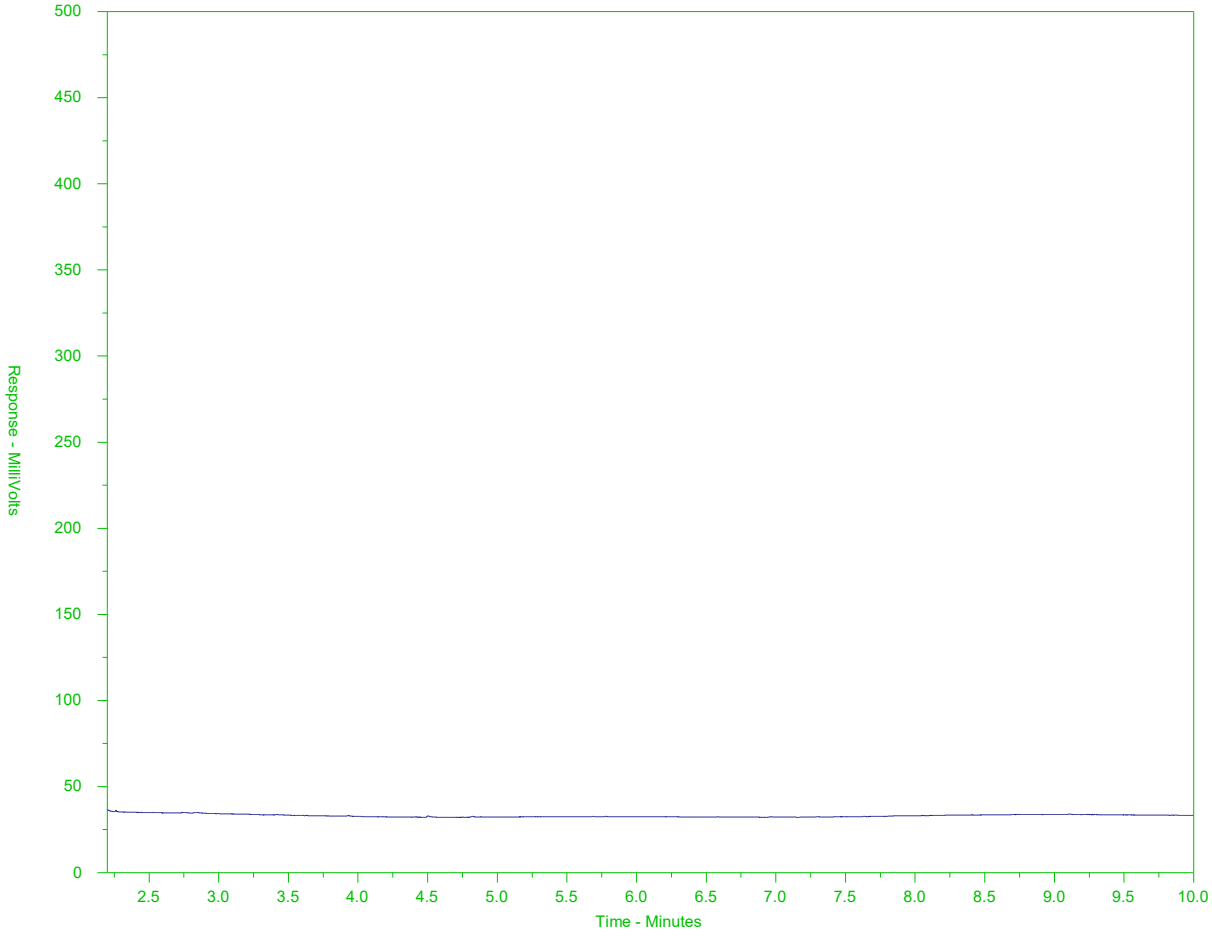
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

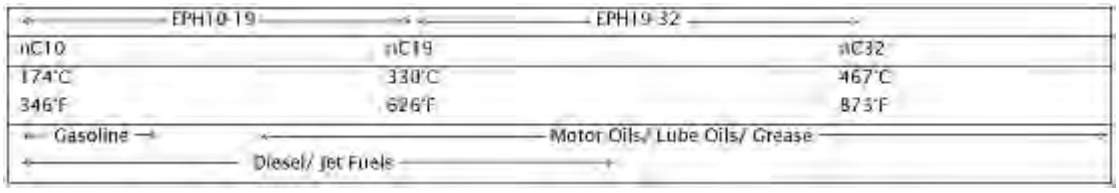
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-21
Client Sample ID: BH165-01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

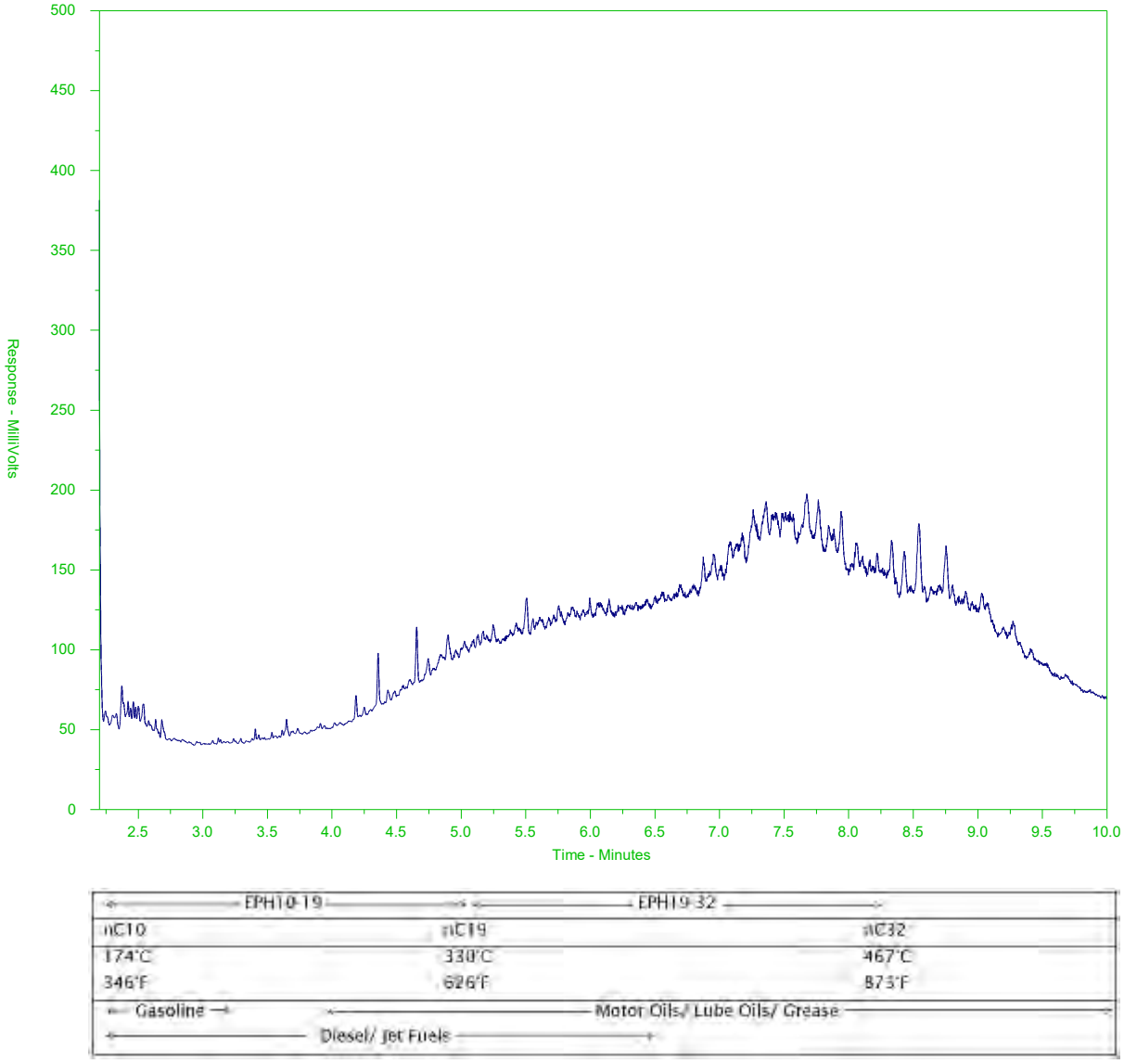
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-23
Client Sample ID: BH166-01



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

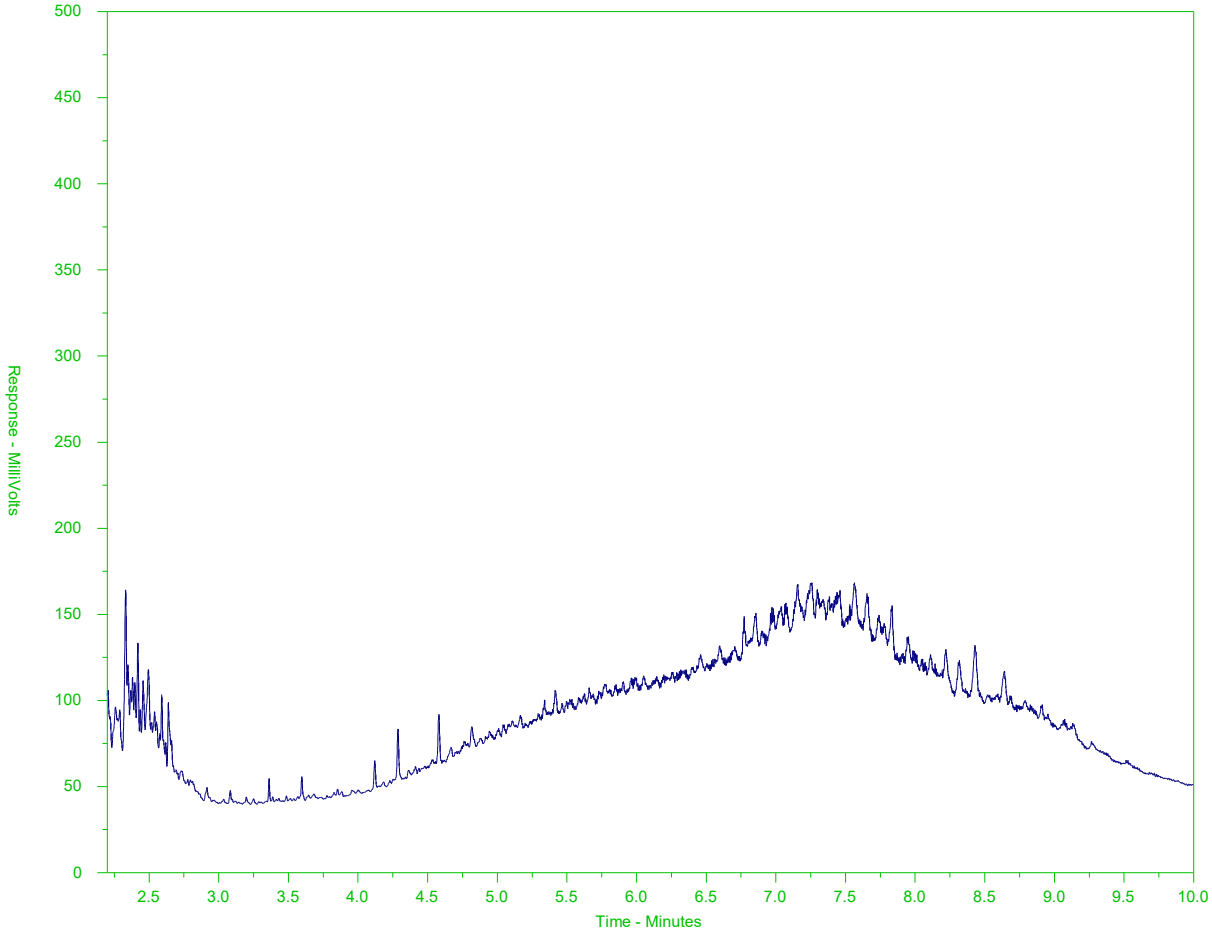
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-24
Client Sample ID: BH166-02



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

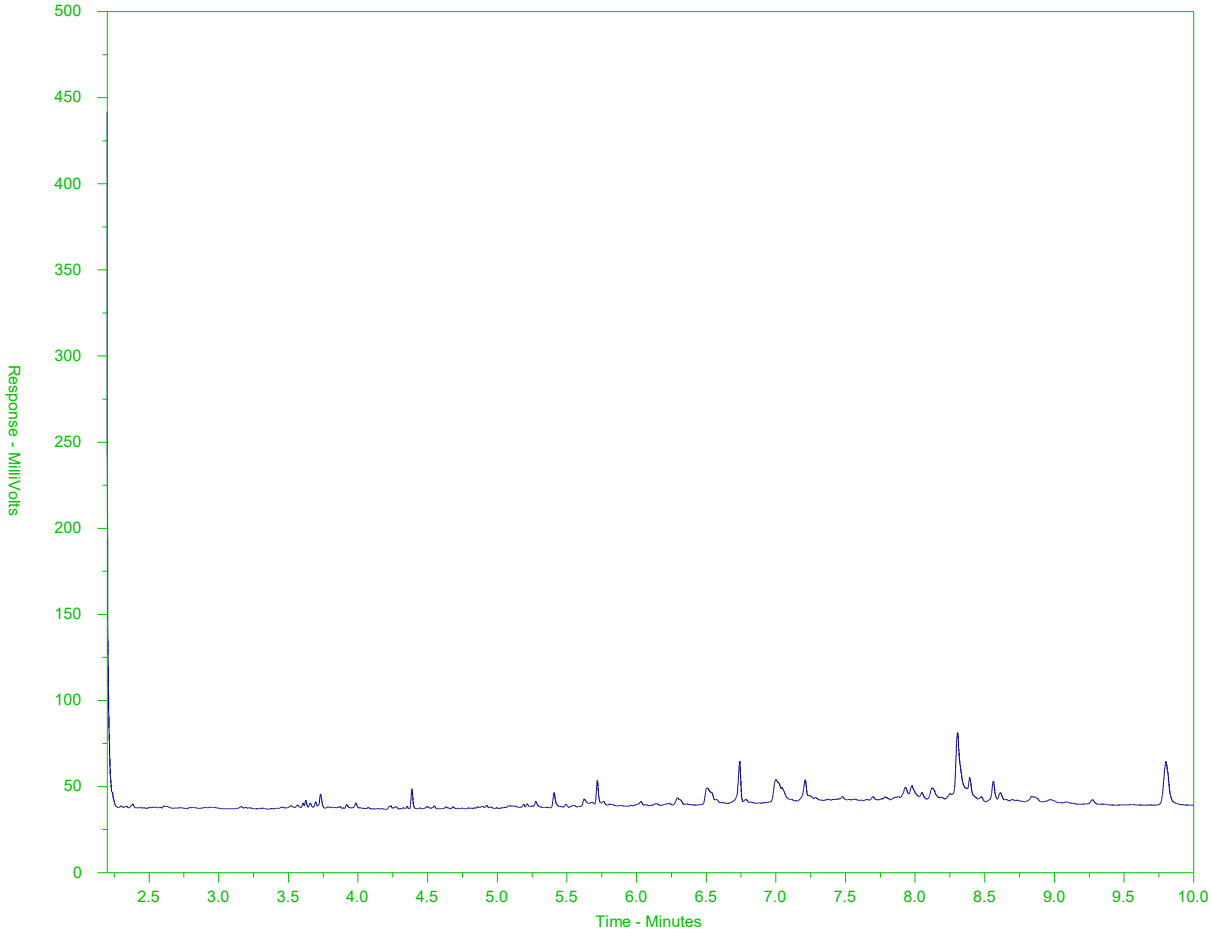
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

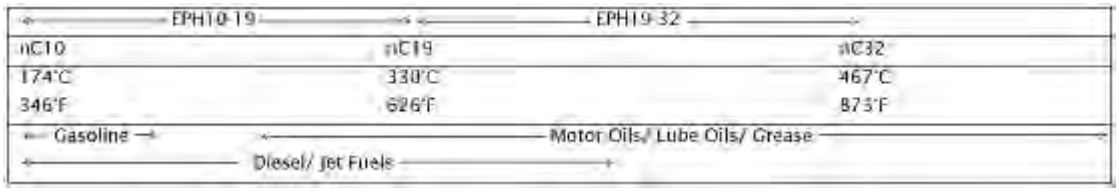
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2146560-25
Client Sample ID: BH166-03





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 717277

Page 1 of 7

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	Pbl Environmental	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Hormad	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:	604 682 3707	Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:	1500-1185 W Georgia	Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver	Email 2	
Postal Code:		Email 3	

Invoice To		Invoice Distribution
	Same as Report To YES NO	Select Invoice Distribution: EMAIL MAIL FAX
	Copy of Invoice with Report YES NO	
Company:		Email 1 or Fax
Contact:		Email 2

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#:
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: B. Mack	Sampler: A. Rivers

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	HEPH	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH1600-01	13 Aug 13		Soil	X			2
	BH1600-02							
	BH1600-03							
	BH160-04				X			
	BH1600-05							
	BH1601-01				X			
	BH1601-02							
	BH1601-03							
	BH1601-04				X			
	BH1601-05							
	7201				X			
	BH1602-01				X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	SIF Observations	Yes	No
Ice Packs / Ice Cubes	Custody seal intact	Yes	No
Cooling Initiated			

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
A. Rivers	14 Aug	13:15					Aug 14	14:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 717279

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	DGL	Select Report Format: [ ] PDF [x] EXCEL [ ] EDD (DIGITAL)	Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zaker Mohamad	Quality Control (QC) Report with Report [ ] YES [ ] NO	PROJECT (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:	(604) 682 3707	[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3	
Invoice To	Same as Report To [ ] YES [ ] NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report [ ] YES [ ] NO	Select Invoice Distribution: [ ] EMAIL [x] MAIL [ ] FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:		Major/Minor Code	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	EPH	Metals	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH1166-03	13 Aug 13		S-L	X				2
	BH1166-04	↓		↓					
	BH1167-01								
	BH1167-02								
	BH1163-01	14 Aug 13				X			
	BH1163-02					X			
	BH1168-03								
	BH1163-04					X			
	BH1163-05								
	BH1169-01					X			
	BH1169-02					X			
	BH1169-03	↓		↓		X			↓

Drinking Water (DW) Samples (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs	[ ]	Ice Cubes [ ]	Custody seal intact	Yes [ ]	No [ ]
Cooling Initiated	[ ]				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: MA	Date: Aug 14	Time: 14:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 691989

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Tayyab Mohamad	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:		Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3	

Invoice To	Same as Report To YES NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH172-01	13 Aug 15		Soil				2
	BH172-02				X			
	BH172-03							
	BH172-04							
	BH172-05				X			
	BH172-06							
	BH173-01							
	BH173-02				X			
	2200							
	BH173-03							
	BH173-04							
	BH173-05							

Drinking Water (DW) Samples (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? YES NO		Frozen SIF Observations Yes No
Are samples for human consumption/ use? YES NO		Ice Packs Ice Cubes Custody seal intact Yes No
		Cooling Initiated
		INITIAL COOLER TEMPERATURES °C: 8
		FINAL COOLER TEMPERATURES °C:

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: MA	Date: Aug 14	Time: 14:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17-691988

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Layael Monard	Quality Control (QC) Report with Report: YES NO	PRIORITY (Business Days): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:		Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3	

Invoice To	Same as Report To YES NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#:
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Meyer	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH174-01	13 Aug 13		Soil				2
	BH174-02				X			
	BH174-03							
	BH174-04							
	BH174-05							
	BH175-01				X			
	BH175-02				X			
	BH175-03							
	BH175-04				X			
	BH175-05							
	BH176-01				X			
	BH176-02	↓		↓	X			↓

Drinking Water (DW) Samples' (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? YES NO		Frozen SIF Observations Yes No
Are samples for human consumption/ use? YES NO		Ice Packs Ice Cubes Custody seal intact Yes No
		Cooling Initiated

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		X			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: YIA	Date: Aug 4	Time: 14:49

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2013 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 691987

Report To	Contact and company name below will appear on the final report
Company:	PGL
Contact:	Zaheer Mohamad
Phone:	604 682 5721
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To [ ] YES [ ] NO
	Copy of Invoice with Report: [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [ ] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report [ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2

Project Information

ALS Account # / Quote #:
Job #: 5355-01.01
PO / AFE:
LSD:
ALS Lab Work Order # (lab use only):

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:
ALS Contact: Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ] / 3 day [P3-25%] [ ] / 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ] / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Metals

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH176-03	13 Aug 13		Soil			2
	BH176-04	"		"			4
	BH176-05	"		"			4

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
[ ] YES [ ] NO

Are samples for human consumption/ use?
[ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]
Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by:	Date:	Time:
N/A	May 14	1440

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

[1] If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 717277

Page 1 of 7

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PBL Environmental	Select Report Format: [ ] PDF [ ] EXCEL [ ] EDD (DIGITAL)	Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamad	Quality Control (QC) Report with Report [ ] YES [ ] NO	PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]
Phone:	604 682 3707	[ ] Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]
	Company address below will appear on the final report	Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Date and Time Required for all E&P TATs:
Street:	1500-1185 W Georgia	Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver	Email 2	
Postal Code:		Email 3	
Invoice To	Same as Report To [ ] YES [ ] NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report [ ] YES [ ] NO	Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#:
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: B. Mack	Sampler: A. Rivers

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	HEPH	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH1600-01	13 Aug 18		Soil	X			2
	BH1600-02							
	BH1600-03							
	BH1600-04				X			
	BH1600-05							
	BH1601-01				X			
	BH1601-02							
	BH1601-03							
	BH1601-04				X			
	BH1601-05							
	7201				X			
	BH1602-01				X			4

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs	[ ] Ice Cubes [ ]	Custody seal intact	Yes [ ]	No	[ ]
Cooling Initiated	[ ]				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
A. Rivers	14 Aug	13:15				MA	Aug 14	14:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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ALT 2317 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 717278

Report To	Contact and company name below will appear on the final report
Company:	PGL
Contact:	Zaiyad Mohamed
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To [ ] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	[ ] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	
Email 3	

Invoice Distribution	
Select Invoice Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	
Job #:	5355-01.01
PO / AFE:	
LSD:	
ALS Lab Work Order # (lab use only):	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] [ ]; 3 day [P3-25%] [ ]; 2 day [P2-50%] [ ]

EMERGENCY: 1 Business day [E-100%] [ ]; Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs: [ ] [ ]

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	HEPH	L/H	BTEX/VPH	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH1h2-02	13 Aug 13		Soil						2
	BH1h2-03	"		"	X					1
	BH1h2-04	"		"						1
	BH1h3-01	14 Aug 13		"	X					1
	BH1h3-02									1
	2202									1
	BH1h4-01				X					1
	BH1h4-02									1
	BH1h5-01				X					1
	BH1h5-02									1
	BH1h6-01	13 Aug 13				X	X			4
	BH1h6-02	13 Aug 13				X	X			4

Drinking Water (DW) Samples' (client use)

Are samples taken from a Regulated DW System? [ ] YES [ ] NO

Are samples for human consumption/ use? [ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations [ ] Yes [ ] No [ ]

Ice Packs [ ] Ice Cubes [ ] Custody seal intact [ ] Yes [ ] No [ ]

Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: HA	Date: Aug 14	Time: 11:00

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 717279

Report To	Contact and company name below will appear on the final report
Company:	DbL
Contact:	Zaled Mohamad
Phone:	(604) 682 3727
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To [ ] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [ ] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report [ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2

Project Information

ALS Account # / Quote #:
Job #:
PO / AFE:
LSD:
ALS Lab Work Order # (lab use only):

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#
Major/Minor Code: | Routing Code:
Requisitioner:
Location:
ALS Contact: | Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days):
- 4 day [P4-20%] [ ]
- 3 day [P3-25%] [ ]
- 2 day [P2-50%] [ ]

EMERGENCY:
- 1 Business day [E-100%] [ ]
- Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm

*For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	EPH	Metals	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH1666-03	13 Aug 13		Soil	X				2
	BH1666-04								
	BH1667-01								
	BH1667-02								
	BH1668-01	14 Aug 13				X			
	BH1663-02					X			
	BH1668-03								
	BH1663-04					X			
	BH1663-05								
	BH1669-01					X			
	BH1669-02					X			
	BH1669-03					X			

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
[ ] YES [ ] NO

Are samples for human consumption/ use?
[ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]
Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C: 8
FINAL COOLER TEMPERATURES °C:

SHIPMENT RELEASE (client use)

Released by: | Date: | Time:

INITIAL SHIPMENT RECEPTION (lab use only)

Received by: | Date: | Time:

FINAL SHIPMENT RECEPTION (lab use only)

Received by: MA | Date: Aug 14 | Time: 14:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 717275

Report To	Contact and company name below will appear on the final report
Company:	PGL
Contact:	Zaigal Mohamed
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To [ ] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution

Select Report Format: [ ] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report [ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2
Email 3

Invoice Distribution

Select Invoice Distribution: [ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax
Email 2

Project Information

ALS Account # / Quote #:
Job #: 5355-01.01
PO / AFE:
LSD:
ALS Lab Work Order # (lab use only):

Oil and Gas Required Fields (client use)

AFE/Cost Center: | PO#
Major/Minor Code: | Routing Code:
Requisitioner:
Location:
ALS Contact: | Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days): 4 day [P4-20%] [ ] | 3 day [P3-25%] [ ] | 2 day [P2-50%] [ ]

Emergency: 1 Business day [E-100%] [ ] | Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] [ ]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Metals

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH169-04	14 Aug 13		Soil			2
	BH169-05						
	BH170-01						
	BH170-02						
	BH170-03						
	BH170-04						
	BH170-05						
	BH171-01						
	BH171-03						
	BH171-03						
	BH171-04						
	BH171-05						

Drinking Water (DW) Samples' (client use)

Are samples taken from a Regulated DW System?
[ ] YES [ ] NO
Are samples for human consumption/ use?
[ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] | SIF Observations Yes [ ] No [ ]
Ice Packs [ ] Ice Cubes [ ] | Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
			X				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
							May 14	14:49

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17 - 691989

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zaiyad Mohamed	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:		Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E-100%] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3	
Invoice To	Same as Report To YES NO	Invoice Distribution	
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#:
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH172-01	13 Aug 13		Soil				2
	BH172-02				X			1
	BH172-03							1
	BH172-04							1
	BH172-05				X			1
	BH172-06							1
	BH173-01							1
	BH173-02				X			1
	ZZ00							1
	BH173-03							1
	BH173-04							1
	BH173-05							1

Drinking Water (DW) Samples (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen | SIF Observations Yes No
Ice Packs | Ice Cubes | Custody seal intact Yes No
Cooling Initiated

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C		
			8			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: MA	Date: Aug 14	Time: 1414

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2146560-COFC

COC Number: 17-691988

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Lawad Mhanad	Quality Control (QC) Report with Report YES NO	Priority (Business Days): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:		Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E-100%] Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:		Email 1 or Fax	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:		Email 2	
Postal Code:		Email 3	
Invoice To	Same as Report To YES NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information	Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	AFE/Cost Center:	PO#
Job #: 5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:	Requisitioner:	
LSD:	Location:	
ALS Lab Work Order # (lab use only):	ALS Contact:	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Meyers	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH174-01	13 Aug 13		Soil				2
	BH174-02				X			1
	BH174-03							1
	BH174-04							1
	BH174-05							1
	BH175-01				X			1
	BH175-02				X			1
	BH175-03							1
	BH175-04				X			1
	BH175-05							1
	BH176-01				X			1
	BH176-02				X			1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes No
Ice Packs	Ice Cubes	Custody seal intact	Yes No
Cooling Initiated			

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
		X			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: YIA	Date: Aug 14	Time: 4:49

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 16-AUG-18
Report Date: 24-AUG-18 14:11 (MT)
Version: FINAL REV. 2

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2148270

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-692289
Legal Site Desc:

Comments:

24-AUG-2018 This report replaces the previous version and includes a change to the VH and VPH data for samples SV10 and Z02, due to a sample mix-up during initial data entry.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2148270-1	L2148270-2	L2148270-3	L2148270-4	L2148270-5
Description	Vapour	Vapour	Vapour	Vapour	Vapour
Sampled Date	16-AUG-18	16-AUG-18	16-AUG-18	16-AUG-18	16-AUG-18
Sampled Time	08:58	09:43	10:07	11:01	11:01
Client ID	SV08	SV09	SV10	SV11	Z02
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds					
Acetone (ug)	<0.90 DLQ	<0.060	<0.20 DLQ	<0.60 DLQ	<1.5 DLQ
Acetone (ug/m3)	<400 DLQ	<27	<89 DLQ	<260 DLQ	<520 DLQ
Benzene (ug)	0.337	<0.0050 DLB	0.0164	0.0244	0.0302
Benzene (ug/m3)	151	<2.3 DLB	7.3	10.7	10.4
Bromodichloromethane (ug)	<0.030 DLCI	<0.0070 DLCI	<0.0025	<0.0080 DLCI	<0.030 DLCI
Bromodichloromethane (ug/m3)	<13 DLCI	<3.2 DLCI	<1.1	<3.5 DLCI	<10 DLCI
Bromoform (ug)	<0.015	<0.015	<0.015	<0.015	<0.015
Bromoform (ug/m3)	<6.7	<6.8	<6.7	<6.6	<5.2
2-Butanone (MEK) (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
2-Butanone (MEK) (ug/m3)	<11	<11	<11	<11	<8.6
Carbon Tetrachloride (ug)	<0.0015	<0.0015	0.315	<0.0015	<0.0015
Carbon Tetrachloride (ug/m3)	<0.67	<0.68	141	<0.66	<0.52
Chlorobenzene (ug)	<0.0050 DLCI	<0.0025	<0.0025	<0.35 DLCI	<0.30 DLCI
Chlorobenzene (ug/m3)	<2.2 DLCI	<1.1	<1.1	<150 DLCI	<100 DLCI
Dibromochloromethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
Dibromochloromethane (ug/m3)	<11	<11	<11	<11	<8.6
Chloroethane (ug)	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroethane (ug/m3)	<22	<23	<22	<22	<17
Decane (nC10) (ug)	<0.040 DLCI	<0.025	<0.025	<30 DLCI	<42 DLCI
Decane (nC10) (ug/m3)	<18 DLCI	<11	<11	<13000 DLCI	<14000 DLCI
1,2-Dichlorobenzene (ug)	<0.015	<0.015	<0.015	<0.015	<0.015
1,2-Dichlorobenzene (ug/m3)	<6.7	<6.8	<6.7	<6.6	<5.2
1,3-Dichlorobenzene (ug)	0.0298	0.0148	<0.0050	<0.0050	<0.0050
1,3-Dichlorobenzene (ug/m3)	13.3	6.7	<2.2	<2.2	<1.7
1,4-Dichlorobenzene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0080 DLQ
1,4-Dichlorobenzene (ug/m3)	<2.2	<2.3	<2.2	<2.2	<2.8 DLQ
1,1-Dichloroethane (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
1,1-Dichloroethane (ug/m3)	<1.1	<1.1	<1.1	<1.1	<0.86
1,2-Dichloroethane (ug)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
1,2-Dichloroethane (ug/m3)	<0.45	<0.45	<0.45	<0.44	<0.34
1,1-Dichloroethylene (ug)	<0.0030	<0.0030	0.0749	<0.0030	<0.0030
1,1-Dichloroethylene (ug/m3)	<1.3	<1.4	33.4	<1.3	<1.0
cis-1,2-Dichloroethylene (ug)	<0.0050	<0.0050	0.0287	<0.0050	<0.0050
cis-1,2-Dichloroethylene (ug/m3)	<2.2	<2.3	12.8	<2.2	<1.7
trans-1,2-Dichloroethylene (ug)	<0.0050	<0.0050	0.0153	<0.0050	<0.0050
trans-1,2-Dichloroethylene (ug/m3)	<2.2	<2.3	6.8	<2.2	<1.7
1,2-Dichloropropane (ug)	<0.0040 DLCI	<0.0020 DLCI	<0.0015	<0.0015	<0.0015

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2148270-6				
	Description	Vapour				
	Sampled Date	16-AUG-18				
	Sampled Time	08:45				
	Client ID	SV12				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	Acetone (ug)	<0.50 DLQ				
	Acetone (ug/m3)	<240 DLQ				
	Benzene (ug)	0.0064				
	Benzene (ug/m3)	3.0				
	Bromodichloromethane (ug)	<0.0025				
	Bromodichloromethane (ug/m3)	<1.2				
	Bromoform (ug)	<0.015				
	Bromoform (ug/m3)	<7.1				
	2-Butanone (MEK) (ug)	<0.025				
	2-Butanone (MEK) (ug/m3)	<12				
	Carbon Tetrachloride (ug)	<0.0015				
	Carbon Tetrachloride (ug/m3)	<0.71				
	Chlorobenzene (ug)	<0.0080 DLCI				
	Chlorobenzene (ug/m3)	<3.8 DLCI				
	Dibromochloromethane (ug)	<0.025				
	Dibromochloromethane (ug/m3)	<12				
	Chloroethane (ug)	<0.050				
	Chloroethane (ug/m3)	<24				
	Decane (nC10) (ug)	<0.40 DLCI				
	Decane (nC10) (ug/m3)	<190 DLCI				
	1,2-Dichlorobenzene (ug)	<0.015				
	1,2-Dichlorobenzene (ug/m3)	<7.1				
	1,3-Dichlorobenzene (ug)	<0.0050				
	1,3-Dichlorobenzene (ug/m3)	<2.4				
	1,4-Dichlorobenzene (ug)	<0.0050				
	1,4-Dichlorobenzene (ug/m3)	<2.4				
	1,1-Dichloroethane (ug)	<0.0025				
	1,1-Dichloroethane (ug/m3)	<1.2				
	1,2-Dichloroethane (ug)	<0.0010				
	1,2-Dichloroethane (ug/m3)	<0.48				
	1,1-Dichloroethylene (ug)	<0.0030				
	1,1-Dichloroethylene (ug/m3)	<1.4				
	cis-1,2-Dichloroethylene (ug)	0.0075				
	cis-1,2-Dichloroethylene (ug/m3)	3.6				
	trans-1,2-Dichloroethylene (ug)	<0.0050				
	trans-1,2-Dichloroethylene (ug/m3)	<2.4				
	1,2-Dichloropropane (ug)	<0.0015				

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2148270-1	L2148270-2	L2148270-3	L2148270-4	L2148270-5
Description	Vapour	Vapour	Vapour	Vapour	Vapour
Sampled Date	16-AUG-18	16-AUG-18	16-AUG-18	16-AUG-18	16-AUG-18
Sampled Time	08:58	09:43	10:07	11:01	11:01
Client ID	SV08	SV09	SV10	SV11	Z02
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds 1,2-Dichloropropane (ug/m3)	<1.8 DLCI	<0.90 DLCI	<0.67	<0.66	<0.52
cis-1,3-Dichloropropylene (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
cis-1,3-Dichloropropylene (ug/m3)	<1.1	<1.1	<1.1	<1.1	<0.86
trans-1,3-Dichloropropylene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
trans-1,3-Dichloropropylene (ug/m3)	<2.2	<2.3	<2.2	<2.2	<1.7
Ethyl Acetate (ug)	<0.10	<0.10	<0.10	<0.10	<0.10
Ethyl Acetate (ug/m3)	<45	<45	<45	<44	<34
Ethylbenzene (ug)	<0.040 DLC	<0.020 DLC	<0.0060 DLC	<0.10 DLQ	<0.20 DLQ
Ethylbenzene (ug/m3)	<18 DLC	<9.0 DLC	<2.7 DLC	<44 DLQ	<69 DLQ
n-Hexane (nC6) (ug)	0.617	<0.025	<0.025	0.130	0.161
n-Hexane (nC6) (ug/m3)	276	<11	<11	57	55.4
Cumene (ug)	0.0114	<0.0025	<0.0025	1.60	2.23
Cumene (ug/m3)	5.1	<1.1	<1.1	700	769
Styrene (ug)	0.0175	<0.0050 DLCI	0.0038	<0.0025	<0.0030 DLCI
Styrene (ug/m3)	7.8	<2.3 DLCI	1.7	<1.1	<1.0 DLCI
1,1,1,2-Tetrachloroethane (ug)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
1,1,1,2-Tetrachloroethane (ug/m3)	<1.8	<1.8	<1.8	<1.8	<1.4
1,1,2,2-Tetrachloroethane (ug)	<0.0050 DLCI	<0.0025	<0.0025	<4.9 DLCI	<2.5 DLCI
1,1,2,2-Tetrachloroethane (ug/m3)	<2.2 DLCI	<1.1	<1.1	<2100 DLCI	<860 DLCI
Tetrachloroethylene (ug)	<0.030	<0.030	54.9 AOCR	<0.030	<0.030
Tetrachloroethylene (ug/m3)	<13	<14	24500 AOCR	<13	<10
Toluene (ug)	<0.25 DLC	<0.15 DLC	0.119	0.075	0.104
Toluene (ug/m3)	<110 DLC	<68 DLC	52.9	32.9	35.9
1,1,2-Trichloro-1,2,2-trifluoroethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
1,1,2-Trichloro-1,2,2-trifluoroethane (ug/m3)	<11	<11	<11	<11	<8.6
1,1,1-Trichloroethane (ug)	<0.0025	<0.0025	0.0673	<0.0025	<0.0025
1,1,1-Trichloroethane (ug/m3)	<1.1	<1.1	30.1	<1.1	<0.86
1,1,2-Trichloroethane (ug)	<0.20 DLCI	<0.20 DLCI	<0.060 DLCI	<0.090 DLCI	<0.030 DLCI
1,1,2-Trichloroethane (ug/m3)	<90 DLCI	<90 DLCI	<27 DLCI	<39 DLCI	<10 DLCI
Trichloroethylene (ug)	<0.0015	<0.0015	1.32 AOCR	0.0036	0.0047
Trichloroethylene (ug/m3)	<0.67	<0.68	590 AOCR	1.57	1.62
Trichlorofluoromethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
Trichlorofluoromethane (ug/m3)	<11	<11	<11	<11	<8.6
Vinyl Chloride (ug)	<0.0050 DLQ	<0.0030	0.0077	<0.0030	<0.0030
Vinyl Chloride (ug/m3)	<2.2 DLQ	<1.4	3.4	<1.3	<1.0
ortho-Xylene (ug)	<0.060 DLC	<0.020 DLC	<0.020 DLC	<0.060 DLC	<0.10 DLC
ortho-Xylene (ug/m3)	<27 DLC	<9.0 DLC	<8.9 DLC	<26 DLC	<34 DLC

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2148270-6				
	Description	Vapour				
	Sampled Date	16-AUG-18				
	Sampled Time	08:45				
	Client ID	SV12				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	1,2-Dichloropropane (ug/m3)	<0.71				
	cis-1,3-Dichloropropylene (ug)	<0.0025				
	cis-1,3-Dichloropropylene (ug/m3)	<1.2				
	trans-1,3-Dichloropropylene (ug)	<0.0050				
	trans-1,3-Dichloropropylene (ug/m3)	<2.4				
	Ethyl Acetate (ug)	<0.10				
	Ethyl Acetate (ug/m3)	<48				
	Ethylbenzene (ug)	<0.0050 DLC				
	Ethylbenzene (ug/m3)	<2.4 DLC				
	n-Hexane (nC6) (ug)	0.038				
	n-Hexane (nC6) (ug/m3)	18				
	Cumene (ug)	0.0026				
	Cumene (ug/m3)	1.2				
	Styrene (ug)	<0.0025				
	Styrene (ug/m3)	<1.2				
	1,1,1,2-Tetrachloroethane (ug)	<0.0040				
	1,1,1,2-Tetrachloroethane (ug/m3)	<1.9				
	1,1,2,2-Tetrachloroethane (ug)	<0.020 DLCI				
	1,1,2,2-Tetrachloroethane (ug/m3)	<9.5 DLCI				
	Tetrachloroethylene (ug)	0.042				
	Tetrachloroethylene (ug/m3)	20				
	Toluene (ug)	0.042				
	Toluene (ug/m3)	20.0				
	1,1,2-Trichloro-1,2,2-trifluoroethane (ug)	<0.025				
	1,1,2-Trichloro-1,2,2-trifluoroethane (ug/m3)	<12				
	1,1,1-Trichloroethane (ug)	<0.0025				
	1,1,1-Trichloroethane (ug/m3)	<1.2				
	1,1,2-Trichloroethane (ug)	<0.020 DLCI				
	1,1,2-Trichloroethane (ug/m3)	<9.5 DLCI				
	Trichloroethylene (ug)	0.0132				
	Trichloroethylene (ug/m3)	6.29				
	Trichlorofluoromethane (ug)	<0.025				
	Trichlorofluoromethane (ug/m3)	<12				
	Vinyl Chloride (ug)	0.0112				
	Vinyl Chloride (ug/m3)	5.3				
	ortho-Xylene (ug)	<0.015 DLC				
	ortho-Xylene (ug/m3)	<7.1 DLC				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2148270-1	L2148270-2	L2148270-3	L2148270-4	L2148270-5
Description	Vapour	Vapour	Vapour	Vapour	Vapour
Sampled Date	16-AUG-18	16-AUG-18	16-AUG-18	16-AUG-18	16-AUG-18
Sampled Time	08:58	09:43	10:07	11:01	11:01
Client ID	SV08	SV09	SV10	SV11	Z02
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds / meta- & para-Xylene (ug)	<0.15 DLC	<0.10 DLC	<0.060 DLC	<0.10 DLC	<0.15 DLC
meta- & para-Xylene (ug/m3)	<67 DLC	<45 DLC	<27 DLC	<44 DLC	<52 DLC
Xylenes (ug/m3)	<72	<45	<28	<53	<62
Hydrocarbons / VHv(C6-C13) (ug)	<78 DLC	<21 DLC	<15	3310	4470
VHv(C6-C13) (ug/m3)	<35000 DLC	<9500 DLC	<6700	1450000	1540000
VPHv(C6-C13) (ug/m3)	<35000	<9500	<6700	1450000	1540000
Polycyclic Aromatic Hydrocarbons / Naphthalene (ug)	0.0158	<0.0090	<0.0090	<0.050 DLCI	<0.090 DLCI
Naphthalene (ug/m3)	7.1	<4.1	<4.0	<22 DLCI	<31 DLCI

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2148270-6				
	Description	Vapour				
	Sampled Date	16-AUG-18				
	Sampled Time	08:45				
	Client ID	SV12				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	meta- & para-Xylene (ug)	<0.050 DLC				
	meta- & para-Xylene (ug/m3)	<24 DLC				
	Xylenes (ug/m3)	<25				
Hydrocarbons	VHv(C6-C13) (ug)	127				
	VHv(C6-C13) (ug/m3)	60300				
	VPHv(C6-C13) (ug/m3)	60200				
Polycyclic Aromatic Hydrocarbons	Naphthalene (ug)	<0.0090				
	Naphthalene (ug/m3)	<4.3				

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2148270-1	L2148270-2	L2148270-3	L2148270-4	L2148270-5
Description	Vapour	Vapour	Vapour	Vapour	Vapour
Sampled Date	16-AUG-18	16-AUG-18	16-AUG-18	16-AUG-18	16-AUG-18
Sampled Time	08:58	09:43	10:07	11:01	11:01
Client ID	SV08	SV09	SV10	SV11	Z02
Grouping **Analyte**					
MISC.					
Field Tests Air Volume, Client Supplied (L)	2.23	2.22	2.240	2.28	2.90

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2148270-6				
	Description	Vapour				
	Sampled Date	16-AUG-18				
	Sampled Time	08:45				
	Client ID	SV12				
Grouping	**Analyte**					
MISC.						
Field Tests	Air Volume, Client Supplied (L)	2.10				

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
AOCR	Approximate result: Outside calibration range. Analysis could not be repeated.
DLB	Detection Limit Raised. Analyte detected at comparable level in Method Blank.
DLC	Detection Limit increased due to potential carryover from previous sample (test could not be repeated).
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AIR VOLUME-VA	Misc.	Air volume (L)	HYGIENE METHOD
FUELS-TDMS-VA	Carbo-Tube	Fuels by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

PAH-TDMS-VA	Carbo-Tube	PAHs by Thermal Desorption with GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VH-TDFID-VA	Carbo-Tube	VHv by Thermal Desorption and GCFID	BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from BCMOE analytical method for contaminated sites "VHv in air by GC-FID / GC-MS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VHv is determined using gas chromatography with flame ionization (GC/FID). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VOC-M2-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VOC-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (November 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV (noted below in litres) may cause the compound to break through the media, leading to a negatively biased result. Lower boiling point compounds such as vinyl chloride (10), chloromethane (6), and dichloromethane (40) are particularly affected. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative. Where SSVs have been exceeded, please contact ALS regarding data interpretation as results may still be fit for purpose.

VOC7-TDMS-VA	Carbo-Tube	BTEX by Thermal Desorption with GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VPH-CALC-VA	Carbo-Tube	VPHv is VHv minus BTEX/nC6/nC10	BC MOE VPH

VPHv measures Volatile Petroleum Hydrocarbons in air. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VHv6-13, as per the BC Lab Manual VPH calculation procedure.
VPHw = VHv6-13 minus Benzene, Toluene, Ethylbenzene, Xylenes, Styrene, n-Hexane, and n-Decane

XYLENES-CALC-VA	Carbo-Tube	Sum of Xylene Isomer Concentrations	CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero.

Reference Information

The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-692289

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2148270-COFC

COC Number: 17 - 692289

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL	Select Report Format: ☒ PDF ☐ EXCEL ☒ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zaheed Mohamed	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐ — EMERGENCY: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
Phone:	(604) 682 3707	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:		Email 1 or Fax: zmohamed@pgvdp.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver	Email 2: ariviers@pgvdp.com	
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☐ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☐ YES ☐ NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:		AFE/Cost Center:	PO#:
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:	Q66356	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: B. Mack	Sampler: A. Riviers

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

PGL Gas Diesel Solids

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type		SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	SV08	16 Aug 18	8:58	Vapour	X			
	SV09		9:43					
	SV10		10:07					
	SV11		11:01					
	202		11:01					
	SV12		8:45					

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C		
			3.1			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: A. Riviers	Date: 16 Aug 18	Time: 13:05	Received by:	Date:	Time:	Received by:	Date: 8/16	Time: 1:12 p

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

THERI SAMPL

L2148270-COFC

ALS File # _____ BR #222347

(To be filled out by ALS upon return of samples to ALS)

Date Returned:	
QC Check:	JPL Aug 15/18

1. Sampling Supplies (To be filled out by ALS)

Company Name/Location:	PGL	Project/Job No:	
Pump Requested By:	Andrea Rivers	Date of Request:	Aug.14/18 10:30pm
ALS Account Manager:	Brent Mack	Pump(s) Prepared By:	RS
# of Pumps (TD x 1@100mL/min):	1	Date Required @ Shipping:	Aug.15/18 12pm
# of Pumps (TD x 2@100mL/min):	1	Flow Verification Tubes: 2	Other:
Other Supplies Provided:	Lithium-ion Battery Charger Splitters & Tubing 1 Alkaline Battery Adapter	Pelican Case (Single) 1 Pelican Case (Multiple) Additional Pumps:	
TD Tubes: 6			

2. Flow Rates (Flow rates before and after - ALS, flow rates in-situ - Client)

Pump ID	Pump flow before sampling (mL/min) - ALS	Pump flow after sampling (mL/min) - ALS	Pump Flow in situ (mL/min) - CLIENT[1]	Notes
1. 019885	A B 99	A B	A * B *	✓
2. 012453	A 101 B 99	A B	A B * *	✓
3.	A B	A B	A B	
4.	A B	A B	A B	

[1] If in-situ flow measurements have been provided, these will be used for all air concentrations calculations.

3. Sample Information (To be filled out by Client)

** Short/End flows

	TD Tube Serial #	Client Sample ID	Pump #	Sampling Time (min)	Date/Time	Elevated Levels Expected? Y	?	N	Recvd @ Lab ✓
108/116 1	G0155000	SU10	019885	20	Aug 16 10:07		✓		✓
108/114 2	G0151476	SU09	012453	20	" " 9:43				
3	~~G0153~~								—
149/146 4	G0153906	ZO2	20 ↔	012453	" 11:01				✓
112/116 5	G0155006	SU11	20 ↔	012453	" 11:01				✓
100/110 6	G0150792	SU12	20 ↔	019885	" 8:45				✓
106/117 7	G0155842	SU08	20 ↔	012453	" 8:53				✓
8									
9									
10									
11									
12	G0145430, G0155230 —			Flow	verification tubes				✓

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 06-SEP-18
Report Date: 13-SEP-18 13:12 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2159851

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-698715, 17-698716, 17-698717
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L2159851-1 Description: SOIL Sampled Date: 05-SEP-18 Sampled Time: Client ID: BH177 - 01	L2159851-2 SOIL 05-SEP-18 BH177 - 02	L2159851-3 SOIL 05-SEP-18 BH177 - 03	L2159851-4 SOIL 05-SEP-18 BH178 - 01	L2159851-5 SOIL 05-SEP-18 Z203
SOIL						
Physical Tests	Moisture (%)					
	pH (1:2 soil:water) (pH)	8.23	8.27	8.31	7.92	7.93
Metals	Aluminum (Al) (mg/kg)	14100	14400	14600	16700	18500
	Antimony (Sb) (mg/kg)	1.06	1.14	0.91	5.62	8.23
	Arsenic (As) (mg/kg)	4.47	4.17	3.37	8.51	10.9
	Barium (Ba) (mg/kg)	73.5	82.2	79.9	293	395
	Beryllium (Be) (mg/kg)	0.20	0.21	0.19	0.24	0.26
	Boron (B) (mg/kg)	<5.0	<5.0	<5.0	7.3	7.6
	Cadmium (Cd) (mg/kg)	0.579	0.634	0.498	3.06	4.22
	Chromium (Cr) (mg/kg)	26.9	47.0	25.4	82.6	99.9
	Cobalt (Co) (mg/kg)	8.76	9.63	8.85	11.3	13.0
	Copper (Cu) (mg/kg)	48.7	48.7	35.2	527	886
	Iron (Fe) (mg/kg)	22500	22900	21600	34100	42000
	Lead (Pb) (mg/kg)	36.7	65.7	44.3	620	808
	Lithium (Li) (mg/kg)	7.8	8.6	8.9	10.5	10.5
	Manganese (Mn) (mg/kg)	441	435	468	572	651
	Mercury (Hg) (mg/kg)	0.0346	0.0360	0.0326	0.270	0.131
	Molybdenum (Mo) (mg/kg)	0.74	5.31	1.24	4.26	6.16
	Nickel (Ni) (mg/kg)	28.5	46.8	42.5	41.2	46.1
	Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	0.24	0.32
	Silver (Ag) (mg/kg)	0.10	0.10	<0.10	0.91	0.79
	Strontium (Sr) (mg/kg)	39.3	36.0	38.1	62.0	77.5
	Thallium (Tl) (mg/kg)	0.054	<0.050	<0.050	0.063	0.068
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	27.7	33.4
	Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	1.47	2.00
	Uranium (U) (mg/kg)	0.340	0.269	0.269	0.432	0.490
	Vanadium (V) (mg/kg)	52.1	55.4	51.0	50.2	56.7
	Zinc (Zn) (mg/kg)	119	196	126	1330	2040
TCLP Metals	1st Preliminary pH (pH)					
	2nd Preliminary pH (pH)					
	Final pH (pH)					
	Extraction Solution Initial pH (pH)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L2159851-6 SOIL 05-SEP-18 BH178 - 02	L2159851-8 SOIL 05-SEP-18 BH178 - 03	L2159851-9 SOIL 05-SEP-18 BH179 - 01	L2159851-10 SOIL 05-SEP-18 BH179 - 02	L2159851-11 SOIL 05-SEP-18 Z205
SOIL						
Physical Tests	Moisture (%)					
	pH (1:2 soil:water) (pH)	7.86	7.91	8.26	7.99	8.01
Metals	Aluminum (Al) (mg/kg)	13500	13000	11500	16100	17900
	Antimony (Sb) (mg/kg)	1.72	0.86	0.41	0.94	0.97
	Arsenic (As) (mg/kg)	5.57	4.00	3.17	7.14	6.28
	Barium (Ba) (mg/kg)	114	80.3	86.3	558	529
	Beryllium (Be) (mg/kg)	0.17	0.15	0.15	0.34	0.35
	Boron (B) (mg/kg)	<5.0	<5.0	8.4	67.6	70.3
	Cadmium (Cd) (mg/kg)	0.448	0.434	0.107	0.201	0.203
	Chromium (Cr) (mg/kg)	24.9	17.2	13.5	23.3	24.6
	Cobalt (Co) (mg/kg)	6.07	5.94	5.51	6.65	6.28
	Copper (Cu) (mg/kg)	157	427	25.1	80.7	92.5
	Iron (Fe) (mg/kg)	19000	17300	15100	30600	26000
	Lead (Pb) (mg/kg)	124	75.6	27.5	178	115
	Lithium (Li) (mg/kg)	6.0	5.8	7.9	10.0	11.0
	Manganese (Mn) (mg/kg)	353	312	253	366	340
	Mercury (Hg) (mg/kg)	0.0509	0.0258	0.0321	0.515	0.303
	Molybdenum (Mo) (mg/kg)	1.48	0.89	0.53	1.67	1.55
	Nickel (Ni) (mg/kg)	13.5	11.3	11.6	24.4	23.5
	Selenium (Se) (mg/kg)	<0.20	<0.20	<0.20	<0.20	<0.20
	Silver (Ag) (mg/kg)	0.13	0.11	<0.10	0.23	0.23
	Strontium (Sr) (mg/kg)	52.6	35.0	66.2	553	483
	Thallium (Tl) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Tin (Sn) (mg/kg)	5.8	3.1	<2.0	388	162
	Tungsten (W) (mg/kg)	<0.50	<0.50	<0.50	<0.50	<0.50
	Uranium (U) (mg/kg)	0.901	0.348	0.452	0.540	0.647
	Vanadium (V) (mg/kg)	44.3	42.7	38.9	52.1	54.0
	Zinc (Zn) (mg/kg)	192	156	58.5	360	290
TCLP Metals	1st Preliminary pH (pH)			9.01	9.02	9.00
	2nd Preliminary pH (pH)			1.64	1.91	2.11
	Final pH (pH)			5.03	5.74	5.71
	Extraction Solution Initial pH (pH)			4.92	4.92	4.92
	Antimony (Sb)-Leachable (mg/L)			<1.0	<1.0	<1.0
	Arsenic (As)-Leachable (mg/L)			<1.0	<1.0	<1.0
	Barium (Ba)-Leachable (mg/L)			<2.5	<2.5	<2.5
	Beryllium (Be)-Leachable (mg/L)			<0.025	<0.025	<0.025
	Boron (B)-Leachable (mg/L)			<0.50	<0.50	<0.50

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L2159851-12 SOIL 05-SEP-18 BH179 - 03	Sample ID: L2159851-14 SOIL 05-SEP-18 BH179 - 04	Sample ID: L2159851-15 SOIL 05-SEP-18 BH180 - 01	Sample ID: L2159851-16 SOIL 05-SEP-18 Z207	Sample ID: L2159851-17 SOIL 05-SEP-18 BH180 - 02
SOIL						
Physical Tests	Moisture (%)			17.7	18.3	16.0
	pH (1:2 soil:water) (pH)	8.04	7.87			
Metals	Aluminum (Al) (mg/kg)	18300	13500			
	Antimony (Sb) (mg/kg)	0.24	0.49			
	Arsenic (As) (mg/kg)	5.26	3.43			
	Barium (Ba) (mg/kg)	82.3	214			
	Beryllium (Be) (mg/kg)	0.26	0.19			
	Boron (B) (mg/kg)	8.5	22.9			
	Cadmium (Cd) (mg/kg)	0.071	0.141			
	Chromium (Cr) (mg/kg)	16.0	11.7			
	Cobalt (Co) (mg/kg)	7.61	4.90			
	Copper (Cu) (mg/kg)	27.7	34.4			
	Iron (Fe) (mg/kg)	19900	15600			
	Lead (Pb) (mg/kg)	13.1	98.7			
	Lithium (Li) (mg/kg)	8.5	6.2			
	Manganese (Mn) (mg/kg)	326	246			
	Mercury (Hg) (mg/kg)	0.0461	0.296			
	Molybdenum (Mo) (mg/kg)	0.74	1.34			
	Nickel (Ni) (mg/kg)	12.0	10.4			
	Selenium (Se) (mg/kg)	<0.20	<0.20			
	Silver (Ag) (mg/kg)	<0.10	0.10			
	Strontium (Sr) (mg/kg)	49.2	77.7			
	Thallium (Tl) (mg/kg)	0.074	<0.050			
	Tin (Sn) (mg/kg)	2.5	6.7			
	Tungsten (W) (mg/kg)	<0.50	<0.50			
	Uranium (U) (mg/kg)	0.457	0.305			
	Vanadium (V) (mg/kg)	54.6	34.3			
	Zinc (Zn) (mg/kg)	60.0	101			
TCLP Metals	1st Preliminary pH (pH)	8.30	8.52			
	2nd Preliminary pH (pH)	1.61	1.72			
	Final pH (pH)	4.99	5.06			
	Extraction Solution Initial pH (pH)	4.92	4.92			
	Antimony (Sb)-Leachable (mg/L)	<1.0	<1.0			
	Arsenic (As)-Leachable (mg/L)	<1.0	<1.0			
	Barium (Ba)-Leachable (mg/L)	<2.5	<2.5			
	Beryllium (Be)-Leachable (mg/L)	<0.025	<0.025			
	Boron (B)-Leachable (mg/L)	<0.50	<0.50			

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2159851-18	L2159851-19	L2159851-24	L2159851-25	L2159851-27
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18
Sampled Time					
Client ID	BH181 - 01	BH181 - 02	BH184 - 01	BH184 - 02	BH185 - 02
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	2.87	5.87			
pH (1:2 soil:water) (pH)			7.20	7.64	8.09
Metals Aluminum (Al) (mg/kg)			13900	17900	14700
Antimony (Sb) (mg/kg)			0.61	0.78	0.36
Arsenic (As) (mg/kg)			2.89	4.74	2.81
Barium (Ba) (mg/kg)			63.0	175	79.1
Beryllium (Be) (mg/kg)			0.18	0.31	0.19
Boron (B) (mg/kg)			<5.0	16.0	<5.0
Cadmium (Cd) (mg/kg)			0.158	0.380	0.166
Chromium (Cr) (mg/kg)			22.5	16.0	15.9
Cobalt (Co) (mg/kg)			6.15	6.40	5.79
Copper (Cu) (mg/kg)			16.5	37.2	25.1
Iron (Fe) (mg/kg)			16600	19800	16900
Lead (Pb) (mg/kg)			10.9	92.3	48.4
Lithium (Li) (mg/kg)			6.2	8.8	6.4
Manganese (Mn) (mg/kg)			235	212	263
Mercury (Hg) (mg/kg)			0.0169	0.257	0.0560
Molybdenum (Mo) (mg/kg)			1.04	1.07	0.41
Nickel (Ni) (mg/kg)			10.8	12.7	10.8
Selenium (Se) (mg/kg)			<0.20	0.35	<0.20
Silver (Ag) (mg/kg)			<0.10	0.25	<0.10
Strontium (Sr) (mg/kg)			27.9	107	42.5
Thallium (Tl) (mg/kg)			<0.050	0.059	0.051
Tin (Sn) (mg/kg)			<2.0	7.6	6.6
Tungsten (W) (mg/kg)			<0.50	<0.50	<0.50
Uranium (U) (mg/kg)			0.295	0.483	0.358
Vanadium (V) (mg/kg)			46.6	43.9	44.2
Zinc (Zn) (mg/kg)			48.1	277	124
TCLP Metals 1st Preliminary pH (pH)			7.35	8.56	8.94
2nd Preliminary pH (pH)			1.60	1.84	1.68
Final pH (pH)			4.95	5.14	5.03
Extraction Solution Initial pH (pH)			4.92	4.92	4.92
Antimony (Sb)-Leachable (mg/L)			<1.0	<1.0	<1.0
Arsenic (As)-Leachable (mg/L)			<1.0	<1.0	<1.0
Barium (Ba)-Leachable (mg/L)			<2.5	<2.5	<2.5
Beryllium (Be)-Leachable (mg/L)			<0.025	<0.025	<0.025
Boron (B)-Leachable (mg/L)			<0.50	<0.50	<0.50

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2159851-28				
	Description	SOIL				
	Sampled Date	05-SEP-18				
	Sampled Time					
	Client ID	BH185 - 03				
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)					
	pH (1:2 soil:water) (pH)	7.65				
Metals	Aluminum (Al) (mg/kg)	12200				
	Antimony (Sb) (mg/kg)	0.35				
	Arsenic (As) (mg/kg)	2.86				
	Barium (Ba) (mg/kg)	114				
	Beryllium (Be) (mg/kg)	0.16				
	Boron (B) (mg/kg)	21.0				
	Cadmium (Cd) (mg/kg)	0.151				
	Chromium (Cr) (mg/kg)	14.2				
	Cobalt (Co) (mg/kg)	3.62				
	Copper (Cu) (mg/kg)	18.0				
	Iron (Fe) (mg/kg)	10300				
	Lead (Pb) (mg/kg)	65.7				
	Lithium (Li) (mg/kg)	7.8				
	Manganese (Mn) (mg/kg)	151				
	Mercury (Hg) (mg/kg)	0.133				
	Molybdenum (Mo) (mg/kg)	1.22				
	Nickel (Ni) (mg/kg)	7.25				
	Selenium (Se) (mg/kg)	0.25				
	Silver (Ag) (mg/kg)	0.14				
	Strontium (Sr) (mg/kg)	78.3				
	Thallium (Tl) (mg/kg)	0.050				
	Tin (Sn) (mg/kg)	3.4				
	Tungsten (W) (mg/kg)	<0.50				
	Uranium (U) (mg/kg)	0.378				
	Vanadium (V) (mg/kg)	33.2				
	Zinc (Zn) (mg/kg)	51.1				
TCLP Metals	1st Preliminary pH (pH)	7.97				
	2nd Preliminary pH (pH)	1.76				
	Final pH (pH)	5.07				
	Extraction Solution Initial pH (pH)	4.92				
	Antimony (Sb)-Leachable (mg/L)	<1.0				
	Arsenic (As)-Leachable (mg/L)	<1.0				
	Barium (Ba)-Leachable (mg/L)	<2.5				
	Beryllium (Be)-Leachable (mg/L)	<0.025				
	Boron (B)-Leachable (mg/L)	0.55				

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2159851-1	L2159851-2	L2159851-3	L2159851-4	L2159851-5
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18
Sampled Time					
Client ID	BH177 - 01	BH177 - 02	BH177 - 03	BH178 - 01	Z203
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Cadmium (Cd)-Leachable (mg/L)					
Calcium (Ca)-Leachable (mg/L)					
Chromium (Cr)-Leachable (mg/L)					
Cobalt (Co)-Leachable (mg/L)					
Copper (Cu)-Leachable (mg/L)					
Iron (Fe)-Leachable (mg/L)					
Lead (Pb)-Leachable (mg/L)					
Magnesium (Mg)-Leachable (mg/L)					
Mercury (Hg)-Leachable (mg/L)					
Nickel (Ni)-Leachable (mg/L)					
Selenium (Se)-Leachable (mg/L)					
Silver (Ag)-Leachable (mg/L)					
Thallium (Tl)-Leachable (mg/L)					
Vanadium (V)-Leachable (mg/L)					
Zinc (Zn)-Leachable (mg/L)					
Hydrocarbons					
EPH10-19 (mg/kg)					
EPH19-32 (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2159851-6	L2159851-8	L2159851-9	L2159851-10	L2159851-11
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18
Sampled Time					
Client ID	BH178 - 02	BH178 - 03	BH179 - 01	BH179 - 02	Z205
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Cadmium (Cd)-Leachable (mg/L)			<0.050	<0.050	<0.050
Calcium (Ca)-Leachable (mg/L)			98.3	559	554
Chromium (Cr)-Leachable (mg/L)			<0.25	<0.25	<0.25
Cobalt (Co)-Leachable (mg/L)			<0.050	<0.050	<0.050
Copper (Cu)-Leachable (mg/L)			0.065	<0.050	<0.050
Iron (Fe)-Leachable (mg/L)			<5.0	<5.0	<5.0
Lead (Pb)-Leachable (mg/L)			<0.25	<0.25	<0.25
Magnesium (Mg)-Leachable (mg/L)			3.20	4.67	4.68
Mercury (Hg)-Leachable (mg/L)			<0.0010	<0.0010	<0.0010
Nickel (Ni)-Leachable (mg/L)			<0.25	<0.25	<0.25
Selenium (Se)-Leachable (mg/L)			<1.0	<1.0	<1.0
Silver (Ag)-Leachable (mg/L)			<0.050	<0.050	<0.050
Thallium (Tl)-Leachable (mg/L)			<1.0	<1.0	<1.0
Vanadium (V)-Leachable (mg/L)			<0.15	<0.15	<0.15
Zinc (Zn)-Leachable (mg/L)			<0.50	3.27	3.21
Hydrocarbons					
EPH10-19 (mg/kg)					
EPH19-32 (mg/kg)					
Surrogate: 2-Bromobenzotrifluoride (%)					

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2159851-12	L2159851-14	L2159851-15	L2159851-16	L2159851-17
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18	05-SEP-18
Sampled Time					
Client ID	BH179 - 03	BH179 - 04	BH180 - 01	Z207	BH180 - 02
Grouping / **Analyte**					
SOIL					
TCLP Metals					
Cadmium (Cd)-Leachable (mg/L)	<0.050	<0.050			
Calcium (Ca)-Leachable (mg/L)	56.1	117			
Chromium (Cr)-Leachable (mg/L)	<0.25	<0.25			
Cobalt (Co)-Leachable (mg/L)	<0.050	<0.050			
Copper (Cu)-Leachable (mg/L)	0.057	<0.050			
Iron (Fe)-Leachable (mg/L)	<5.0	<5.0			
Lead (Pb)-Leachable (mg/L)	<0.25	<0.25			
Magnesium (Mg)-Leachable (mg/L)	3.06	7.10			
Mercury (Hg)-Leachable (mg/L)	<0.0010	<0.0010			
Nickel (Ni)-Leachable (mg/L)	<0.25	<0.25			
Selenium (Se)-Leachable (mg/L)	<1.0	<1.0			
Silver (Ag)-Leachable (mg/L)	<0.050	<0.050			
Thallium (Tl)-Leachable (mg/L)	<1.0	<1.0			
Vanadium (V)-Leachable (mg/L)	<0.15	<0.15			
Zinc (Zn)-Leachable (mg/L)	<0.50	1.04			
Hydrocarbons					
EPH10-19 (mg/kg)			<200	<200	<200
EPH19-32 (mg/kg)			<200	<200	<200
Surrogate: 2-Bromobenzotrifluoride (%)			90.7	98.3	101.2

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L2159851-18 Description: SOIL Sampled Date: 05-SEP-18 Sampled Time: Client ID: BH181 - 01	Sample ID: L2159851-19 Description: SOIL Sampled Date: 05-SEP-18 Sampled Time: Client ID: BH181 - 02	Sample ID: L2159851-24 Description: SOIL Sampled Date: 05-SEP-18 Sampled Time: Client ID: BH184 - 01	Sample ID: L2159851-25 Description: SOIL Sampled Date: 05-SEP-18 Sampled Time: Client ID: BH184 - 02	Sample ID: L2159851-27 Description: SOIL Sampled Date: 05-SEP-18 Sampled Time: Client ID: BH185 - 02
SOIL						
TCLP Metals	Cadmium (Cd)-Leachable (mg/L)			<0.050	<0.050	<0.050
	Calcium (Ca)-Leachable (mg/L)			20.1	187	95.8
	Chromium (Cr)-Leachable (mg/L)			<0.25	<0.25	<0.25
	Cobalt (Co)-Leachable (mg/L)			<0.050	<0.050	<0.050
	Copper (Cu)-Leachable (mg/L)			<0.050	<0.050	0.055
	Iron (Fe)-Leachable (mg/L)			<5.0	<5.0	<5.0
	Lead (Pb)-Leachable (mg/L)			<0.25	<0.25	<0.25
	Magnesium (Mg)-Leachable (mg/L)			3.03	3.02	2.19
	Mercury (Hg)-Leachable (mg/L)			<0.0010	<0.0010	<0.0010
	Nickel (Ni)-Leachable (mg/L)			<0.25	<0.25	<0.25
	Selenium (Se)-Leachable (mg/L)			<1.0	<1.0	<1.0
	Silver (Ag)-Leachable (mg/L)			<0.050	<0.050	<0.050
	Thallium (Tl)-Leachable (mg/L)			<1.0	<1.0	<1.0
	Vanadium (V)-Leachable (mg/L)			<0.15	<0.15	<0.15
	Zinc (Zn)-Leachable (mg/L)			<0.50	3.37	0.71
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200			
	EPH19-32 (mg/kg)	<200	<200			
	Surrogate: 2-Bromobenzotrifluoride (%)	99.2	97.8			

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2159851-28				
	Description	SOIL				
	Sampled Date	05-SEP-18				
	Sampled Time					
	Client ID	BH185 - 03				
Grouping	**Analyte**					
SOIL						
TCLP Metals	Cadmium (Cd)-Leachable (mg/L)	<0.050				
	Calcium (Ca)-Leachable (mg/L)	110				
	Chromium (Cr)-Leachable (mg/L)	<0.25				
	Cobalt (Co)-Leachable (mg/L)	<0.050				
	Copper (Cu)-Leachable (mg/L)	<0.050				
	Iron (Fe)-Leachable (mg/L)	<5.0				
	Lead (Pb)-Leachable (mg/L)	<0.25				
	Magnesium (Mg)-Leachable (mg/L)	3.60				
	Mercury (Hg)-Leachable (mg/L)	<0.0010				
	Nickel (Ni)-Leachable (mg/L)	<0.25				
	Selenium (Se)-Leachable (mg/L)	<1.0				
	Silver (Ag)-Leachable (mg/L)	<0.050				
	Thallium (Tl)-Leachable (mg/L)	<1.0				
	Vanadium (V)-Leachable (mg/L)	<0.15				
	Zinc (Zn)-Leachable (mg/L)	<0.50				
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	Surrogate: 2-Bromobenzotrifluoride (%)					

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BC MOE EPH GCFID

Analysis is in accordance with BC MOE Lab Manual method "Extractable Petroleum Hydrocarbons in Solids by GC/FID", v2.1, July 1999. Soil samples are extracted with a 1:1 mixture of hexane and acetone using a rotary extraction technique modified from EPA 3570 prior to gas chromatography with flame ionization detection (GC-FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)

Soil samples are digested with hot nitric and hydrochloric acids, followed by CVAAS analysis. This method is fully compliant with the BC SALM strong acid leachable metals digestion method.

HG-TCLP-CVAFS-VA	Soil	Mercury by CVAAS (TCLP)	EPA 1311/245.7

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic absorption spectrophotometry (EPA 245.7).

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)

This method uses a heated strong acid digestion with HNO3 and HCl and is intended to liberate metals that may be environmentally available. Silicate minerals are not solubilized. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Analysis is by Collision/Reaction Cell ICPMS.

MET-TCLP-ICP-VA	Soil	Metals by ICPOES (TCLP)	EPA 1311/6010B

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1311, published by the United States Environmental Protection Agency (EPA). In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using either extraction fluid #1 (glacial acetic acid, water and sodium hydroxide) or extraction fluid #2 (glacial acetic acid), depending on the pH of the original sample. The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MOISTURE-VA	Soil	Moisture content	CWS for PHC in Soil - Tier 1

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-698715 17-698716 17-698717

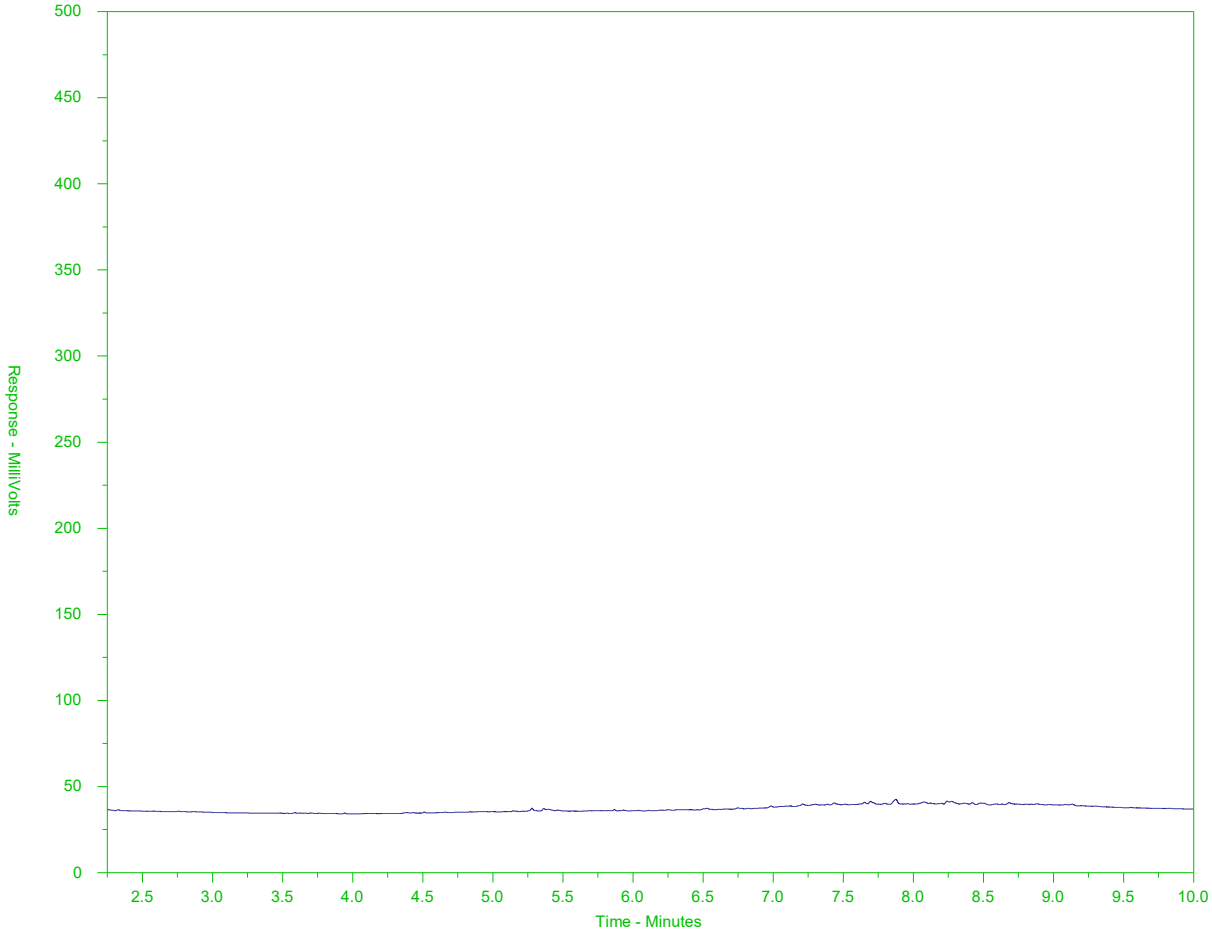
GLOSSARY OF REPORT TERMS

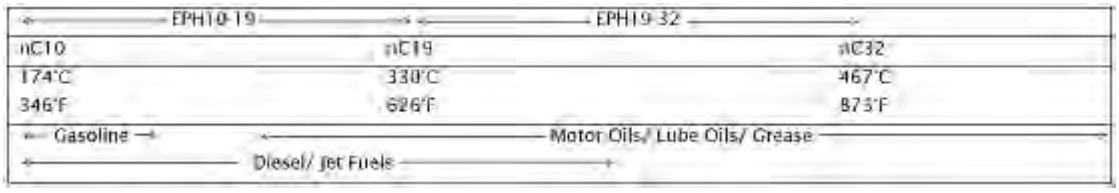
Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2159851-15
Client Sample ID: BH180 - 01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

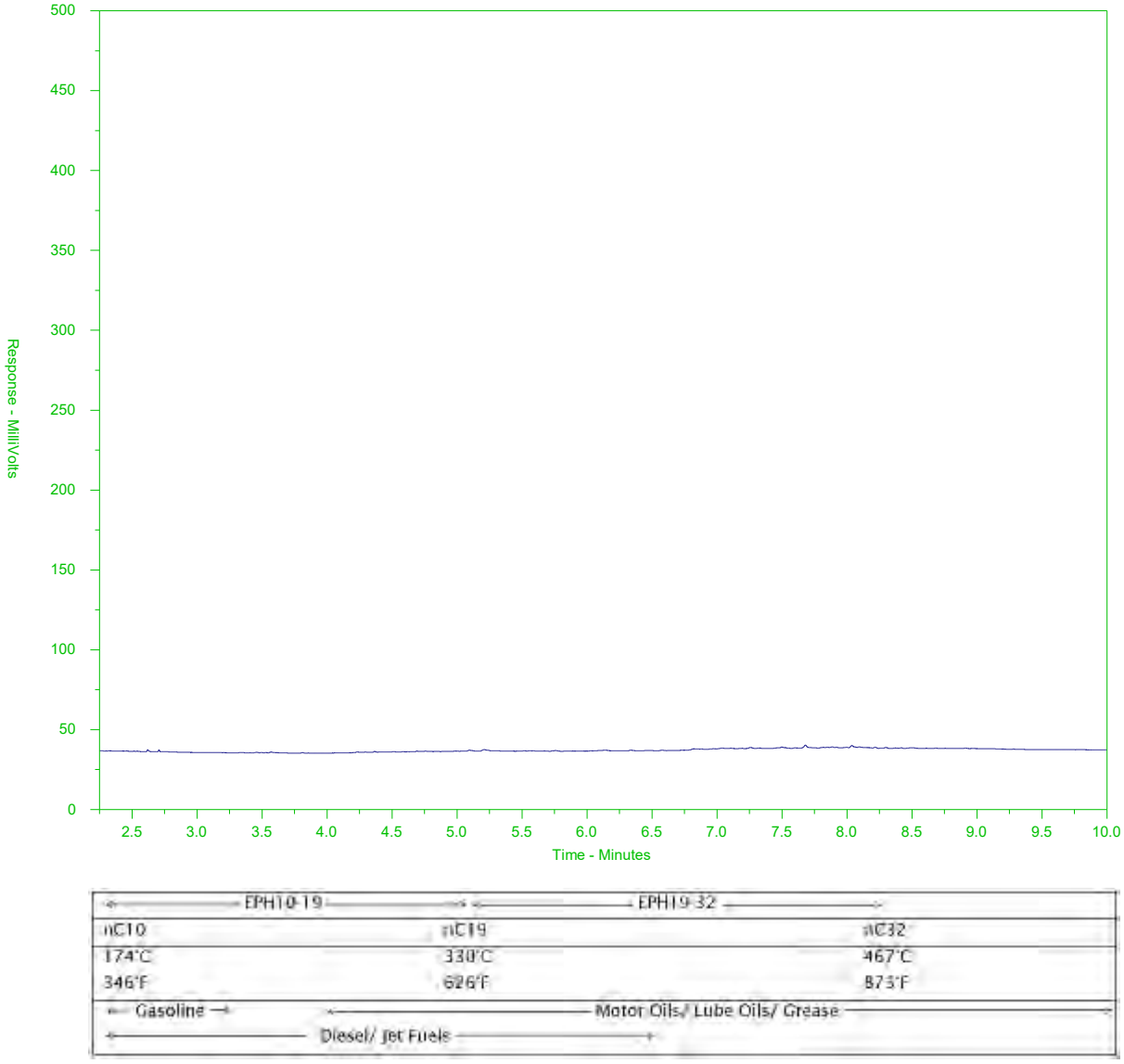
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2159851-16
Client Sample ID: Z207



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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

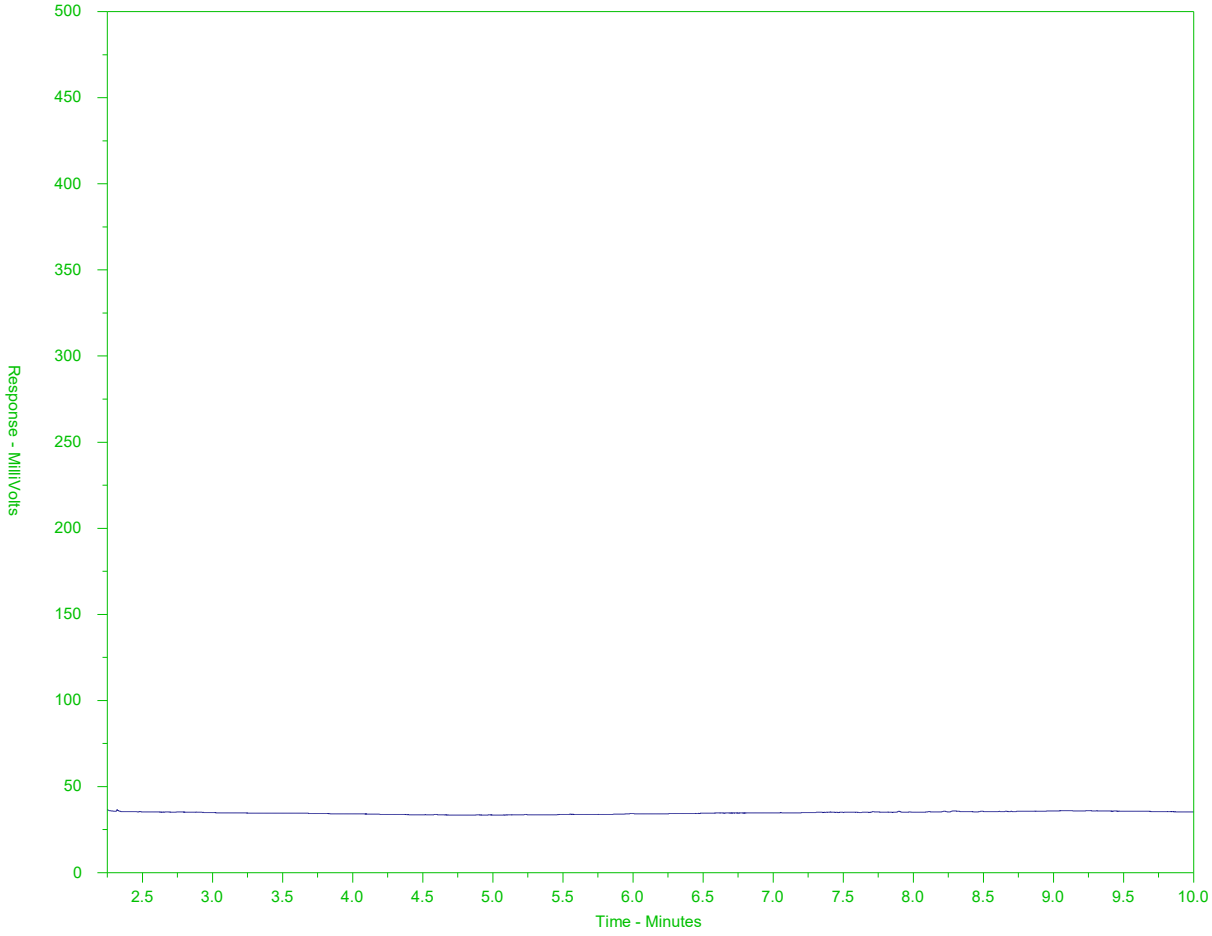
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

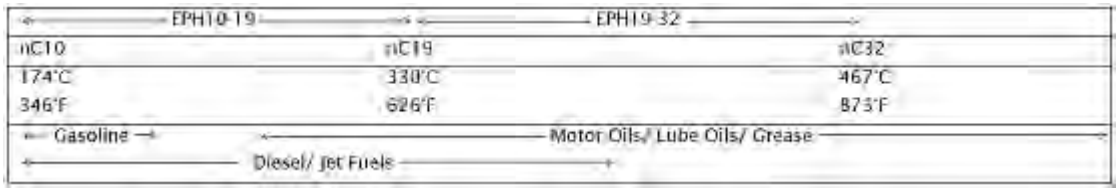
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2159851-17
Client Sample ID: BH180 - 02





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The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

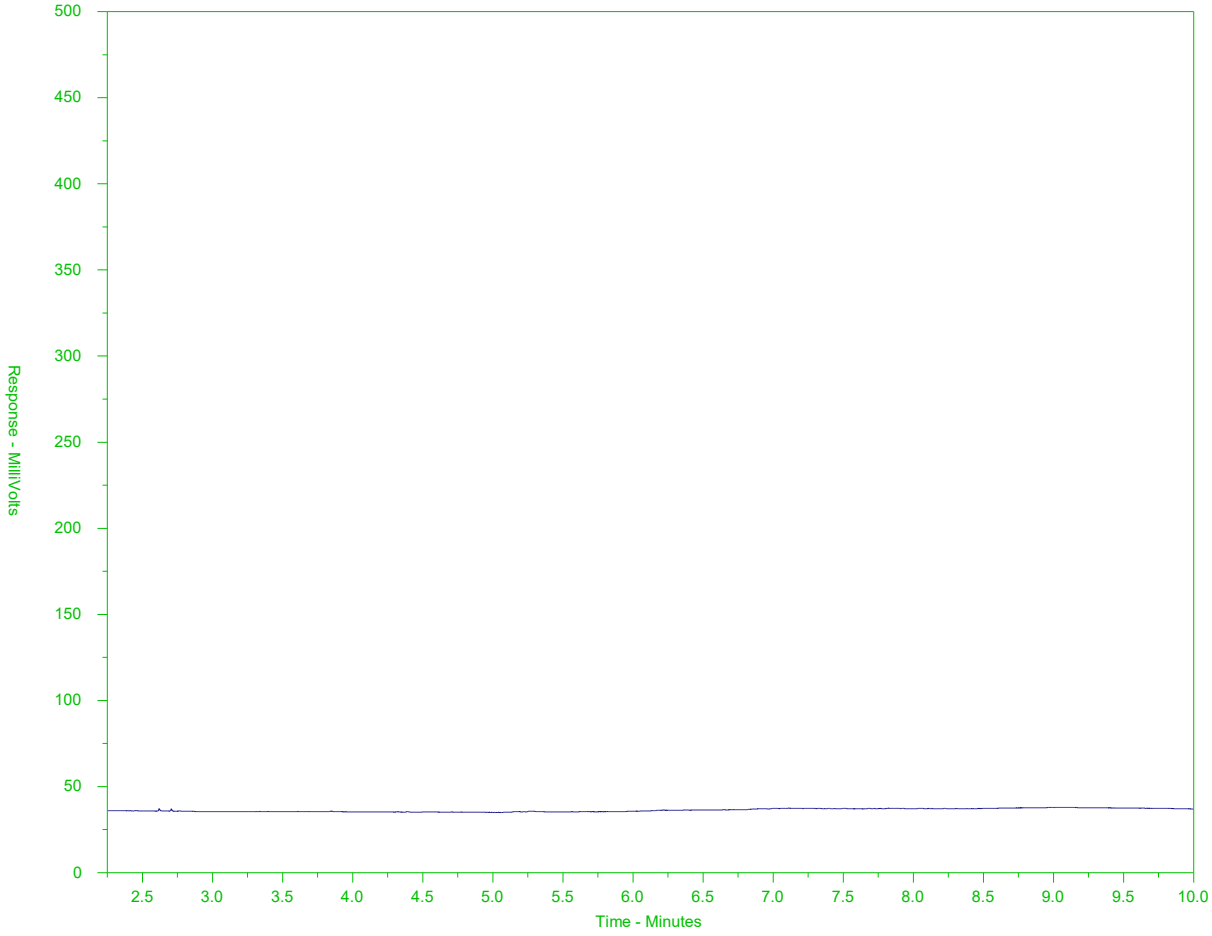
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

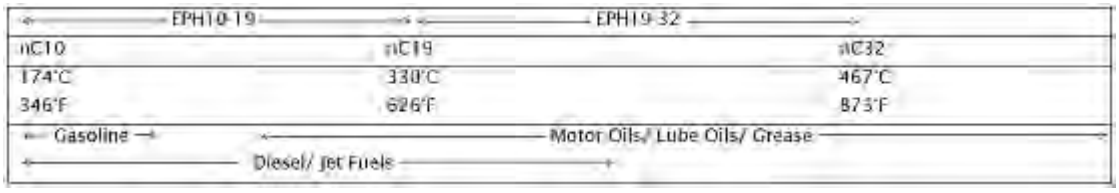
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2159851-18
Client Sample ID: BH181 - 01





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

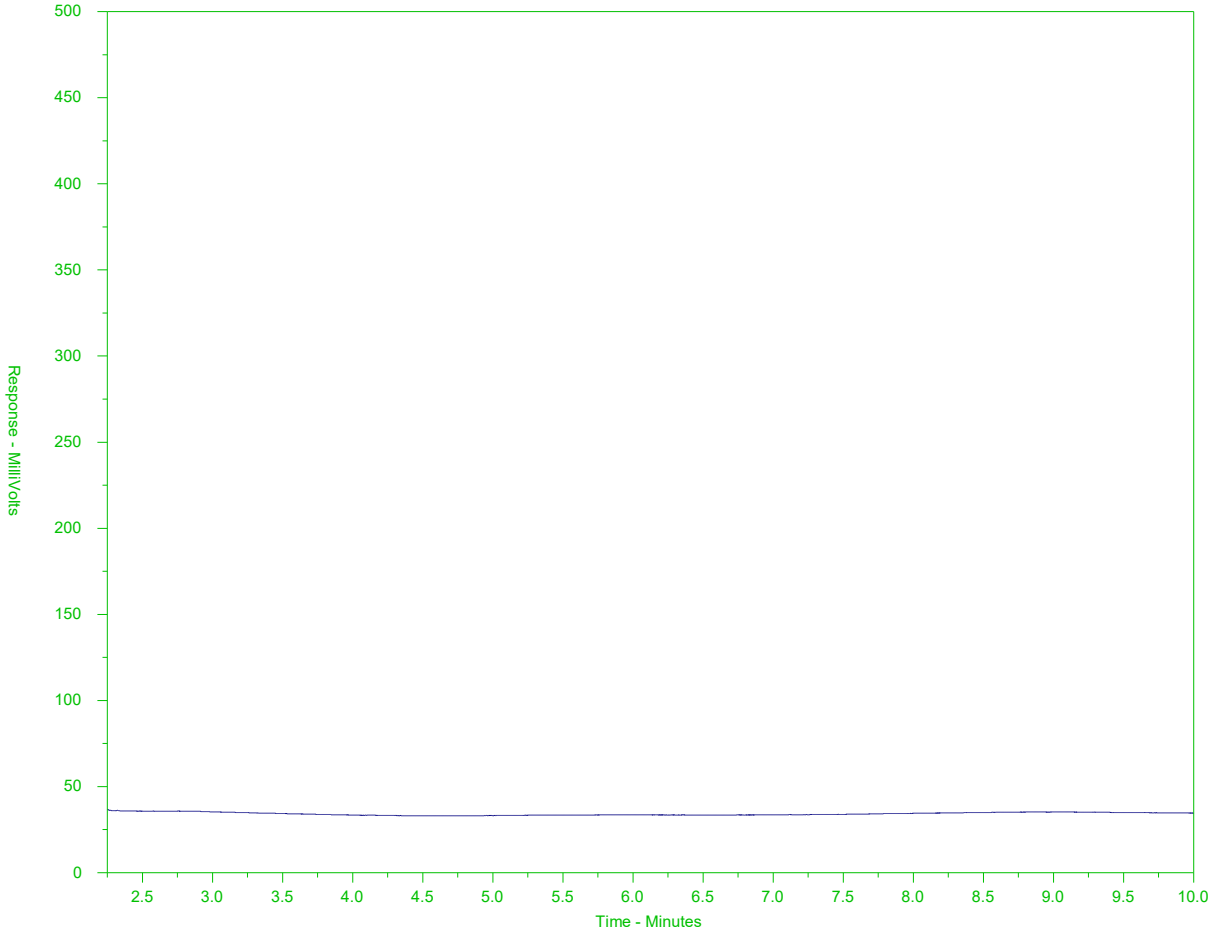
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

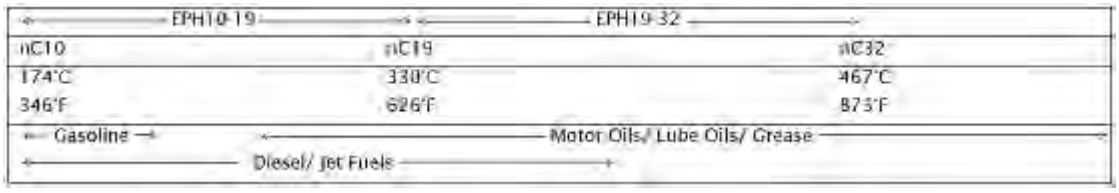
A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

BC EPH HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2159851-19
Client Sample ID: BH181 - 02





The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2159851-COFC

COC Number: 17 - 698715

Page 1 of 3

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Turnaround Time (TAT) Requested - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL Environmental	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular (R) ** Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Monanad	Quality Control (QC) Report with Report: YES NO	Priority (Business Days): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:	604 682 3707	Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E-100%] Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs:
Street:		Email 1 or Fax zmonanad@	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver	Email 2 arivas@pssgroup.com	
Postal Code:		Email 3	
Invoice To	Same as Report To YES NO	Invoice Distribution	Analysis Request
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information	Oil and Gas Required Fields (client use)	
ALS Account # / Quote #: Q66350	AFE/Cost Center:	PO#
Job #: 5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:	Requisitioner:	
LSD:	Location:	
ALS Lab Work Order # (lab use only): L2159851	ALS Contact: B. Mak	Sampler: A. Rivas

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	TCLP Metals	EPH	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH177-01	05 Sept 18		Soil	X					2
	BH177-02				X					2
	BH177-03				X					2
	BH178-01				X					1
	7203				X					1
	BH178-02				X					1
	7204									1
	BH178-03				X					2
	BH179-01				X	X				2
	BH179-02				X	X				3
	7205				X	X				3
	BH179-03				X	X				2

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	Analysis to be sent via email
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen		SIF Observations	Yes		No
Ice Packs	Ice Cubes	Custody seal intact	Yes		No
Cooling Initiated					

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			3	5	10

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	6 Sept	13:30					9/6	1180

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

ALS 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2159851-COFC

COC Number: 17 - 698716

Report To	Contact and company name below will appear on the final report
Company:	PGL
Contact:	Zayed Mohamed
Phone:	
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To [ ] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	[ ] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	
Email 3	
Invoice Distribution	
Select Invoice Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	
Job #:	
PO / AFE:	
LSD:	
ALS Lab Work Order # (lab use only):	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): [ ] 4 day [P4-20%] [ ] 3 day [P3-25%] [ ] 2 day [P2-50%]

EMERGENCY: [ ] 1 Business day [E-100%] [ ] Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)]

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	TCLP Metals	EPH	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	Z206	5 Sept 18		Soil						2
	BH179-04				X	X				2
	BH180-01						X			2
	Z207						X			1
	BH180-02						X			1
	BH181-01						X			2
	BH181-02						X			2
	BH182-01									2
	BH182-02									2
	BH183-01									2
	BH183-02									2
	BH184-01				X	X				2

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? [ ] YES [ ] NO	
Are samples for human consumption/ use? [ ] YES [ ] NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen [ ] SIF Observations Yes [ ] No [ ]
Ice Packs [ ] Ice Cubes [ ] Custody seal intact Yes [ ] No [ ]
Cooling Initiated [ ]

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
					3	5	10

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: HA	Date: 9/6	Time: 9:30

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1 If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2159851-COFC

COC Number: 17-698717

Report To	Contact and company name below will appear on the final report
Company:	PGL
Contact:	
Phone:	Zayed Mohamed
	Company address below will appear on the final report
Street:	
City/Province:	
Postal Code:	
Invoice To	Same as Report To [ ] YES [ ] NO
	Copy of Invoice with Report [ ] YES [ ] NO
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	[ ] PDF [ ] EXCEL [ ] EDD (DIGITAL)
Quality Control (QC) Report with Report	[ ] YES [ ] NO
[ ] Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	
Email 3	

Invoice Distribution	
Select Invoice Distribution:	[ ] EMAIL [ ] MAIL [ ] FAX
Email 1 or Fax	
Email 2	

Project Information	
ALS Account # / Quote #:	
Job #:	
PO / AFE:	
LSD:	
ALS Lab Work Order # (lab use only):	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	
ALS Contact:	Sampler:

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] [ ] Standard TAT if received by 3 pm - business days - no surcharges apply

Priority (Business Days)		Emergency	
4 day [P4-20%]	[ ]	1 Business day [E-100%]	[ ]
3 day [P3-25%]	[ ]	Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)]	[ ]
2 day [P2-50%]	[ ]		

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	TCLP Metals	EPH	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	BH184-02	5 Sept		Soil	X	X				2
	BH185-01	↓		↓						2
	BH185-02				X	X				2
	BH185-03				X	X				2
	BH185-04									2

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
[ ] YES [ ] NO

Are samples for human consumption/ use?
[ ] YES [ ] NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	[ ]	SIF Observations	Yes [ ]	No	[ ]
Ice Packs	[ ]	Ice Cubes [X]	Custody seal intact	Yes [ ]	No [ ]
Cooling Initiated	[X]				

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
			3	5	10

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
							9/6	1433

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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ALS 2012 FRONT

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 13-SEP-18
Report Date: 19-SEP-18 18:16 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2163705

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-717358
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2163705-1				
	Description	SV				
	Sampled Date	12-SEP-18				
	Sampled Time					
	Client ID	SV15				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	Acetone (ug)	<0.060				
	Acetone (ug/m3)	<25				
	Benzene (ug)	0.0189				
	Benzene (ug/m3)	7.7				
	Bromodichloromethane (ug)	<0.0025				
	Bromodichloromethane (ug/m3)	<1.0				
	Bromoform (ug)	<0.015				
	Bromoform (ug/m3)	<6.1				
	2-Butanone (MEK) (ug)	<0.025				
	2-Butanone (MEK) (ug/m3)	<10				
	Carbon Tetrachloride (ug)	0.0089				
	Carbon Tetrachloride (ug/m3)	3.64				
	Chlorobenzene (ug)	<0.0025				
	Chlorobenzene (ug/m3)	<1.0				
	Dibromochloromethane (ug)	<0.025				
	Dibromochloromethane (ug/m3)	<10				
	Chloroethane (ug)	<0.050				
	Chloroethane (ug/m3)	<20				
	Decane (nC10) (ug)	0.025				
	Decane (nC10) (ug/m3)	10				
	1,2-Dichlorobenzene (ug)	<0.015				
	1,2-Dichlorobenzene (ug/m3)	<6.1				
	1,3-Dichlorobenzene (ug)	<0.0050				
	1,3-Dichlorobenzene (ug/m3)	<2.0				
	1,4-Dichlorobenzene (ug)	<0.0050				
	1,4-Dichlorobenzene (ug/m3)	<2.0				
	1,1-Dichloroethane (ug)	<0.0025				
	1,1-Dichloroethane (ug/m3)	<1.0				
	1,2-Dichloroethane (ug)	<0.0010				
	1,2-Dichloroethane (ug/m3)	<0.41				
	1,1-Dichloroethylene (ug)	<0.0090 DLQ				
	1,1-Dichloroethylene (ug/m3)	<3.7 DLQ				
	cis-1,2-Dichloroethylene (ug)	2.16 AOCR				
	cis-1,2-Dichloroethylene (ug/m3)	884 AOCR				
	trans-1,2-Dichloroethylene (ug)	0.268				
	trans-1,2-Dichloroethylene (ug/m3)	110				
	1,2-Dichloropropane (ug)	<0.0015				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2163705-1				
	Description	SV				
	Sampled Date	12-SEP-18				
	Sampled Time					
	Client ID	SV15				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	1,2-Dichloropropane (ug/m3)	<0.61				
	cis-1,3-Dichloropropylene (ug)	<0.0025				
	cis-1,3-Dichloropropylene (ug/m3)	<1.0				
	trans-1,3-Dichloropropylene (ug)	<0.0050				
	trans-1,3-Dichloropropylene (ug/m3)	<2.0				
	Ethyl Acetate (ug)	<0.10				
	Ethyl Acetate (ug/m3)	<41				
	Ethylbenzene (ug)	0.0115				
	Ethylbenzene (ug/m3)	4.7				
	n-Hexane (nC6) (ug)	0.045				
	n-Hexane (nC6) (ug/m3)	18				
	Cumene (ug)	<0.0025				
	Cumene (ug/m3)	<1.0				
	Styrene (ug)	<0.010 DLQ				
	Styrene (ug/m3)	<4.1 DLQ				
	1,1,1,2-Tetrachloroethane (ug)	<0.0040				
	1,1,1,2-Tetrachloroethane (ug/m3)	<1.6				
	1,1,2,2-Tetrachloroethane (ug)	<0.0025				
	1,1,2,2-Tetrachloroethane (ug/m3)	<1.0				
	Tetrachloroethylene (ug)	17.5				
	Tetrachloroethylene (ug/m3)	7190				
	Toluene (ug)	0.068				
	Toluene (ug/m3)	27.9				
	1,1,2-Trichloro-1,2,2-trifluoroethane (ug)	<0.025				
	1,1,2-Trichloro-1,2,2-trifluoroethane (ug/m3)	<10				
	1,1,1-Trichloroethane (ug)	<0.0025				
	1,1,1-Trichloroethane (ug/m3)	<1.0				
	1,1,2-Trichloroethane (ug)	<0.0015				
	1,1,2-Trichloroethane (ug/m3)	<0.61				
	Trichloroethylene (ug)	2.19				
	Trichloroethylene (ug/m3)	896				
	Trichlorofluoromethane (ug)	0.056				
	Trichlorofluoromethane (ug/m3)	23				
	Vinyl Chloride (ug)	<0.0030				
	Vinyl Chloride (ug/m3)	<1.2				
	ortho-Xylene (ug)	0.0090				
	ortho-Xylene (ug/m3)	3.7				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2163705-1				
	Description	SV				
	Sampled Date	12-SEP-18				
	Sampled Time					
	Client ID	SV15				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	meta- & para-Xylene (ug)	0.0324				
	meta- & para-Xylene (ug/m3)	13.3				
	Xylenes (ug/m3)	17.0				
Hydrocarbons	VHv(C6-C13) (ug)	17.6				
	VHv(C6-C13) (ug/m3)	7200				
	VPHv(C6-C13) (ug/m3)	7100				
Polycyclic Aromatic Hydrocarbons	Naphthalene (ug)	<0.0090				
	Naphthalene (ug/m3)	<3.7				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2163705-1				
	Description	SV				
	Sampled Date	12-SEP-18				
	Sampled Time					
	Client ID	SV15				
Grouping	**Analyte**					
MISC.						
Field Tests	Air Volume, Client Supplied (L)	2.44				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Control Sample	Bromodichloromethane	LCS-ND	L2163705-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
AOCR	Approximate result: Outside calibration range. Analysis could not be repeated.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AIR VOLUME-VA	Misc.	Air volume (L)	HYGIENE METHOD
FUELS-TDMS-VA	Carbo-Tube	Fuels by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

PAH-TDMS-VA	Carbo-Tube	PAHs by Thermal Desorption with GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VH-TDFID-VA	Carbo-Tube	VHv by Thermal Desorption and GCFID	BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from BCMOE analytical method for contaminated sites "VHv in air by GC-FID / GC-MS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VHv is determined using gas chromatography with flame ionization (GC/FID). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VOC-M2-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VOC-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (November 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV (noted below in litres) may cause the compound to break through the media, leading to a negatively biased result. Lower boiling point compounds such as vinyl chloride (10), chloromethane (6), and dichloromethane (40) are particularly affected. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative. Where SSVs have been exceeded, please contact ALS regarding data interpretation as results may still be fit for purpose.

VOC7-TDMS-VA	Carbo-Tube	BTEX by Thermal Desorption with GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VPH-CALC-VA	Carbo-Tube	VPHv is VHv minus BTEX/nC6/nC10	BC MOE VPH

VPHv measures Volatile Petroleum Hydrocarbons in air. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VHv6-13, as per the BC Lab Manual VPH calculation procedure.
VPHw = VHv6-13 minus Benzene, Toluene, Ethylbenzene, Xylenes, Styrene, n-Hexane, and n-Decane

XYLENES-CALC-VA	Carbo-Tube	Sum of Xylene Isomer Concentrations	CALCULATION

Reference Information

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-717358

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2163705-COFC

COC Number: 17 - 717358

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamad	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%] — EMERGENCY: 1 Business day [E-100%] / Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply)]
Phone:	604 682 3707	Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	
Street:		Email 1 or Fax: Zmohamad@pggroup.com	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Vancouver	Email 2: ariviers@pggroup.com	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To YES NO	Select Invoice Distribution: EMAIL MAIL FAX	
	Copy of Invoice with Report YES NO		
Company:		Email 1 or Fax	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q6636	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: A. Riviers	Sampler: B. Mack

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Analysis Request: PGL Fluids & Solvents	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	SV15	12 Sep 18		SV	X			

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				20			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Andrea Ri	Date:	Time:	Received by:	Date:	Time:	Received by: JC	Date: SEP 13	Time: 11:36am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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JULY 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**

SEP 13 2018

THERMAL DESORPTI(SAMPLING INFORMAT

L2163705-COFC

Date Returned:	
QC Check:	

ALS File # _____ BR224065

(To be filled out by ALS upon return of samples to ALS)

1. Sampling Supplies (To be filled out by ALS)

Company Name/Location:	Pottinger Gaherty Environmental	Project/Job No:	Not Supplied
Pump Requested By:	Andrea Rivers	Date of Request:	Sept 4/18 10:00 am
ALS Account Manager:	Brent Mack	Pump(s) Prepared By:	SM
# of Pumps (TD x 1@100mL/min):	1 ✓	Date Required @ Shipping:	Sept 6/18 4:00 pm
# of Pumps (TD x 2@100mL/min):	1 ✓	Flow Verification Tubes 2 ✓	Other
Other Supplies Provided:	Lithium-ion Battery Charger ✓ Pelican Case (Single) ✓ Splitters & Tubing 1 Y splitters / 6 small connector plastic tubing ✓ Pelican Case (Multiple) Alkaline Battery Adapter Additional Pumps:		
TD Tubes 7 ✓			

2. Flow Rates (Flow rates before and after - ALS; flow rates in-situ - Client)

Pump ID	Pump flow before sampling (mL/min) - ALS	Pump flow after sampling (mL/min) - ALS	Pump Flow in situ (mL/min) - CLIENT'	Notes
1. 012466	A 100 B 99	A B	A * see ows B flows	
2 019882	A 101 B	A B	A B	
3.	A B	A B	A B	
4.	A B	A B	A B	

If in-situ flow measurements have been provided, these will be used for all air concentrations calculations.

3. Sample Information (To be filled out by Client)

	TD Tube Serial #	Client Sample ID	Pump #	Sampling Time (min)	Date/Time	Elevated Levels Expected? Y	?	N	Recvd @ Lab ☑
1	G0153952	SU13	019822	20	12 Sept 18				
2	G0152450	SU18	012466	20					
3	G0151645	SU16	019822	20					
4	G0153987	SU15	012466	21					
5	G0155720	SU17	019822	20					
6	G0151440	SU14	012466	21					
7	G0152460	Z03	012466	20					
8									
9									
10									
11	G0135931	—	Flow Verification						
12	G0155230	—	TUBES						

✓ = Rcv@VA SEP 13 2018 JC

ADDRESS 8081 Lougheed Highway, Burnaby British Columbia V5A 1W9 Canada | PHONE +1 604 253 4188 | FAX +1 604 253 6700
ALS CANADA LIMITED Part of the ALS Group A Campbell Brothers Limited Company
www.alsglobal.com

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 13-SEP-18
Report Date: 20-SEP-18 13:48 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2163712

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-718021
Legal Site Desc:

Comments: Due to a low verification standard for certain analytes in sample SV-13 these analytes have been flagged with an ABL qualifier, meaning the results could be biased slightly low. Due to the nature of the testing it could not be repeated.

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2163712-1	L2163712-2	L2163712-3	L2163712-4	L2163712-5
Description	SV	SV	SV	SV	SV
Sampled Date	12-SEP-18	12-SEP-18	12-SEP-18	12-SEP-18	12-SEP-18
Sampled Time	09:00	08:15	12:55		14:10
Client ID	SV13	SV14	SV16	SV17	SV18
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds					
Acetone (ug)	<0.24 DLCI	<0.060	<3.0 DLCI	<3.0 DLCI	<6.0 DLCI
Acetone (ug/m3)	<120 DLCI	<24	<1400 DLCI	<1500 DLCI	<2200 DLCI
Benzene (ug)	0.0262	<0.0040	0.092	0.0496	0.202
Benzene (ug/m3)	13.1	<1.6	41.9	24.8	74.8
Bromodichloromethane (ug)	<0.0025	<0.0025	<0.0025	<0.0050 DLCI	<0.025 DLCI
Bromodichloromethane (ug/m3)	<1.3	<1.0	<1.1	<2.5 DLCI	<9.3 DLCI
Bromoform (ug)	<0.015	<0.015	<0.015	<0.015	<0.015
Bromoform (ug/m3)	<7.5	<6.0	<6.8	<7.5	<5.6
2-Butanone (MEK) (ug)	<0.025	<0.025	<0.22 DLCI	<0.040 DLCI	<0.025
2-Butanone (MEK) (ug/m3)	<13	<10	<100 DLCI	<20 DLCI	<9.3
Carbon Tetrachloride (ug)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
Carbon Tetrachloride (ug/m3)	<0.75	<0.60	<0.68	<0.75	<0.56
Chlorobenzene (ug)	<0.0025	<0.0025	<0.0060 DLCI	<0.0025	<0.030 DLCI
Chlorobenzene (ug/m3)	<1.3	<1.0	<2.7 DLCI	<1.3	<11 DLCI
Dibromochloromethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
Dibromochloromethane (ug/m3)	<13	<10	<11	<13	<9.3
Chloroethane (ug)	<0.050	<0.050	<0.050	<0.050	<0.050
Chloroethane (ug/m3)	<25	<20	<23	<25	<19
Decane (nC10) (ug)	0.351	<0.025	0.111	<0.025	0.331
Decane (nC10) (ug/m3)	175	<10	50	<13	122
1,2-Dichlorobenzene (ug)	<0.015	<0.015	<0.015	<0.015	<0.015
1,2-Dichlorobenzene (ug/m3)	<7.5	<6.0	<6.8	<7.5	<5.6
1,3-Dichlorobenzene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,3-Dichlorobenzene (ug/m3)	<2.5	<2.0	<2.3	<2.5	<1.9
1,4-Dichlorobenzene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
1,4-Dichlorobenzene (ug/m3)	<2.5	<2.0	<2.3	<2.5	<1.9
1,1-Dichloroethane (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
1,1-Dichloroethane (ug/m3)	<1.3	<1.0	<1.1	<1.3	<0.93
1,2-Dichloroethane (ug)	<0.0010	<0.0010	<0.0010	0.0060	<0.0040 DLQ
1,2-Dichloroethane (ug/m3)	<0.50	<0.40	<0.45	2.99	<1.5 DLQ
1,1-Dichloroethylene (ug)	<0.0030	<0.0030	0.0142 ABL	<0.0030	<0.0030
1,1-Dichloroethylene (ug/m3)	<1.5	<1.2	6.4 ABL	<1.5	<1.1
cis-1,2-Dichloroethylene (ug)	<0.0050	<0.0050	0.212	0.0268	<0.0050
cis-1,2-Dichloroethylene (ug/m3)	<2.5	<2.0	96	13.4	<1.9
trans-1,2-Dichloroethylene (ug)	<0.0050	<0.0050	0.031 ABL	<0.0050	<0.0050
trans-1,2-Dichloroethylene (ug/m3)	<2.5	<2.0	14 ABL	<2.5	<1.9
1,2-Dichloropropane (ug)	<0.0015	<0.0015	<0.0015	0.0061	<0.0015

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2163712-6				
	Description	SV				
	Sampled Date	12-SEP-18				
	Sampled Time	14:10				
	Client ID	Z03				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	Acetone (ug)	<8.1 DLCI				
	Acetone (ug/m3)	<2800 DLCI				
	Benzene (ug)	0.234				
	Benzene (ug/m3)	80.7				
	Bromodichloromethane (ug)	<0.0090 DLCI				
	Bromodichloromethane (ug/m3)	<3.1 DLCI				
	Bromoform (ug)	<0.015				
	Bromoform (ug/m3)	<5.2				
	2-Butanone (MEK) (ug)	<0.025				
	2-Butanone (MEK) (ug/m3)	<8.6				
	Carbon Tetrachloride (ug)	<0.0015				
	Carbon Tetrachloride (ug/m3)	<0.52				
	Chlorobenzene (ug)	<0.050				
	Chlorobenzene (ug/m3)	<17				
	Dibromochloromethane (ug)	<0.025				
	Dibromochloromethane (ug/m3)	<8.6				
	Chloroethane (ug)	<0.050				
	Chloroethane (ug/m3)	<17				
	Decane (nC10) (ug)	0.436				
	Decane (nC10) (ug/m3)	150				
	1,2-Dichlorobenzene (ug)	<0.015				
	1,2-Dichlorobenzene (ug/m3)	<5.2				
	1,3-Dichlorobenzene (ug)	<0.0050				
	1,3-Dichlorobenzene (ug/m3)	<1.7				
	1,4-Dichlorobenzene (ug)	<0.0050				
	1,4-Dichlorobenzene (ug/m3)	<1.7				
	1,1-Dichloroethane (ug)	<0.0025				
	1,1-Dichloroethane (ug/m3)	<0.86				
	1,2-Dichloroethane (ug)	<0.0010				
	1,2-Dichloroethane (ug/m3)	<0.34				
	1,1-Dichloroethylene (ug)	<0.0030				
	1,1-Dichloroethylene (ug/m3)	<1.0				
	cis-1,2-Dichloroethylene (ug)	<0.0050				
	cis-1,2-Dichloroethylene (ug/m3)	<1.7				
	trans-1,2-Dichloroethylene (ug)	<0.0050				
	trans-1,2-Dichloroethylene (ug/m3)	<1.7				
	1,2-Dichloropropane (ug)	<0.0015				

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2163712-1	L2163712-2	L2163712-3	L2163712-4	L2163712-5
Description	SV	SV	SV	SV	SV
Sampled Date	12-SEP-18	12-SEP-18	12-SEP-18	12-SEP-18	12-SEP-18
Sampled Time	09:00	08:15	12:55		14:10
Client ID	SV13	SV14	SV16	SV17	SV18
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds					
1,2-Dichloropropane (ug/m3)	<0.75	<0.60	<0.68	3.04	<0.56
cis-1,3-Dichloropropylene (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
cis-1,3-Dichloropropylene (ug/m3)	<1.3	<1.0	<1.1	<1.3	<0.93
trans-1,3-Dichloropropylene (ug)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
trans-1,3-Dichloropropylene (ug/m3)	<2.5	<2.0	<2.3	<2.5	<1.9
Ethyl Acetate (ug)	<0.10	<0.10	<0.10	<0.10	<0.10
Ethyl Acetate (ug/m3)	<50	<40	<45	<50	<37
Ethylbenzene (ug)	0.0184	0.0055	0.169	0.0242	0.0662
Ethylbenzene (ug/m3)	9.2	2.2	77.0	12.1	24.5
n-Hexane (nC6) (ug)	0.031	0.030	0.37 ABL	0.133	0.424
n-Hexane (nC6) (ug/m3)	15	12	170 ABL	67	157
Cumene (ug)	0.0052	<0.0025	0.0533	<0.0025	0.0155
Cumene (ug/m3)	2.6	<1.0	24.2	<1.3	5.73
Styrene (ug)	<0.010 DLQ	<0.010 DLQ	0.0347	<0.030 DLQ	<0.0025
Styrene (ug/m3)	<5.0 DLQ	<4.0 DLQ	15.8	<15 DLQ	<0.93
1,1,1,2-Tetrachloroethane (ug)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
1,1,1,2-Tetrachloroethane (ug/m3)	<2.0	<1.6	<1.8	<2.0	<1.5
1,1,2,2-Tetrachloroethane (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.010 DLCI
1,1,2,2-Tetrachloroethane (ug/m3)	<1.3	<1.0	<1.1	<1.3	<3.7 DLCI
Tetrachloroethylene (ug)	<0.030	3.08	<0.030	<0.030	<0.030
Tetrachloroethylene (ug/m3)	<15	1230	<14	<15	<11
Toluene (ug)	0.082	<0.020	0.234	0.103	0.158
Toluene (ug/m3)	41	<8.0	106	51	58.6
1,1,2-Trichloro-1,2,2-trifluoroethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
1,1,2-Trichloro-1,2,2-trifluoroethane (ug/m3)	<13	<10	<11	<13	<9.3
1,1,1-Trichloroethane (ug)	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
1,1,1-Trichloroethane (ug/m3)	<1.3	<1.0	<1.1	<1.3	<0.93
1,1,2-Trichloroethane (ug)	<0.0015	<0.0015	<0.0030 DLCI	<0.0015	<0.0030 DLCI
1,1,2-Trichloroethane (ug/m3)	<0.75	<0.60	<1.4 DLCI	<0.75	<1.1 DLCI
Trichloroethylene (ug)	<0.0015	0.0186	0.125	0.0210	<0.0015
Trichloroethylene (ug/m3)	<0.75	7.44	57.0	10.5	<0.56
Trichlorofluoromethane (ug)	<0.025	<0.025	<0.025	<0.025	<0.025
Trichlorofluoromethane (ug/m3)	<13	<10	<11	<13	<9.3
Vinyl Chloride (ug)	<0.0030	<0.0030	0.549	0.0387	<0.0030
Vinyl Chloride (ug/m3)	<1.5	<1.2	250	19.3	<1.1
ortho-Xylene (ug)	0.0349	0.0040	0.0334	0.0163	0.0743
ortho-Xylene (ug/m3)	17.5	1.6	15.2	8.1	27.5

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2163712-6				
	Description	SV				
	Sampled Date	12-SEP-18				
	Sampled Time	14:10				
	Client ID	Z03				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	1,2-Dichloropropane (ug/m3)	<0.52				
	cis-1,3-Dichloropropylene (ug)	<0.0025				
	cis-1,3-Dichloropropylene (ug/m3)	<0.86				
	trans-1,3-Dichloropropylene (ug)	<0.0050				
	trans-1,3-Dichloropropylene (ug/m3)	<1.7				
	Ethyl Acetate (ug)	<0.10				
	Ethyl Acetate (ug/m3)	<34				
	Ethylbenzene (ug)	0.0823				
	Ethylbenzene (ug/m3)	28.4				
	n-Hexane (nC6) (ug)	0.519				
	n-Hexane (nC6) (ug/m3)	179				
	Cumene (ug)	0.0194				
	Cumene (ug/m3)	6.69				
	Styrene (ug)	<0.0025				
	Styrene (ug/m3)	<0.86				
	1,1,1,2-Tetrachloroethane (ug)	<0.0040				
	1,1,1,2-Tetrachloroethane (ug/m3)	<1.4				
	1,1,2,2-Tetrachloroethane (ug)	<0.13 DLCI				
	1,1,2,2-Tetrachloroethane (ug/m3)	<45 DLCI				
	Tetrachloroethylene (ug)	<0.030				
	Tetrachloroethylene (ug/m3)	<10				
	Toluene (ug)	0.212				
	Toluene (ug/m3)	73.1				
	1,1,2-Trichloro-1,2,2-trifluoroethane (ug)	<0.025				
	1,1,2-Trichloro-1,2,2-trifluoroethane (ug/m3)	<8.6				
	1,1,1-Trichloroethane (ug)	<0.0025				
	1,1,1-Trichloroethane (ug/m3)	<0.86				
	1,1,2-Trichloroethane (ug)	<0.0030 DLCI				
	1,1,2-Trichloroethane (ug/m3)	<1.0 DLCI				
	Trichloroethylene (ug)	<0.0015				
	Trichloroethylene (ug/m3)	<0.52				
	Trichlorofluoromethane (ug)	<0.025				
	Trichlorofluoromethane (ug/m3)	<8.6				
	Vinyl Chloride (ug)	<0.0030				
	Vinyl Chloride (ug/m3)	<1.0				
	ortho-Xylene (ug)	0.0950				
	ortho-Xylene (ug/m3)	32.8				

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2163712-1	L2163712-2	L2163712-3	L2163712-4	L2163712-5
Description	SV	SV	SV	SV	SV
Sampled Date	12-SEP-18	12-SEP-18	12-SEP-18	12-SEP-18	12-SEP-18
Sampled Time	09:00	08:15	12:55		14:10
Client ID	SV13	SV14	SV16	SV17	SV18
Grouping / **Analyte**					
CARBO-TUBE					
Volatile Organic Compounds meta- & para-Xylene (ug)	0.0896	0.0080	0.0978	0.0459	0.210
meta- & para-Xylene (ug/m3)	44.8	3.2	44.4	23.0	77.7
Xylenes (ug/m3)	62.3	4.8	59.6	31.1	105
Hydrocarbons VHv(C6-C13) (ug)	45.6	11.2	15.9	37.1	105
VHv(C6-C13) (ug/m3)	22800	4500	7200	18600	38900
VPHv(C6-C13) (ug/m3)	22500	4500	6700	18400	38300
Polycyclic Aromatic Hydrocarbons Naphthalene (ug)	<0.0090	<0.0090	<0.0090	<0.0090	0.0105
Naphthalene (ug/m3)	<4.5	<3.6	<4.1	<4.5	3.9

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2163712-6				
	Description	SV				
	Sampled Date	12-SEP-18				
	Sampled Time	14:10				
	Client ID	Z03				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	meta- & para-Xylene (ug)	0.263				
	meta- & para-Xylene (ug/m3)	90.8				
	Xylenes (ug/m3)	124				
Hydrocarbons	VHv(C6-C13) (ug)	107				
	VHv(C6-C13) (ug/m3)	37000				
	VPHv(C6-C13) (ug/m3)	36400				
Polycyclic Aromatic Hydrocarbons	Naphthalene (ug)	0.0131				
	Naphthalene (ug/m3)	4.5				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L2163712-1	L2163712-2	L2163712-3	L2163712-4	L2163712-5
Description	SV	SV	SV	SV	SV
Sampled Date	12-SEP-18	12-SEP-18	12-SEP-18	12-SEP-18	12-SEP-18
Sampled Time	09:00	08:15	12:55		14:10
Client ID	SV13	SV14	SV16	SV17	SV18
Grouping **Analyte**					
MISC.					
Field Tests Air Volume, Client Supplied (L)	2	2.5	2.2	2	2.7

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2163712-6				
	Description	SV				
	Sampled Date	12-SEP-18				
	Sampled Time	14:10				
	Client ID	Z03				
Grouping	**Analyte**					
MISC.						
Field Tests	Air Volume, Client Supplied (L)	2.9				

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Laboratory Control Sample	Ethyl Acetate	LCS-ND	L2163712-1, -2, -4, -5, -6
Laboratory Control Sample	Bromodichloromethane	LCS-ND	L2163712-1, -2, -4, -5, -6

Qualifiers for Individual Parameters Listed:

Qualifier	Description
ABL	Approximate Result: May Be Biased Low
DLCI	Detection Limit Raised: Chromatographic Interference due to co-elution.
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
LCS-ND	Lab Control Sample recovery was slightly outside ALS DQO. Reported non-detect results for associated samples were unaffected.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AIR VOLUME-VA	Misc.	Air volume (L)	HYGIENE METHOD
FUELS-TDMS-VA	Carbo-Tube	Fuels by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

PAH-TDMS-VA	Carbo-Tube	PAHs by Thermal Desorption with GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VH-TDFID-VA	Carbo-Tube	VHv by Thermal Desorption and GCFID	BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from BCMOE analytical method for contaminated sites "VHv in air by GC-FID / GC-MS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VHv is determined using gas chromatography with flame ionization (GC/FID). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VOC-M2-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VOC-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (November 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV (noted below in litres) may cause the compound to break through the media, leading to a negatively biased result. Lower boiling point compounds such as vinyl chloride (10), chloromethane (6), and dichloromethane (40) are particularly affected. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative. Where SSVs have been exceeded, please contact ALS regarding data interpretation as results may still be fit for purpose.

VOC7-TDMS-VA	Carbo-Tube	BTEX by Thermal Desorption with GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (draft January 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV may cause the compound to break through the media, leading to a negatively biased result. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative.

VPH-CALC-VA	Carbo-Tube	VPHv is VHv minus BTEX/nC6/nC10	BC MOE VPH

VPHv measures Volatile Petroleum Hydrocarbons in air. Results are calculated by subtraction of specific Monocyclic Aromatic Hydrocarbons from VHv6-13, as per the BC Lab Manual VPH calculation procedure.
VPHw = VHv6-13 minus Benzene, Toluene, Ethylbenzene, Xylenes, Styrene, n-Hexane, and n-Decane

Reference Information

XYLENES-CALC-VA Carbo-Tube Sum of Xylene Isomer Concentrations CALCULATION

Calculation of Total Xylenes

Total Xylenes is the sum of the concentrations of the ortho, meta, and para Xylene isomers. Results below detection limit (DL) are treated as zero. The DL for Total Xylenes is set to a value no less than the square root of the sum of the squares of the DLs of the individual Xylenes.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-718021

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

L2163712-COFC

COC Number: 17 - 718021

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL Environmental	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	604 682 3707 ext 2	Quality Control (QC) Report with Report ☐ YES ☐ NO	Priority (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐
Phone:	Zayed Mohamed	☐ Compare Results to Criteria on Report - provide details below if box checked	Emergency: 1 Business day [E-100%] ☐ / Same Day, Weekend or Statutory holiday [E2-200% (Laboratory opening fees may apply)] ☐
	Company address below will appear on the final report	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	1500 - 1185 W Georgia	Email 1 or Fax zmohamed@pgsgroup.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver, BC	Email 2 arivers@pgsgroup.com	
Postal Code:		Email 3	

Invoice To		Invoice Distribution	
	Same as Report To ☑ YES ☐ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
	Copy of Invoice with Report ☑ YES ☐ NO	Email 1 or Fax	
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66364	AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: B. Mock

Sampler: A. Rivers

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	PGL - Fuel + Solvents	SAMPLES ON HOLD	Sample is hazardous (please provide further details)	NUMBER OF CONTAINERS
	SU13	12 Sept	9:00	SU	X			
	SU14		8:15		X			
	~~SU15~~							
	SU16		12:55		X			
	SU17				X			
	SU18		14:10		X			
	203		14:10		X			

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☐ NO	
Are samples for human consumption/ use? ☐ YES ☐ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs ☐ Ice Cubes ☐		Custody seal intact	Yes ☐	No	☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				20			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
						SL	SEP 13 2018	11:36AM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JULY 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

THERMAL DESORPTI
SAMPLING INFORMATI

L2163712-COFC

ALS File # _____ **BR224065**

(To be filled out by ALS upon return of samples to ALS)

Date Returned:	
QC Check:	✓

1. Sampling Supplies (To be filled out by ALS)

Company Name/Location:	Pottinger Gaherty Environmental	Project/Job No:	Not Supplied
Pump Requested By:	Andrea Rivers	Date of Request:	Sept 4/18 10:00 am
ALS Account Manager:	Brent Mack	Pump(s) Prepared By:	JM
# of Pumps (TD x 1@100mL/min):	1 ✓	Date Required @ Shipping:	Sept 6/18 4:00 pm
# of Pumps (TD x 2@100mL/min):	1 ✓	Flow Verification Tubes 2 ✓	Other
Other Supplies Provided:	Lithium-ion Battery Charger ✓ Pelican Case (Single) ✓ Splitters & Tubing 1 Y splitters / 6 small connector plastic tubing ✓ Pelican Case (Multiple) Alkaline Battery Adapter Additional Pumps:		
TD Tubes 7 ✓			

2. Flow Rates (Flow rates before and after - ALS, flow rates in-situ - Client)

Pump ID	Pump flow before sampling (mL/min) - ALS	Pump flow after sampling (mL/min) - ALS	Pump Flow in situ (mL/min) - CLIENT[1]	Notes
1. 012466	A 100 B 99	A B	A * See avg B flows	
2. 019882	A B 101	A B	A B	
3.	A B	A B	A B	
4.	A B	A B	A B	

If in-situ flow measurements have been provided, these will be used for all air concentrations calculations.

avg * flow measured

3. Sample Information (To be filled out by Client)

	TD Tube Serial #	Client Sample ID	Pump #	Sampling Time (min)	Date/Time	Elevated Levels Expected? Y	?	N	Recvd @ Lab ✓
~100 ✓ 1	G0153952	SU13	019822	20	12 Sept 18				
135 ✓ 2	G0152450	SU18	012466	20					
110 ✓ 3	G0151645	SU16	019822	20					
116 ✓ 4	G0153987	SU15	012466	21					
✓ 5	G0155720	SU17	019822	20					
119 ✓ 6	G0151440	SU14	012466	21					
145 ✓ 7	G0152460	Z03	012466	20					
8									
9									
10									
✓ 11	G0135931		Flow Verification						
✓ 12	G0155230			Tubes					

✓ = Rcv@VA SEP 13 2018 JC

SU17 019822
~~SU18 012466~~
SU13 ~100
019822
100

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 18-MAR-19
Report Date: 22-MAR-19 17:58 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2245605

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-827798
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2245605-1				
	Description	Water				
	Sampled Date	16-MAR-19				
	Sampled Time					
	Client ID	BH01M				
Grouping	**Analyte**					
WATER						
Speciated Metals	Hexavalent Chromium-Dissolved (mg/L)	<0.00050				

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
CR6-D-IC-ED	Water	Chromium, Dissolved Hexavalent (Cr +6)	APHA 3500-Cr C (Ion Chromatography)

This analysis is carried out using procedures adapted from method 3500-Cr C in "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from Method 1636 published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.
Results are based on a field-filtered, field-preserved sample.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

17-827798

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2245605-COFC

COC Number: 17 - 827798

Page of

Report To	Contact and company name below will appear on the final report	Report Format / D...	Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	PGL Environmental.	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%]
Phone:	604-895-7640	Compare Results to Criteria on Report - provide details below if box checked	EMERGENCY: 1 Business day [E - 100%] / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]
	Company address below will appear on the final report	Select Distribution: EMAIL MAIL FAX	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
Street:	1500 - 1185 W Georgia St.	Email 1 or Fax: ZMohamed@pggroup.com	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Vancouver, BC	Email 2	
Postal Code:	V6E 4E6	Email 3	
Invoice To	Same as Report To YES NO	Invoice Distribution	
	Copy of Invoice with Report YES NO	Select Invoice Distribution: EMAIL MAIL FAX	
Company:		Email 1 or Fax: reception@pggroup.com	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	F/P	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	BH01M	16 Mar 19	PM	Water	1	X		

Chromium VI

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? YES NO	
Are samples for human consumption/ use? YES NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen SIF Observations Yes No

Ice Packs Ice Cubes Custody seal intact Yes No

Cooling Initiated

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
							6

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Zayed Mohamed	Date: 18 Mar 19	Time: 3:17 PM	Received by:	Date:	Time:	Received by: HA	Date: 3/18	Time: 5:53p

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 18-MAR-19
Report Date: 22-MAR-19 13:58 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2245606

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 17-827797
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2245606-1	L2245606-2	L2245606-3		
	Description	Water	Water	Water		
	Sampled Date	18-MAR-19	18-MAR-19	18-MAR-19		
	Sampled Time					
	Client ID	BH134M	BH125M	BH115M		
Grouping	**Analyte**					
WATER						
Glycols	Diethylene Glycol (mg/L)	<5.0	<5.0	<5.0		
	Ethylene Glycol (mg/L)	<5.0	<5.0	<5.0		
	1,2-Propylene Glycol (mg/L)	<5.0	<5.0	<5.0		
	Triethylene Glycol (mg/L)	<5.0	<5.0	<5.0		

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
GLY-WAT-FID-VA	Water	Glycols in Water by GCFID	SW-846, METHOD 8015B, EPA

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 8015B, published by the United States Environmental Protection Agency (EPA). The procedure involves treatment of the sample with a strong base (NaOH) and benzoyl chloride to form the corresponding benzoate esters. The benzoate esters are then extracted with iso-octane and the extract is analyzed by capillary column gas chromatography with flame ionization detection (FID).

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

17-827797

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental
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Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2245606-COFC

COC Number: 17 - 827797

Page 1 of 1

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	
Company:	PGL Environmental	Select Report Format:	PDF EXCEL EDD (DIGITAL)
Contact:	Zahed Mohamed	Quality Control (QC) Report with Report	YES NO
Phone:	604-895-7640	Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution:	EMAIL MAIL FAX
Street:	500-1185 W Georgia St	Email 1 or Fax	ZMohamed@pggroup.com
City/Province:	Vancouver BC	Email 2	
Postal Code:	V6E 4E6	Email 3	
Invoice To	Same as Report To YES NO	Invoice Distribution	
	Copy of Invoice with Report YES NO	Select Invoice Distribution:	EMAIL MAIL FAX
Company:		Email 1 or Fax	reception@pggroup.com
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q66350	AFE/Cost Center:	PO#
Job #:	5355-01.01	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: B. Mack.	Sampler:

Priority (Business Days)	Emergency	Date and Time Required for all E&P TATs:
4 day [P4-20%]	1 Business day [E - 100%]	dd-mmm-yy hh:mm
3 day [P3-25%]	Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]	For tests that can not be performed according to the service level selected, you will be contacted.
2 day [P2-50%]		

Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply

w - Contact your AM to confirm all E&P TATs (surcharges may apply)

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Gly Cols	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	BH134M	18-Mar-19	AM	Water	2	X		
	BH125M	↓	↓	↓	2	X		
	BH115M.	↓	↓	↓	2	X		

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? NO	
Are samples for human consumption/ use? NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☑

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
							6

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	18 Mar 19	3:17pm					3/18	5153

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Pottinger Gaherty Environmental Consultants (PGL)
ATTN: Zayed Mohamed
1500 - 1185 West Georgia Street
Vancouver BC V6E 4E6

Date Received: 20-MAR-19
Report Date: 26-MAR-19 16:32 (MT)
Version: FINAL

Client Phone: 604-682-3707

Certificate of Analysis

Lab Work Order #: L2246811

Project P.O. #: NOT SUBMITTED
Job Reference: 5355-01.01
C of C Numbers: 14-493095
Legal Site Desc:

Brent Mack, B.Sc.
Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2246811-1				
	Description	Air				
	Sampled Date	16-MAR-19				
	Sampled Time					
	Client ID	BH02M				
Grouping	**Analyte**					
CARBO-TUBE						
Volatile Organic Compounds	1,3-Dichloropropene (cis & trans) (ug/m3)	<3.0				
	Tetrachloroethylene (ug)	<0.030				
	Tetrachloroethylene (ug/m3)	<15				
	Trichloroethylene (ug)	<0.00025				
	Trichloroethylene (ug/m3)	<0.13				

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L2246811-1				
	Description	Air				
	Sampled Date	16-MAR-19				
	Sampled Time					
	Client ID	BH02M				
Grouping	**Analyte**					
MISC.						
Field Tests	Air Volume, Client Supplied (L)	2				

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
AIR VOLUME-VA	Misc.	Air volume (L)	HYGIENE METHOD
VOC-1,3-DCP-CALC-VA	Carbo-Tube	Sum of Cis and Trans Dichloropropene	Calculation
The Sum of Cis and Trans Dichloropropene			
VOC-TDMS-VA	Carbo-Tube	VOCs by Thermal Desorption and GCMS	EPA TO-17, BCMOE CSR (DRAFT JAN 2009)

This analysis is carried out using procedures adapted from EPA TO-17 (January 1999) and BCMOE analytical method for contaminated sites "VOCs in air by thermal desorption tube / GCMS" (November 2009) . Air samples are collected onto a sorbent tube either passively or actively via air sampling pumps. The tube is thermally desorbed and the VOCs are determined using gas chromatography with mass spectrometry (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Air sampling media have maximum safe sampling volumes (SSV) for each compound. Exceeding the SSV (noted below in litres) may cause the compound to break through the media, leading to a negatively biased result. Lower boiling point compounds such as vinyl chloride (10), chloromethane (6), and dichloromethane (40) are particularly affected. SSVs for ALS Vancouver thermal desorption media are readily available from a Client Service Representative. Where SSVs have been exceeded, please contact ALS regarding data interpretation as results may still be fit for purpose.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

14-493095

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2246811-COFC

COC Number: 14 - 493095

Page 1 of 1

Report To		Report Format / Distribution		Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests)
Company:	PGL Environmental	Select Report Format:	PDF ☒ EXCEL ☒ EDD (DIGITAL) ☐	R ☒ Regular (Standard TAT if received by 3pm)
Contact:	Zayed Mohamed	Quality Control (QC) Report with Report	☒ Yes ☐ No	P ☐ Priority (2-4 business days if received by 3pm)
Address:	1500-1185 W Georgia St, Vancouver	☐ Criteria on Report - provide details below if box checked		E ☐ Emergency (1-2 business days if received by 3pm)
Phone:	604-895-7840	Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX	E2 ☐ Same day or weekend emergency if received by 10am – contact ALS for surcharge.
		Email 1 or Fax	ZMohamed@pggroup.com	Specify Date Required for E2,E or P:
		Email 2		

Invoice To		Invoice Distribution	
	Same as Report To ☒ Yes ☐ No	Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX
	Copy of Invoice with Report ☐ Yes ☐ No	Email 1 or Fax	reception@pggroup.com
Company:		Email 2	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Quote #:	Q66350	Approver ID:	Cost Center:
Job #:	5355-01-01	GL Account:	Routing Code:
PO / AFE:		Activity Code:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: B. Macle	Sampler: ZM.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Tetrachloroethylene	Trichloroethylene	Number of Containers
	BH02M	16Mar19	AM	Air	X	X	1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report (client Use)
Are samples taken from a Regulated DW System? ☐ Yes ☐ No	
Are samples for human drinking water use? ☐ Yes ☐ No	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐		SIF Observations	Yes	☐	No	☐
Ice packs	Yes ☐	No ☐	Custody seal intact	Yes	☐	No	☐
Cooling Initiated	☐						

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
				23'C	

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
[signature] MBC	20/3/19	9:30				JL	3/20/19	11:40am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

NA-FM-0309e-H09-Front04-January-2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

THERMAL DESORPTION SAMPLING INFORMATION

Date Returned:	
QC Check:	RS

ALS File # BR237579

(To be filled out by ALS upon return of samples to ALS)

1. Sampling Supplies (To be filled out by ALS)

Company Name/Location:	PGL	Project/Job No:	5355-01.01
Pump Requested By:	Zayed Mohamed	Date of Request:	Mar 11/19 10:00 am
ALS Account Manager:	Brent Mack	Pump(s) Prepared By:	DM
# of Pumps (TD x 1@100mL/min):	1	Date Required @ Shipping:	Mar 12/19 8:00 pm
# of Pumps (TD x 2@100mL/min):		Flow Verification Tubes 1 ✓	Other

Other Supplies Provided:
ALS 1/2 W31 / 9/16 W33 /
TD Tubes : 2

Lithium-ion Battery Charger
Splitters & Tubing
Alkaline Battery Adapter

Pelican Case (Single)
Pelican Case (Multiple)
Additional Pumps:

2. Flow Rates (Flow rates before and after - ALS, flow rates in-situ - Client)

Pump ID	Pump flow before sampling (mL/min) - ALS	Pump flow after sampling (mL/min) - ALS	Pump Flow in situ (mL/min) - CLIENT[1]	Notes
1. 012467 ✓	A B 101.3	A B	A B 100 mL/min	
2.	A B	A B	A B	
3.	A B	A B	A B	
4.	A B	A B	A B	

[1] If in-situ flow measurements have been provided, these will be used for all air concentrations calculations.

3. Sample Information (To be filled out by Client)

	TD Tube Serial #	Client Sample ID	Pump #	Sampling Time (min)	Date/Time	Elevated Levels Expected? Y	?	N	Recvd @ Lab ☑
1 ✓	A00719	BH02M	012467	20	16 Mai 2019			X	✓
2 ✓	G0152194								✓
3									
4									
5									
6									
7									
8									
9									
10									
11									
12 ✓	A01667	—	FLOW	—	VERIFICATION	—	—	—	✓

L2246811-COFC

✓ = Rcv MAR 20 2019 @ VA JC

ADDRESS 8081 Lougheed Highway, Burnaby British Columbia V5A 1W9 Canada | PHONE +1 604 253 4188 | FAX +1 604 253 6700
ALS CANADA LIMITED Part of the ALS Group A Campbell Brothers Limited Company

Appendix 8

Vapour Partitioning Equations

EXHIBIT 2 – PARTITIONING EQUATIONS

1. Groundwater Contamination Source

If Cw,i < Xi * Si then Cv,i = UCF2 * Cw,i * H'

This equation is intended to determine if the chemical is likely offgasing from contaminated groundwater or from a NAPL source. Xi * Si = theoretical maximum concentration of the chemical in groundwater in contact with a specific mixture (ie gasoline). If the observed concentration in groundwater is greater than this value, the groundwater is likely in contact with NAPL. If observed groundwater concentrations are less than Xi * Si then it is assumed that the chemical is offgassing from the groundwater.

If Cw,i >= Xi * Si then Cv,i = max [UCF2 * Xi * Si * H' , UCF1 * Xi * MWi * Pi / RT]

These formulas are applied if it is possible the chemical is sourced from NAPL. Soil vapour concentrations are estimated whichever of the following scenarios generates the greater estimated concentration: 1) off-gassing from groundwater which contains the maximum possible concentration of the parameter; or, 2) off-gassing directly from a NAPL source

Parameter Definitions

Cw,i = Groundwater concentration (µ/L)	Measured site specific
Xi = Mole fraction (unitless)	Estimated from chemical data or obtained from literature. Xi is the fraction of a chemical in a mixture. For example, if the Mole fraction of benzene in gasoline is 0.0137, then there are 1.37 molecules of benzene per 100 molecules of 'gasoline'. A liquid which is pure (eg. 100% benzene) has a Xi=1. Some estimated values for Xi in gasoline are in the HHRA vapour guidance Table III-3
Si = Pure chemical aqueous solubility (mg/L)	Chemical specific - HHRA table 1, (maximum concentration of the chemical that can remain in solution at a particular temperature/presure, usually 1 atm/25C
Cv,i = Soil vapour concentration (mg/m3)	Calculated
H' = Dimensionless Henry's Law Constant	Chemical specific - HHRA table 1
UCF1 = Unit conversion factor 1,000 mg/g	
UCF2 = Unit conversion factor 1,000 L/m3	
MWi = Molecular weight (g/mole)	Chemical specific - HHRA table 1
P = Pure chemical vapour pressure (atm)	Chemical specific - HHRA table 1
R = Gas constant (m3-atm/K-mole)	8.21E-05
T = Absolute temperature (K, 273oC + T(oC))	Measured/Estimated site specific

Tetrachloroethylene Characteristics

H'	1.08E+00
Si (mg/L)	1.50E+02
Si (µ/L)	1.50E+05
Predicted Cvi if Cwi tetrachloroethylene is 1.2ug/L	1300ug/m^3
Predicted Cvi if attenuation factor is 0.02	26ug/m^3

Appendix 9

Iron and Arsenic Statistics

General Statistics on Uncensored Full Data

Date/Time of Computation ProUCL 5.112/3/19 4:47:45 PM

User Selected Options

From File WorkSheet.xls

Full Precision OFF

From File: WorkSheet.xls

General Statistics for Uncensored Data Sets

Variable	NumObs	# Missing	Minimum	Maximum	Mean	Geo-Mean	SD	SEM	MAD/0.675	Skewness	CV
Arsenic	16	0	3.01	16.5	9.508	8.545	3.991	0.998	3.988	-0.146	0.42
Iron	16	0	19100	37300	29556	29103	5112	1278	3929	-0.613	0.173

Percentiles for Uncensored Data Sets

Variable	NumObs	# Missing	10%ile	20%ile	25%ile(Q1)	50%ile(Q2)	75%ile(Q3)	80%ile	90%ile	95%ile	99%ile
Arsenic	16	0	3.995	5.31	6.488	10.11	11.53	12.5	14.05	15.38	16.28
Iron	16	0	22700	25300	25300	30700	32550	32700	34900	36175	37075

Location	Depth	Arsenic	Iron
BH119M	6	**13.1**	22100
BH120M	5.7	**12.5**	19100
BH121M	6.4	9.51	35800
BH135M	5.5	5.31	25300
BH139	5.6	6.88	23300
BH140	6.5	8.71	25300
BH141	6.3	**16.5**	32000
BH143	6	9.72	30500
BH146	5.7	**11.1**	37300
BH146	7.2	**11.2**	30300
BH146	6.3	**15**	30000
BH149	6.5	**11.1**	32700
BH154	5.7	3.34	30900
BH155	5.2	**10.5**	31800
BH157	5.2	4.65	34000
BH158	5.3	3.01	32500

Normal UCL Statistics for Uncensored Full Data Sets

User Selected Options	
Date/Time of Computation	ProUCL 5.112/3/19 4:51:11 PM
From File	WorkSheet.xls
Full Precision	OFF
Confidence Coefficient	95%

Arsenic

General Statistics

Total Number of Observations	16	Number of Distinct Observations	15
		Number of Missing Observations	0
Minimum	3.01	Mean	9.508
Maximum	16.5	Median	10.11
SD	3.991	SD of logged Data	0.515
Coefficient of Variation	0.42	Skewness	-0.146

Normal GOF Test

Shapiro Wilk Test Statistic	0.962	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.887	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.125	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.213	Data appear Normal at 5% Significance Level	

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	11.26	95% Adjusted-CLT UCL (Chen-1995)	11.11
		95% Modified-t UCL (Johnson-1978)	11.25

Suggested UCL to Use

95% Student's-t UCL	11.26

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.

Iron

General Statistics

Total Number of Observations	16	Number of Distinct Observations	15
		Number of Missing Observations	0
Minimum	19100	Mean	29556
Maximum	37300	Median	30700
SD	5112	SD of logged Data	0.186
Coefficient of Variation	0.173	Skewness	-0.613

Normal GOF Test

Shapiro Wilk Test Statistic	0.939	**Shapiro Wilk GOF Test**	
5% Shapiro Wilk Critical Value	0.887	Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.222	**Lilliefors GOF Test**	
5% Lilliefors Critical Value	0.213	Data Not Normal at 5% Significance Level	

Data appear Approximate Normal at 5% Significance Level

Assuming Normal Distribution

95% Normal UCL		**95% UCLs (Adjusted for Skewness)**	
95% Student's-t UCL	31797	95% Adjusted-CLT UCL (Chen-1995)	31449
		95% Modified-t UCL (Johnson-1978)	31764

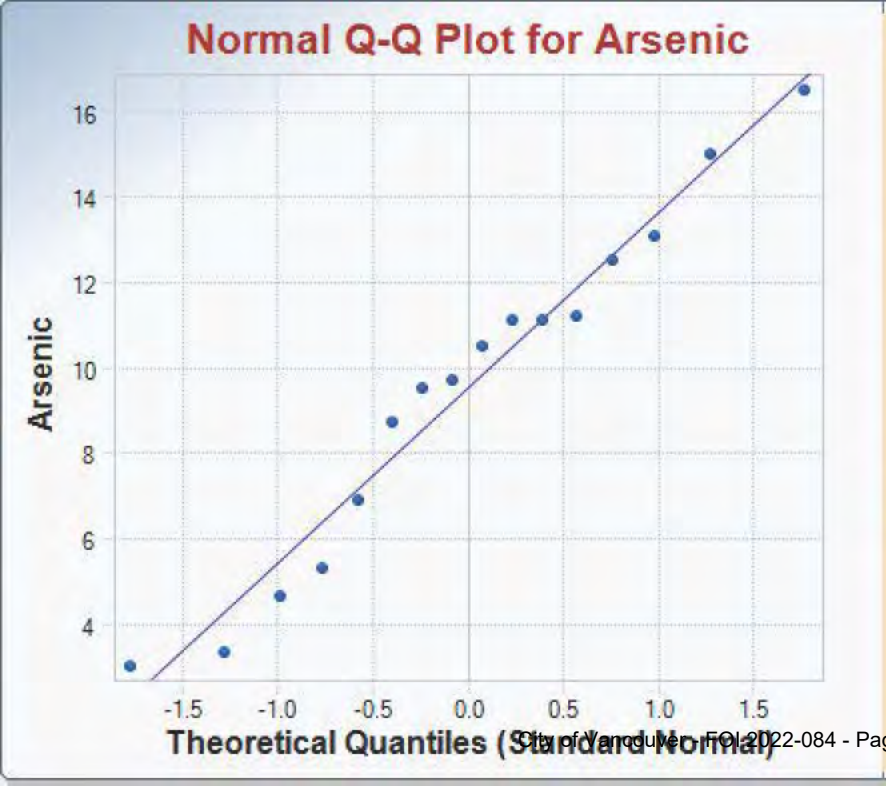
Suggested UCL to Use

95% Student's-t UCL 31797

When a data set follows an approximate (e.g., normal) distribution passing one of the GOF test
When applicable, it is suggested to use a UCL based upon a distribution (e.g., gamma) passing both GOF tests in ProUCL

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006).
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Note: For highly negatively-skewed data, confidence limits (e.g., Chen, Johnson, Lognormal, and Gamma) may not be reliable. Chen's and Johnson's methods provide adjustments for positvely skewed data sets.



Arsenic

n = 16

Mean = 9.508

Sd = 3.991

Slope = 4.11

Intercept = 9.508

Correlation, R = 0.986

Shapiro-Wilk Test

Exact Test Value = 0.962

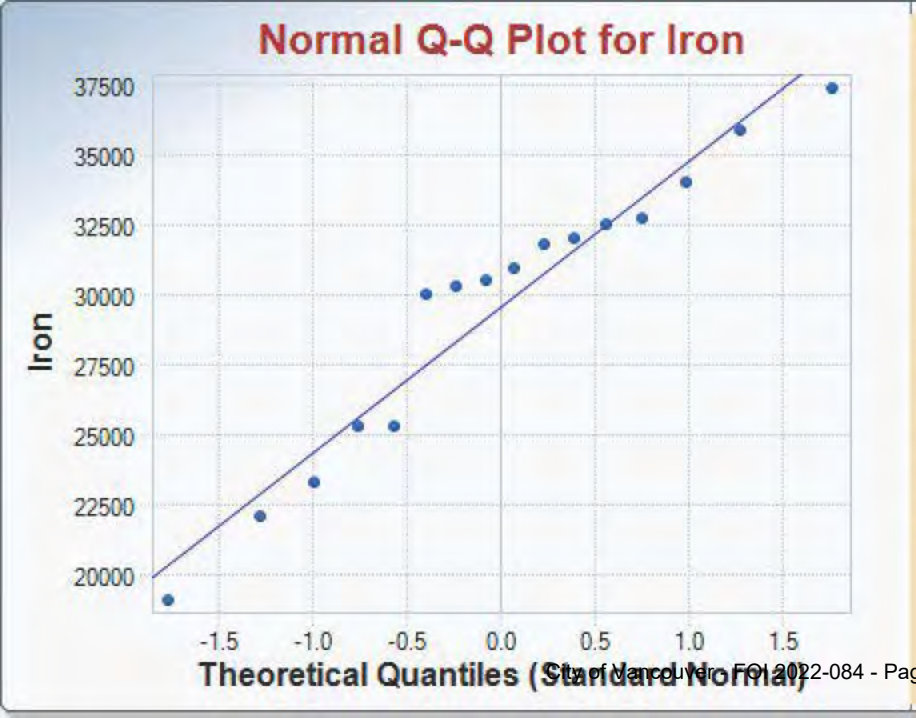
Critical Val(0.05) = 0.887

Data Appear Normal

Approx. Test Value = 0.966

p-Value = 0.733

Best Fit Line



Iron

n = 16
Mean = 29556
Sd = 5112
Slope = 5185
Intercept = 29556
Correlation, R = 0.971
Shapiro-Wilk Test
Exact Test Value = 0.939
Critical Val(0.05) = 0.887
Data Appear Normal
Approx. Test Value = 0.940
p-Value = 0.35
☑ Best Fit Line

Zayed Mohamed

From: Zayed Mohamed
Sent: 3-Dec-19 3:26 PM
To: Jerade, Liliana ENV:EX
Cc: Duncan Macdonald
Subject: RE: Next steps at the future St. Paul's Hospital Site

Thanks for your help, much appreciated!

Zayed Mohamed, P.Ag., CSAP – Environmental Consultant PGL Environmental Consultants
T: 604.895.7640 | C: 778.238.8113 | pggroup.com

-----Original Message-----
From: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Sent: 3-Dec-19 2:10 PM
To: Zayed Mohamed <zmohamed@pggroup.com>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

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Ah well, more evidence for wide spread contamination from historical sources.

-----Original Message-----
From: Zayed Mohamed <zmohamed@pggroup.com>
Sent: December 3, 2019 12:30 PM
To: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

Thanks Liliana, we will proceed on that basis.

To be clear, there is arsenic in marine sediments below and adjacent to the pre-1912 fill, but no evidence that it has migrated from the site.

Zayed Mohamed, P.Ag., CSAP - Environmental Consultant PGL Environmental Consultants
T: 604.895.7640 | C: 778.238.8113 | pggroup.com

-----Original Message-----
From: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Sent: 3-Dec-19 11:46 AM
To: Zayed Mohamed <zmohamed@pggroup.com>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

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Hi Zayed,

Your arguments make sense to me, as long as there is record of the 2 infilling phases (which based on your email there is) and there is no evidence of arsenic in the marine sediments (which would imply there was no migration from your site) .

I can see you have good arguments for managing this site through AG15. As you know, you don't need approval from us to use AG15, so it would be up to your AP to determine if the arguments you are presenting are valid.

Please let me know if you have any questions about this.
Thanks
Liliana

-----Original Message-----
From: Zayed Mohamed <zmohamed@pggroup.com>
Sent: December 3, 2019 11:35 AM
To: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

Hi Liliana.

We are still hoping to manage this through AG15 without a pre-approval. From our last call it seemed like the primary condition for using AG15 was that the arsenic not be sourced from operations on the site, but sourced from the historical fill. I think we can make good arguments that the arsenic is not sourced from operations:

- The site appears to have been partially filled in two phases, some before 1912 and some after 1912 (based on what is shown on the 1912 fire insurance plan). Pre-1912 fill is more contaminated than post 1912 fill. Arsenic exceeds standards throughout the pre-1912 fill.
- Arsenic in native marine soil/(former sediment) is below or adjacent to the 1912 fill. If there was runoff from the pre-1912 fill it could have contaminated the adjacent marine sediments (which were not covered with fill at the time).
- APECs with metal PCOCs (primarily a smelter) operated after the 1930s, well after the site was completely filled. The smelter operated at the north end of the site on the former uplands portion; therefore it is unlikely to be the source of arsenic in the former marine sediments.
- Post-1912 fill overlaying some of the arsenic exceedances in marine sediments does not exceed standards for arsenic.
- It is possible that there is a naturally occurring component to this as well

We are of the opinion, based on our discussions with you, that this still fits into the AG15 Scenario 5 box. Do you agree?

Duncan is in meetings until mid-afternoon. We can call then if you think we should discuss further.

Thanks

Zayed Mohamed, P.Ag., CSAP - Environmental Consultant PGL Environmental Consultants
T: 604.895.7640 | C: 778.238.8113 | pggroup.com

-----Original Message-----
From: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Sent: 3-Dec-19 10:16 AM
To: Zayed Mohamed <zmohamed@pggroup.com>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>

Subject: RE: Next steps at the future St. Paul's Hospital Site

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Hi Zayed,
I'll be out of the office at a conference tomorrow and Thursday s.22(1) but I'm here today if you want to give me a call.

Thanks
Liliana

-----Original Message-----
From: Zayed Mohamed <zmohamed@pggroup.com>
Sent: December 3, 2019 10:13 AM
To: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

Thanks Liliana,

Is there a convenient time to call tomorrow?

Zayed Mohamed, P.Ag., CSAP - Environmental Consultant PGL Environmental Consultants
T: 604.895.7640 | C: 778.238.8113 | pggroup.com

-----Original Message-----
From: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Sent: 2-Dec-19 3:13 PM
To: Zayed Mohamed <zmohamed@pggroup.com>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

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Hi Zayed,
I am so sorry for the delay in responding. I have not had any luck finding sites with arsenic in sediments. The only two sites that have done sediment sampling did not have arsenic exceeding standards.

Give me a call if you want to talk about this and maybe we can come up with some options...three minds are better than one at brainstorming.
Thanks
Liliana

-----Original Message-----
From: Zayed Mohamed <zmohamed@pggroup.com>
Sent: November 21, 2019 3:14 PM
To: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

Hi Liliana,

Just wondering if you had found any information on False Creek Sediments?

Best regards,

Zayed Mohamed, P.Ag., CSAP - Environmental Consultant PGL Environmental Consultants
T: 604.895.7640 | C: 778.238.8113 | pggroup.com

-----Original Message-----
From: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Sent: 5-Nov-19 2:45 PM
To: Zayed Mohamed <zmohamed@pggroup.com>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

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Hi Zayed and Duncan,
So, it seems finding a site that has arsenic contamination deeper than the fill is proving very difficult. All the area wide designations we issued were for contamination in the fill material, and they had to prove that the native soils were clean. I can send you a bunch of those sites if you want them, but their sampling usually ended around 2 mbg.

Having said that, I'll look for sites that have done sediment sampling in False Creek, maybe you can use those ones as your argument for arsenic contamination...I'll get back to you once I find something...

-----Original Message-----
From: Zayed Mohamed <zmohamed@pggroup.com>
Sent: November 4, 2019 4:44 PM
To: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: RE: Next steps at the future St. Paul's Hospital Site

Thanks Liliana,

Can we call tomorrow around 2pm?

Zayed Mohamed, P.Ag., CSAP - Environmental Consultant PGL Environmental Consultants
T: 604.895.7640 | C: 778.238.8113 | pggroup.com

-----Original Message-----
From: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Sent: 1-Nov-19 1:12 PM
To: Zayed Mohamed <zmohamed@pggroup.com>
Cc: Duncan Macdonald <dmacdonald@pggroup.com>
Subject: Re: Next steps at the future St. Paul's Hospital Site

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Hi Zayed,

Sure, any day next week works for me except Wednesday afternoon and Friday.

So give me a call when it works for you.

Thanks

Liliana

_____
From: Zayed Mohamed <zmohamed@pggroup.com>
Sent: Friday, November 01, 2019 12:39 PM
To: Jerade, Liliana ENV:EX
Cc: Duncan Macdonald
Subject: RE: Next steps at the future St. Paul's Hospital Site

Hi Liliana,

Do you have time for a phone call next week to discuss?

Zayed Mohamed, P.Ag., CSAP - Environmental Consultant PGL Environmental Consultants
T: 604.895.7640 | C: 778.238.8113 |
pggroup.com<https://can01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fpggroup.com&data=02%7C01%7Czmohamed%40pggroup.com%7Cd9d61c0341e9451f848a08d7783d86a7%7C8f5bec39eb564dfab5baafc6a2ec7424%7C0%7C0%7C637110077958865340&sdata=PAU1NHY55%2BNNFPL%2Bz6Gp9dHWR87xqSwhfvPXjsfIpvA%3D&reserved=0>

From: Barrett, Janet ENV:EX <Janet.Barrett@gov.bc.ca>
Sent: 31-Oct-19 1:30 PM
To: Zayed Mohamed <zmohamed@pggroup.com>
Cc: Jerade, Liliana ENV:EX <Liliana.Jerade@gov.bc.ca>
Subject: RE: Next steps at the future St. Paul's Hospital Site

** WARNING: Do not click links or open attachments unless you recognize the sender and know the content is safe. **

Hi Zayed,

I'm writing in response to your inquiry of October 17, 2019, included below.

Regarding issue #1, if you are able to show that the areas located above the infilled foreshore qualifies for no DW through P21, you would not need a Director's determination. However, if you are unable to show that, you would then apply for a Director's determination that DW does not apply. Could you be more specific regarding what data you have that would suggest that DW does apply?

Regarding issue #2, this looks like an area-wide contamination issue. Please contact Liliana Jerade (copied on this email).

Regards,

Janet Barrett, M.Sc., P.Eng.
Senior Contaminated Sites Officer
Ministry of Environment and Climate Change Strategy Land
Remediation<https://can01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.gov.bc.ca%2Fsiteremediation&data=02%7C01%7Czmohamed%40pggroup.com%7Cd9d61c0341e9451f848a08d7783d86a7%7C8f5bec39eb564dfab5baafc6a2ec7424%7C0%7C0%7C637110077958865340&sdata=luuQsAgrDlMH%2FGT63bLdj1VX91Nt6OiQIEqKnwyfous%3D&reserved=0> I 200-10470 152 St, Surrey, BC, V3R 0Y3
T: 604-582-5262

From: Zayed Mohamed <zmohamed@pggroup.com<mailto:zmohamed@pggroup.com>>
Sent: October 24, 2019 2:15 PM
To: McCammon, Alan W ENV:EX <Alan.Mccammon@gov.bc.ca<mailto:Alan.Mccammon@gov.bc.ca>>; Barrett, Janet ENV:EX <Janet.Barrett@gov.bc.ca<mailto:Janet.Barrett@gov.bc.ca>>
Cc: Duncan Macdonald <dmacdonald@pggroup.com<mailto:dmacdonald@pggroup.com>>
Subject: RE: Next steps at the future St. Paul's Hospital Site

Hi Alan and Janet,

Just touching base on this. Any thoughts?

Zayed Mohamed, P.Ag., CSAP - Environmental Consultant PGL Environmental Consultants
T: 604.895.7640 | C: 778.238.8113 |
pggroup.com<https://can01.safelinks.protection.outlook.com/?url=http%3A%2F%2Fpggroup.com&data=02%7C01%7Czmohamed%40pggroup.com%7Cd9d61c0341e9451f848a08d7783d86a7%7C8f5bec39eb564dfab5baafc6a2ec7424%7C0%7C0%7C637110077958875340&sdata=Eh1M0VZ0d98oW6bNCdTPJYvwIp0TA27ae7e1FzbvPh4%3D&reserved=0>

From: Zayed Mohamed
Sent: 17-Oct-19 5:17 PM
To: Alan.Mccammon@gov.bc.ca<mailto:Alan.Mccammon@gov.bc.ca>; Barrett, Janet ENV:EX <Janet.Barrett@gov.bc.ca<mailto:Janet.Barrett@gov.bc.ca>>
Cc: Duncan Macdonald <dmacdonald@pggroup.com<mailto:dmacdonald@pggroup.com>>
Subject: Next steps at the future St. Paul's Hospital Site

Hi Alan and Janet,

I'm touching base about our path forward for the Future St. Paul's Hospital Project. As discussed with Duncan and Providence Health back in June, we would like to apply for an AiP in the near future. We have completed Stage 1 PSI and Stage 2 PSI/DSI investigations and have identified two issues that may need ENV involvement/approval before we can proceed with an AiP submission.

Issue #1 - About 90% of the Site is filled foreshore of the false creek flats where drinking water standards do not apply. However, some portions of the Site were above the former shoreline. Preliminary hydrogeo testing in these areas did not seem to support a hydrogeo argument for not applying DW. We would like to assess if a Director's Determination is necessary to not apply drinking water standards in these areas. Arguments for not applying DW would be the long history of industrial use, history of area wide fill and proximity to the false creek flats etc.

Issue #2 - Some soil samples in deep buried marine sediments exceed standards for arsenic. These exceedances are separate from the contaminated fill and we believe could be naturally occurring. Because of their depth, drilling to delineate these exceedances is potentially expensive. Arguments for not drilling more would be the potential natural source, historical area wide sources, and that sufficient information is available to plan remediation. Background assessment would be difficult because there is no area in the false creek flats that has not been anthropogenically impacted.

Could you direct me to the best people at ENV to contact about these issues?

Please give me a call if you would like to discuss.

Best regards,

Zayed Mohamed P.Ag., CSAP | Environmental Consultant
C: 778.238.8113 T: 604.895.7640

[PGL_Logo_2018]<../../../../Documents/2375-05.04%20logger%20data>

1500 - 1185 West Georgia Street
Vancouver, BC V6E 4E6
604.682.3707
pggroup.com

APPENDIX III

City of Vancouver Remediation Agreement

NEW WESTMINSTER LAND TITLE OFFICE

LAND TITLE ACT
FORM C (Section 233) CHARGE
GENERAL INSTRUMENT - PART 1 **Province of British Columbia**

Jan-09-2021 12:13:08.030

CA8694477 CA8694479

LOCK

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1. APPLICATION: (Name, address, phone number of applicant, applicant's solicitor or agent) Import Profile

John Goundrey, Solicitor
Alexander Holburn Beaudin + Lang LLP
2700-700 West Georgia Street, PO Box 10057
Vancouver BC V7Y 1B8
Document Fees: $224.61

File no: 1139494
Phone: (604) 484-1710
LTO Client No: 11435
File No.: LS-19-02553-034 (remediation - cond.32 & 33)
Deduct LTSA Fees? Yes ☑

2. PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND:
[PID] [LEGAL DESCRIPTION]

SEE SCHEDULE

STC? YES ☐
Pick up STC? Use 30 Parcel Schedule Use 3 Parcel Schedule

3. NATURE OF INTEREST CHARGE NO. ADDITIONAL INFORMATION Use Schedule

SEE SCHEDULE

4. TERMS: Part 2 of this instrument consists of (select one only)
(a) ☐ Filed Standard Charge Terms D.F. No. (b) ☑ Express Charge Terms Annexed as Part 2
A selection of (a) includes any additional or modified terms referred to in Item 7 or in a schedule annexed to this instrument.

5. TRANSFEROR(S): Use Schedule

PROVIDENCE HEALTH CARE SOCIETY, INC. NO. S41359

6. TRANSFEREE(S): (including postal address(es) and postal code(s)) Use Schedule

CITY OF VANCOUVER

453 WEST 12TH AVENUE
VANCOUVER BRITISH COLUMBIA
V5Y 1V4 CANADA

Joint Tenants?

7. ADDITIONAL OR MODIFIED TERMS: Use Schedule
N/A

8. EXECUTION(S): This instrument creates, assigns, modifies, enlarges, discharges or governs the priority of the interest(s) described in Item 3 and the Transferor(s) and every other signatory agree to be bound by this instrument, and acknowledge(s) receipt of a true copy of the filed standard charge terms, if any.

Officer Signature(s)	Execution Date Y	M	D	Transferor(s) Signature(s)
D. John Goundrey* Barrister & Solicitor Alexander Holburn Beaudin + Lang LLP - 2700-700 West Georgia St., Vancouver, BC Canada V7Y 1B8 *D. John Goundrey Professional Law Corporation	21	01	08	PROVIDENCE HEALTH CARE SOCIETY by its authorized signatory(ies): Print Name: Fiona Dalton Print Name:

OFFICER CERTIFICATION:
Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the *Evidence Act*, R.S.B.C. 1996, c.124, to take affidavits for use in British Columbia and certifies the matters set out in Part 5 of the *Land Title Act* as they pertain to the execution of this instrument.

More Signatures

LAND TITLE ACT
FORM D

EXECUTIONS CONTINUED

Officer Signature(s)	Execution Date Y	M	D	Transferor / Borrower / Party Signature(s)
Joanna Track Solicitor 453 West 12th Avenue Vancouver, BC V5Y 1V4	21	01	07	CITY OF VANCOUVER by its authorized signatory: Jeffrey M. Greenberg

OFFICER CERTIFICATION:
Your signature constitutes a representation that you are a solicitor, notary public or other person authorized by the *Evidence Act*, R.S.B.C. 1996, c.124, to take affidavits for use in British Columbia and certifies the matters set out in Part 5 of the *Land Title Act* as they pertain to the execution of this instrument.

More Signatures

LAND TITLE ACT
FORM E

SCHEDULE PAGE 3 OF 59 PAGES

2. PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND:
[PID] [LEGAL DESCRIPTION]

031-266-932 **LOT 1 DISTRICT LOT 2037 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP105034**

No PID NMBR

STC? YES ☐

Pick up STC?

2. PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND:
[PID] [LEGAL DESCRIPTION]

031-266-941 **LOT 2 DISTRICT LOTS 196 AND 2037 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP105034**

No PID NMBR

STC? YES ☐

Pick up STC?

2. PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND:
[PID] [LEGAL DESCRIPTION]

031-266-959 **LOT 3 DISTRICT LOT 2037 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP105034**

No PID NMBR

STC? YES ☐

Pick up STC?

Additional 30 Parcel Schedule | Additional 3 Parcel Schedule

LAND TITLE ACT
FORM E

SCHEDULE PAGE 4 OF 59 PAGES

2. PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND:
[PID] [LEGAL DESCRIPTION]

031-266-967 **LOT 4 DISTRICT LOT 2037 GROUP 1 NEW WESTMINSTER DISTRICT PLAN EPP105034**

No PID NMBR

STC? YES ☐

Pick up STC?

2. PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND:
[PID] [LEGAL DESCRIPTION]

No PID NMBR

STC? YES ☐

Pick up STC?

2. PARCEL IDENTIFIER AND LEGAL DESCRIPTION OF LAND:
[PID] [LEGAL DESCRIPTION]

No PID NMBR

STC? YES ☐

Pick up STC?

Additional 30 Parcel Schedule | Additional 3 Parcel Schedule

LAND TITLE ACT
FORM E

SCHEDULE

NATURE OF INTEREST	CHARGE NO.	ADDITIONAL INFORMATION
Statutory Right of Way		Section 5.1

NATURE OF INTEREST	CHARGE NO.	ADDITIONAL INFORMATION
Covenant		Section 7.1

NATURE OF INTEREST	CHARGE NO.	ADDITIONAL INFORMATION
Equitable Charge		Section 9.1

NATURE OF INTEREST	CHARGE NO.	ADDITIONAL INFORMATION

NATURE OF INTEREST	CHARGE NO.	ADDITIONAL INFORMATION

NATURE OF INTEREST	CHARGE NO.	ADDITIONAL INFORMATION

TERMS OF INSTRUMENT - PART 2

REMEDIATION AGREEMENT
1002 Station Street and 250 - 310 Prior Street
(New St. Paul's Hospital and Health Campus)

WHEREAS:

A. It is understood and agreed that this Agreement will be read as follows:

I. the Transferor, PROVIDENCE HEALTH CARE SOCIETY (INC.NO. S41359), is called the "**Owner**"; and

II. the Transferee, CITY OF VANCOUVER, is called the "**City**" when referring to the corporate entity and **"City of Vancouver"** when referring to geographical location;

B. The Owner is the registered owner of the Lands;

C. The Owner made an application to rezone the Lands from I-3 (Industrial) District (as it relates to a portion of the Lands) and I-2 (Industrial) District (as it relates to the balance of the Lands), all to CD-1 (Comprehensive Development) District to allow for the phased construction of the New St. Paul' s Hospital and Health Campus comprised of four development parcels with hospital, office and research uses on a main Health Campus Parcel; hotel and office uses on a West Parcel; hotel and office uses on a South Parcel; and rental housing for health care workers on a North Parcel, with all parcels also having grade-level retail-service uses on the major street frontages (the **"Rezoning"**), and after a public hearing to consider the said application, it was approved by City Council, in principle, subject to, among other things, fulfilment of the conditions that, prior to enactment, the Owner make arrangements to the satisfaction of the Manager of Environmental Protection and the Director of Legal Services to enter into a remediation agreement for the remediation of the Site (the "**Remediation Agreement Condition")**;

D. A condition of the Rezoning is the subdivision and dedication for road purposes of "New Street" to the City, and accordingly, the Owner has or will apply to the City's Approving Officer for subdivision approval;

E. Section 571B(2) of the *Vancouver Charter* provides, among other things, that Vancouver City Council or its delegate "must not approve" a rezoning, subdivision or an application for a development permit or a demolition permit "with respect to a site where a site profile is required under Section 40 of the *Environmental Management Act* unless" at least one of the conditions set out in Section 571B(2)(a) - (g) has been satisfied;

F. Section 85.1(2) of the *Land Title Act* provides, among other things, that an approving officer "must not approve an application" for subdivision "with respect to a site where a site profile is required under section 40 of the Act unless at least one of the" conditions set out in section 85.1(2) of the *Land Title Act* is satisfied;

G. Section 85.1(2)(g) of the *Land Title Act* provides that a subdivision application may be permitted by the approving officer if:

> "(g) the approving officer has received a valid and subsisting approval in principle or certificate of compliance under section 53 of the Environmental Management Act with respect to the site";

H. On July 20, 2020, the MOE issued the MOE Approval in Principle, a copy of which is attached hereto as Schedule "A";

I. The City is the owner of the Roads and will become the owner of the Dedicated Lands upon approval of the Owner's subdivision application;

J. Certain on-site and off-site soil and groundwater contamination on the Development Lands, Roads and the Dedicated Lands, may have been sourced from material deposited during the historic area-wide infilling of the False Creek Flats with no identified responsible person(s) and not from activities that occurred on the Development Lands, Dedicated Lands or the Roads, and, if such contaminated material is present, the Owner does not intend to obtain a Certificate of Compliance that confirms that the investigation and remediation of such historic area-wide fill contamination (more particularly defined in Section 1.1(cc) as "Historical Contaminants") has been completed, if permitted in accordance with the Act;

K. The City acknowledges that, provided the MOE does not require otherwise, the Owner will be permitted to leave the Historical Contaminants "in situ" on the Roads and the Dedicated Lands, except as may be required to be Remediated by the City in this Agreement, including without limitation in section 1.1(a)(iii) and for purposes of completing the Road Works or Future Road Works in accordance with the terms of this Agreement;

L. The Owner acknowledges that the foregoing exception for the Historical Contaminants will not affect its obligations in respect of any Contaminants that are not Historical Contaminants or any obligations to Remediate the Roads and the Dedicated Lands, for purposes of completing any Road Works or Future Road Works;

M. The Owner acknowledges that if any Contaminants have migrated from the Development Lands or the Dedicated Lands onto the Roads or exist on the Dedicated Lands, then such Contaminants:

I. may affect the utility services, lines and corridors of the City and other utility providers (including those to and from the Development Lands);

II. may affect the health and safety of those people working on or in such utility services, lines and corridors;

III. may, as a result of the construction of any portion of the Development and, in particular, all excavations required for the Development, during or after completion of all or any portion of the Development, (re-)migrate onto the Development Lands; and/or

IV. may result in the City incurring liability; and

N. The Owner has agreed to Remediate the Development Lands, the Dedicated Lands and the Roads and, if necessary, the Neighbouring Lands in accordance with the terms of this Agreement.

NOW THEREFORE, in consideration of the sum of Ten ($10) Dollars now paid by the City to the Owner (the receipt and sufficiency of which are hereby acknowledged by the Owner) and in consideration of the premises, covenants, agreements and acknowledgements herein contained, and for other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged by the Owner and agreed to by the parties hereto), the parties covenant and agree as follows:

ARTICLE 1
DEFINITIONS, INTERPRETATION AND SCHEDULES

1.1 Definitions. The terms defined in this Section 1.1 of this Agreement shall, unless otherwise specifically provided for in this Agreement, have the following meanings:

(a) "**Acceptable Contamination Levels**" means:

(i) with respect to soil, vapour or groundwater based Contaminants on the Development Lands and the Neighbouring Lands, if any, or portions thereof, the contamination levels permitted by the MOE for the proposed land use (in the case of the Development Lands) and the existing land use (in the case of the Neighbouring Lands) including acceptable risk based standards if approved by the MOE;

(ii) with respect to the Roads and the Dedicated Lands:

(A) subject to Section 1.1(a)(iii) below, for soil Contaminants, if any, the numeric standards applicable for industrial land use as provided for in the Act;

(B) with respect to groundwater Contaminants, if any, the contamination levels applicable to the standard permitted by the MOE and prescribed in the Act; and

(C) with respect to vapour Contaminants, if any, the numeric standards applicable to industrial land use, as prescribed in the Act,

or, subject to City Manager approval of any soil, groundwater or vapour Contaminants in the Roads or the Dedicated Lands being risk assessed, risk-based standards as may be approved by the MOE and which are acceptable to the City Engineer, in his sole discretion and on such conditions as may be required by the City, in its sole discretion;

(iii) with respect to the Roads and the Dedicated Lands, notwithstanding Section 1.1(a)(ii)(A), any soil Contaminants, including Historical Contaminants, in the top one meter of soil in areas of boulevards or streets medians must be remediated to the numeric standards

applicable to residential land use as provided for in the Act, including if and when applicable to either low or high residential land use standards based upon the density applicable for the Development Lands, with standards prescribed under Section 1.1(a)(ii)(A) applicable below the top one meter;

(b) "**Act**" means the *Environmental Management Act*, S.B.C. 2003,c. 53, as amended from time to time, and any and all replacements thereof or any statute enacted in substitution thereof and all regulations applicable thereto and any amendments, replacements and substitutions thereof;

(c) "**Agreement**" means this agreement (including the recitals to this Agreement) and all schedules attached hereto;

(d) "**Approval in Principle**" means any approvals in principle that the MOE may issue pursuant to section 53 of the Act in relation to the Owner's obligations hereunder to Remediate the Contaminants on the Development Lands, the Roads and the Dedicated Lands, or any part thereof or all of them, as the case may be;

(e) "**Approved Professional**" means a person who is named on a roster established under section 42 of the Act;

(f) "**Building**" means any new building, improvement or structure constructed, occupied or used on the Development Lands at any time following the date this Agreement is fully executed, or any portion of such building, improvement or structure but does not include any temporary buildings or structures on the Development Lands during the period of and required for the purposes of construction on the Development Lands;

(g) "**Certificate of Compliance**" means separate certificates of compliance for each of the Development Lands, the Dedicated Lands and the Roads issued by the MOE pursuant to section 53(3) of the Act which, subject to the statutory limitations as set out in the Act, confirms, based upon generic and/or matrix numeric standards and/or risk based standards, if applicable, that the remediation of:

(i) the Development Lands have been completed to Acceptable Contamination Levels in accordance with this Agreement; and

(ii) the Roads and the Dedicated Lands have been completed to Acceptable Contamination Levels defined in Section 1.1(a)(ii) of this Agreement, subject to the requirements set in Section 1.1(a)(iii), which must be certified as complied with by a letter from an Approved Professional;

(h) "**City**" means the City of Vancouver in its capacity as a corporate entity;

(i) "**City of Vancouver**" means, save only for its use in Section 1.1(h), the City of Vancouver as a geographical location;

(j) "**City Engineer**" means the chief administrator, from time to time, of the City's Engineering Services Department and his/her successors in function and their respective nominees;

(k) "**City Manager**" means the chief administrator, from time to time, of the City and his/her successors in function and their respective nominees;

(l) "**City Personnel**" means any and all of the elected and appointed officials, officers, employees, agents, nominees, delegatees, permittees, contractors and volunteers of the City;

(m) "**City's Environmental Consultant**" means such qualified environmental consultant retained by the City from time to time hereafter in respect of the Remediation of the Roads (including the Dedicated Lands), or any portion thereof;

(n) "**City's Remediation Costs**" means any and all costs or expenses and any Claims incurred by the City or any City Personnel directly or indirectly related to the Remediation of any Contaminants, excluding the Excluded Contaminants, on the Dedicated Lands or any Road Contamination to Acceptable Contamination Levels or to Remediate any Contaminants (including the Historical Contaminants), excluding the Excluded Contaminants, as deemed necessary by the City Engineer, to complete the Road Works or Future Road Works, if applicable, to the satisfaction of the City Engineer, including, without limitation:

(i) any costs incurred by the City to Remediate, including to sample, test, collect, monitor, excavate, dispose (including as more specifically described in subsection (iv) herein), backfill, transport, dewater or to perform any water treatment or air monitoring in relation to the Remediation of any Road Contamination, any Contaminants, excluding the Excluded Contaminants, on the Dedicated Lands or as deemed necessary by the City Engineer, to complete the Road Works or Future Road Works to the City Engineer's satisfaction;

(ii) any costs incurred by the City in preparing or having the City's Environmental Consultant prepare any environmental reports in relation to the Remediation of any Contaminants, excluding the Excluded Contaminants, on the Dedicated Lands, any Road Contamination or of any Contaminants excluding the Excluded Contaminants, as deemed necessary by the City Engineer, to complete the Road Works or Future Road Works to the City Engineer's satisfaction;

(iii) any incremental or additional costs incurred by the City or any City Personnel in performing any Road Works or Future Road Works which are the result of the presence or existence of any Contaminants, excluding the Excluded Contaminants; and

(iv) any excavation, transportation and disposal costs incurred by the City or the City Personnel to dispose of any soil necessary to Remediate the Dedicated Lands and any Road Contamination to Acceptable

Contamination Levels, as determined by the City in its sole discretion or of any other Contaminants excluding the Excluded Contaminants, as deemed necessary by the City Engineer, to complete the Road Works or Future Road Works to the City Engineer's satisfaction;

(v) all costs incurred by the City related to replacing, repairing or reconstructing the Roads or any Road Works or Future Road Works affected by the installation of any Remediation Works or the performance of any Remediation activities, except for those costs which the Owner has otherwise reimbursed or paid to the City;

(vi) all costs of constructing, installing, maintaining, repairing, operating, monitoring, removing and decommissioning any Remediation Works; and

(vii) any and all other reasonable costs incurred by the City resulting directly or indirectly from, incidental to, or as a consequence of any Contaminants, excluding the Excluded Contaminants, on the Dedicated Lands, any Road Contamination or of any Contaminants, excluding the Excluded Contaminants, encountered in completing the Road Works or Future Road Works to the City Engineer's satisfaction;

(o) "**Claims**" means all costs, losses, damages, claims, demands, expenses, (including legal expenses, fees and disbursements on an indemnity basis), fines, causes of action, suits, orders, judgments, penalties, legal obligations and compensation of whatsoever kind, incurred, suffered or paid (including, without limitation, in respect of, incidental to or resulting from any consequential injuries to or death of persons or damage to property or any economic loss);

(p) "**Contaminants**" means those substances existing in the soil, groundwater or vapour which exceed Acceptable Contamination Levels, whether known or unknown as of the date of this Agreement, or which are hereafter found or detected within, on or under the Development Lands, the Roads, the Dedicated Lands or the Neighbouring Lands, respectively, which are:

(i) waste, hazardous waste or contamination, as those terms are defined in the Act;

(ii) if applicable, substances or toxic substances, as those terms are defined in the *Canadian Environmental Protection Act*, S.C. 1999, c. 33, as amended from time to time, or in any statute enacted in substitution therefor, or in any other federal government statute or legislation or which are otherwise required to be remediated by any federal government body, department or agency with jurisdiction over environmental matters;

(iii) substances or toxic substances or waste, in quantities or concentrations exceeding prescribed criteria, standards or conditions, as defined in the Act or any Environmental Laws for the proposed land use;

(iv) any matter which is not waste, hazardous waste, a substance, or a toxic substance, but which exceeds or fails to comply or meet Acceptable Contamination Levels or which present, in the opinion of the MOE, a risk of harm to the Environment or to human health; or

(v) all other substances in the soils, groundwater or vapour exceeding Acceptable Contamination Levels:

(A) for which the manufacture, storage, handling, treatment, generation, use, transport, release, disposal or discharge into the Environment is controlled, regulated, licensed, or prohibited by any Environmental Laws; or

(B) which are or may be deleterious, dangerous, or hazardous to human, animal or plant health or life or the Environment.

For certainty Contaminants includes any of the above which are Historical Contaminants, but specifically excludes the Excluded Contaminants, including but not limited to Sections 4.6(e) and (f);

(q) "**Dedicated Lands**" means those lands dedicated or to be dedicated by the Owner to the City as shown outlined in bold and marked as the "Dedicated Lands" on the plan attached hereto as Schedule C;

(r) "**Development**" means any development to be constructed on the Development Lands, or any portion thereof, pursuant to any Development Permit(s);

(s) "**Development Lands**" means the Lands but together and including such other lands that may be added to the Development Lands at any time (and includes any parcel unto which such lands are consolidated or subdivided, including by deposit of a strata plan under the *Strata Property Act*, S.B.C. 1998, ch. 43);

(t) "**Development Permit**" means any development permit issued for the Development Lands, or any portion thereof, at any time hereafter, together with all substitutions and amendments thereof;

(u) "**Director of Legal Services**" means the director, from time to time, of the City's Legal Services Department and his/her successors in function and their respective nominees;

(v) "**Environment**" means land, including soil, sediment deposited on land, fill and land submerged under water, air, including all layers of the atmosphere, and water, including oceans, lakes, rivers, streams, ground water, and surface water;

(w) "**Environmental Laws**" mean all federal, provincial and municipal laws, statutes, regulations, rules, bylaws, orders, directives, standards, guidelines, and other lawful requirements of any government body including the Act, and all principles of common law and equity concerning the quality of the Environment, that apply to the Development Lands, the Roads, the Dedicated

Lands or the Neighbouring Lands and the surrounding Environment, including any migration of Contaminants from the Development Lands, the Roads or the Dedicated Lands;

(x) "**Estimated Remediation Costs**" means the costs estimated by the Owner or the Owner's Environmental Consultant and accepted by the City, acting reasonably, or as estimated by the City or the City's Environmental Consultant to complete the Remediation of the Contaminants in the Dedicated Lands and any Road Contamination to Acceptable Contamination Levels and to obtain one or more Certificates of Compliance or Final Negative Determinations in respect thereof, plus the costs estimated to Remediate any Contaminants in the Roads and Dedicated Lands, as deemed necessary by the City Engineer to complete the Road Works to the satisfaction of the City Engineer, in the aggregate multiplied by one hundred fifty percent (150%) plus the City's standard administrative overhead charge of not more than twenty (20%) percent of such costs, as of the date of execution of this Agreement or at any time hereafter based upon the extent of any Road Contamination or any other Contaminants in the Dedicated Lands hereafter detected or delineated which are required to be Remediated pursuant to the terms of this Agreement;

(y) "**Excluded Contaminants**" means those Contaminants described in Section 4.6;

(z) "**Event of *Force Majeure***" means acts of God or public enemy, wars (declared or undeclared), revolution, riots, insurrections, civil commotions, fires, floods, slides, major weather events, epidemics, quarantine restrictions, strikes or lockouts, including illegal work stoppages or slowdowns, or stop work orders issued by a court or public authority, including the City (provided that such orders were not issued as a result of an act or omission of the Owner, or anyone employed or retained by the Owner), freight embargos or power failures, provided that any such event or circumstance reasonably constitutes a material disabling event or circumstance which is beyond the reasonable control of a party, does not arise from the neglect or default of a party, and which results in a material delay, interruption or failure by a party in carrying out its duties, covenants or obligations under this Agreement, but which does not mean or include any delay caused by the Owner's lack of funds or financial condition (and for greater certainty, a strike or lockout, including illegal work stoppages or slowdowns, will be considered beyond the reasonable control of a party and not to arise from the neglect or default of that party, it being understood that the terms of settlement of any labour disturbance, dispute, strike or lockout will be wholly in the discretion of that party);

(aa) **"Final Negative Determination"** means, if applicable, a separate final determination issued by the MOE, pursuant to section 44(2) of the Act, for the Dedicated Lands or the Roads, or a portion thereof, respectively, based upon the proposed land use and consistent with the form of development which confirms that each of the foregoing are not a contaminated site or do not contain any Contaminants exceeding Acceptable Contamination Levels;

(bb) **"Future Road Works"** means as defined under definition of Road Works;

(cc) **"Historical Contaminants"** means those Contaminants originating from historic filling of the geographic area known as the False Creek Flats that do not require delineation or remediation as permitted or approved in writing by the MOE in accordance with the Act, except for as specifically required by the City to be Remediated in this Agreement, including Section 1.1(a)(iii), and for the completion of the Road Works or Future Roads Works, and "Historical Contamination" will have the corresponding meaning;

(dd) "**Introduce into the Environment**" means, in relation to any Contaminants on or from the Development Lands or the Dedicated Lands to discharge, emit, dump, abandon, spill, release or allow to escape into the Environment, including, for clarity into the Roads, the Dedicated Lands or the Neighbouring Lands, as applicable;

(ee) "***Land Title Act***" means the *Land Title Act*, R.S.B.C. 1996, c. 250, as amended from time to time, and any and all replacements thereof or any statute enacted in substitution thereof and all regulations applicable thereto and any amendments, replacements and substitutions thereof;

(ff) **"Lands"** means the lands described in Item 2 of the Form C attached hereto;

(gg) "**Letter of Credit**" has the meaning ascribed to such term in Section 11.1;

(hh) **"Letter of Credit Policy"** means the City's Corporate Policy, Policy Number AF-002-02 approved on June 24, 2016, as may be amended or replaced from time to time;

(ii) **"LTO"** means the land title office for the jurisdiction in which the Development Lands are situate;

(jj) "**Manager of Environmental Protection**" means the manager, from time to time, of the City's Environmental Services Department and his/her successors in function and their respective nominees;

(kk) "**MOE**" means the Minister of Environment and Climate Change Strategy for British Columbia, or his/her successor in function, and any person, including, without limitation, the director, from time to time acting as the nominee, delegate or agent of the Minister of Environment and Climate Change Strategy for British Columbia;

(ll) **"MOE Approval in Principle"** means the letter from the MOE to the Owner pursuant to sections 85.1(2)(g) of the *Land Title Act* and section 571B(2)(g) of the *Vancouver Charter*, attached hereto as Schedule A;

(mm) "**Monitoring**" means all monitoring and testing of the soils, groundwater and vapour in the Development Lands, the Roads, the Dedicated Lands or the Neighbouring Lands, as provided for in any Remediation Plan or as required by MOE or by the City in respect of the Roads and the Dedicated Lands, from time to time hereafter pursuant to this Agreement;

(nn) "**Neighbouring Lands**" means such lands (other than the Roads or the Dedicated Lands) neighbouring the Development Lands (whether or not adjacent to the Development Lands), the Dedicated Lands or the Roads which are found, at any time, to have Contaminants thereon which originated from the Development Lands or the Dedicated Lands and migrated thereon through the Roads or which were Introduced into the Environment from any past or present uses or operations of the Development Lands or the Dedicated Lands and thereafter migrated through the Roads or the Dedicated Lands thereon;

(oo) "**Occupancy Permit**" means a municipal permit issued by the City authorizing the use and occupation of any Building, or any part thereof;

(pp) **"Off-Site Area"** has the meaning set out in Section 3.1(a)(i);

(qq) "**Owner**" means, Providence Health Care Society (Inc. No. S41359), and includes any assigns and successors in title to the Development Lands, or any portion thereof, and, if the Development Lands are subdivided by way of a strata plan, then "Owner" includes, without limitation, a strata corporation thereby created;

(rr) "**Owner's Environmental Consultant**" means PGL Environmental Consultants, or such other qualified environmental consultant retained by the Owner from time to time hereafter in respect of the Remediation of the Site, or any portion thereof;

(ss) "**Owner's Personnel**" means any and all employees, agents, nominees, delegatees, permittees, contractors, subcontractors, including without limitation, the Owner's Environmental Consultant;

(tt) "**Permit**" means any Development Permit or building permit or Occupancy Permit applied for in respect of any Building to be constructed on the Development Lands, or any portion thereof, following the execution of this Agreement;

(uu) **"Phase"** means Phase 1a, Phase 1b, Phase 2a, Phase 2b, Phase 2c and Phase 2d **"Phases"** mean two or more such Phases, and Phases 2a – 2d are not subject to any particular order;

(vv) **"Phase 1a and 1b"** means that portion of the Development Lands identified as Phase 1a and 1b on the sketch plan attached as Schedule D;

(ww) **"Phase 2a – 2d"** means that portion of the Development Lands identified as Phases 2a – 2d on the sketch plan attached as Schedule D;

(xx) "**Prime Rate**" means at any time, the per annum rate of interest published by the main branch in the City of Vancouver of the Bank of Montreal, or its successor at such time, as its reference rate for setting rates of interest on loans of Canadian dollars to customers in Canada and referred to by such bank as its "prime rate", provided however that if such bank publishes more than one such reference rate at any time, the Prime Rate will be the highest thereof, and provided further that, if a court holds that this definition of Prime

Rate is vague, uncertain or otherwise defective, then the Prime Rate will be three (3%) percent greater than the per annum rate of interest established by the Bank of Canada as the rate payable on overnight loans by Schedule I Canadian Chartered Banks;

(yy) "**Remediate**" or "**Remediation**" means any and all excavation, treatment, collection, removal, disposal, Monitoring or other remediation activities to meet or satisfy the Acceptable Contamination Levels, of any Contaminants on the Development Lands, the Roads, the Dedicated Lands, or the Neighbouring Lands, or any portion thereof, as required pursuant to this Agreement, or of any Road Contamination, all subject to Section 4.6, including the installation, operation, maintenance, testing and Monitoring of any Remediation Works, as is required by the MOE to be performed by the Owner or the Owner's Personnel, or which, in the sole and absolute discretion of the City, is performed by the City or the City's Personnel in respect of any Contaminants in the Dedicated Lands, any Road Contamination or any Contaminants (including Historical Contaminants) as necessary to complete the Road Works or Future Road Works, if applicable, to the satisfaction of the City Engineer;

(zz) "**Remediation Plan**" means all remediation plans, from time to time, respecting the Development Lands, the Roads, the Dedicated Lands and the Neighbouring Lands prepared by the Owner or the Owner's Personnel, including any performance verification plans or such other plans as required by the MOE Approval in Principle or may otherwise be required by or provided to the MOE (together with such conditions attached thereto by the MOE) or as may be required by the City in respect of the Remediation of any Contaminants in the Dedicated Lands or any Road Contamination and which plans are to be accepted by the City in respect of any works or improvements that are to occur on the Roads or the Dedicated Lands;

(aaa) "**Remediation Works**" means any system or systems or special technical measures designed, built and installed on or in the Development Lands or, if approved by the City Engineer in his sole and absolute discretion, in the Roads or the Dedicated Lands, as applicable, to pump, collect, sample, treat or dispose of any Contaminants and/or to prevent the migration of any Contaminants onto or from the Development Lands, the Roads or the Dedicated Lands. It shall further include any works used or designed to monitor any Contaminants, including without limitation all physical improvements, facilities, protective systems, vapour or groundwater monitoring systems, collection systems, treatment systems, tanks, pipes, equipment, connections, barriers, drainage systems, valves, couplings and other features and all associated equipment of every nature whatsoever incidental thereto and installed by the Owner in the Development Lands, the Roads or the Dedicated Lands for any of the aforesaid purposes, all of which Remediation Works, if installed in the Roads or the Dedicated Lands or on any other City property, must be permitted or approved in writing by the City Engineer in his sole and absolute discretion, and if so approved, must be designed and must meet any requirements or specifications of the City Engineer and be installed and removed (including the restoration of all Roads and Dedicated Lands affected by the Remediation Works) to the satisfaction of the City Engineer;

(bbb) "**Rezoning**" means the rezoning of the Lands as described in Recital C;

(ccc) "**Rezoning Conditions**" means the conditions of bylaw enactment in respect of the Rezoning of the Lands;

(ddd) "**Road Contamination**" means all soils, groundwater and vapour Contaminants exceeding Acceptable Contamination Levels which are present in the Roads or the Dedicated Lands, whether or not such Contaminants were known to exist or detected in the Roads or the Dedicated Lands prior to issuance of one or more Certificates of Compliance or Final Negative Determinations for the Roads or the Dedicated Lands, as applicable, and any Contaminants which hereafter migrate onto the Roads or the Dedicated Lands from the Development Lands or from the Dedicated Lands, including:

(i) all Contaminants in the Dedicated Lands; and

(ii) without limiting Section 1.1(ddd)(i), those Contaminants in the Roads which originated and migrated from the Development Lands or Dedicated Lands or which were Introduced into the Environment as a result of any present or past uses or operations on the Development Lands or the Dedicated Lands during or at any time prior to the Owner being the legal or beneficial owner of the Development Lands or the Dedicated Lands, or any portion thereof, by the Owner, the Owner's Personnel or any previous owner or occupier of the Development Lands or the Dedicated Lands,

but Road Contamination, for greater certainty, specifically excludes the Excluded Contaminants;

(eee) "**Road Works**" means any work of any nature or kind whatsoever performed by the City or any City Personnel, or required by the City to be performed by the Owner or the Owner's Personnel, as Rezoning Conditions or as requirements for the development of the Development Lands, including pursuant to the Services Agreement or any Development Permit, including to excavate, construct, install, maintain or repair the Roads and the Dedicated Lands, or for the installation of new or upgrading of any Utilities in the Roads or the Dedicated Lands required under the Rezoning conditions or for the development of the Development Lands, or any other servicing requirements in connection with the Rezoning or development of the Development Lands, which may include, as determined by the City Engineer in his sole discretion, all or any portion of the pavement, surfacing, bases, footings, columns, decks, structures, surfaces, retaining walls, drainage systems, catch basins and leads to main sewers, curbs, gutters, boulevards, street lighting, wiring and kiosks, traffic signals, trolley poles, trolley bases, trolley ducts, City communications system, markings, signage, landscaping, including street trees, hydrants, survey control monuments, litter containers, bollards, railings, bicycle racks, street furniture, sidewalks, special sidewalks, multi-use pathways**,** greenways, plazas, bike paths, pedestrian spines or walkways, lamp standards, telecommunication ducts and infrastructures, telephone, cable and electrical Utilities and kiosks, hydro ducts, transit poles, transit pole bases, duct works, gas mains, water mains, sanitary and storm sewers and sewer outfalls, district heating systems

and all other Utilities, facilities, infrastructures, improvements and works associated with or incidental to the Rezoning, development or servicing of the Development Lands and "Future Road Works" means any of the aforementioned road works or Utilities installed or performed in the Dedicated Lands only, at any time in the future, and thus not associated with or incidental to the Rezoning, development or servicing of the Development Lands or required as Rezoning Conditions or as requirements for the development of the Development Lands, including pursuant to the Services Agreement;

(fff) "**Roads**" means:

(i) all City roads, streets, sidewalks, pathways, lanes or other City property adjacent to the Development Lands; and

(ii) any other City property used for vehicle, pedestrian or public access onto which Contaminants have migrated or hereafter migrate from the Development Lands or the Dedicated Lands;

but does not include Trillium Park located to the east of the Development Lands;

(ggg) "**Services Agreement**" means the Services Agreement between the Owner and the City of even date herewith registered in the Land Title Office, the execution and registration of which is one of the Rezoning Conditions;

(hhh) "**Site**" includes:

(i) the Development Lands;

(ii) the Roads;

(iii) the Dedicated Lands; and

(iv) the Neighbouring Lands;

(iii) "**Third Party Responsible Person**" means any person or entity, other than the Owner, the Owner's Personnel or any previous owner or occupier of the Development Lands or the Dedicated Lands, or any portion thereof, or the City or any City Personnel (except in respect of the Excluded Contaminants), that is determined by the MOE or a court of competent jurisdiction to have caused such Contaminants to be present or to exist on the Development Lands or the Dedicated Lands;

(jjj) "**Utilities**" means all new, upgraded, relocated or replaced public or privately owned utilities, including without limitation, all sewer mains, water mains, underground telecommunication and telephone utilities, cable utilities, electrical utilities, gas mains, steam heat mains, district heating systems, transit utilities, street light and traffic signals, including connections and appurtenances thereto and all pipes, cables, valves and all facilities and associated equipment incidental thereto located in the Roads or the Dedicated Lands;

(kkk) "***Vancouver Charter***" means the *Vancouver Charter*, S.B.C. 1953, c. 55, as amended from time to time, and any and all replacements thereof or any statute enacted in substitution thereof and all regulations applicable thereto and any amendments, replacements and substitutions thereof; and

(lll) "***Workers Compensation Act***" means the *Workers Compensation Act*, R.S.B.C. 1995, c. 492, as amended from time to time, and any and all replacements thereof or any statute enacted in substitution thereof and all regulations applicable thereto and any amendments, replacements and substitutions thereof.

1.2 Interpretation.

(a) All capitalized terms used in this Agreement have the meanings specified in Section 1.1 of this Agreement or as otherwise specified elsewhere in this Agreement.

(b) Reference in this Agreement to the singular includes a reference to the plural and a reference to the plural includes a reference to the singular.

(c) In this Agreement, the words "include" and "including" are to be construed as meaning "including, without limitation".

(d) The necessary grammatical changes required to make the provisions of this Agreement apply to corporations, associations, partnerships, or individuals, males or females, in all cases will be assumed as though in each case fully expressed.

(e) The division of this Agreement into articles and sections is for convenience of reference only and does not affect its interpretation. The article headings used in this Agreement are for the convenience of reference only and do not affect the interpretation of this Agreement.

(f) Reference in this Agreement to any law, statute, by-law or regulation is to be considered also a reference to any amendment or re-enactment of, or replacement for, that law, statute, by-law or regulation.

(g) The Owner acknowledges the accuracy of the information set out in the recitals to this Agreement and agrees that such recitals form a part of this Agreement.

1.3 Schedules. The following schedules are attached hereto and constitute and form a part of this agreement:

Schedule A MOE Approval in Principle

Schedule B Insurance

Schedule C Plan of Dedicated Lands

Schedule D Phasing Plan

ARTICLE 2
REMEDIATION OF DEVELOPMENT LANDS

2.1 Remediation of Development Lands. Subject to Section 4.6:

(a) if the Development Lands have or are hereafter found to have Contaminants thereon, the Owner shall, at its sole expense, Remediate the Contaminants on each Phase of the Development Lands, as the case may be, to Acceptable Contamination Levels and obtain a separate Certificate of Compliance for the portion of the Development Lands in each respective Phase, including, if applicable, each with a metes and bounds description of the covered area, and comply with any performance verification plan requirements or conditions in respect of each Phase of the Development Lands. The Owner acknowledges and agrees that upon completion of the entire Development on the Development Lands, the Owner will have obtained separate Certificates of Compliance to cover each and every portion of the Development Lands;

(b) if the Development Lands have or are, at any time, found to have Contaminants thereon, which have migrated or could in the future migrate therefrom, the Owner shall, at its sole cost and expense, cause such Remediation Works to be installed, maintained and monitored as necessary in each Phase of the Development to Remediate the Contaminants on the Development Lands and to prevent the further migration of any Contaminants from the Development Lands;

(c) if any Contaminants have or could be reasonably expected in the future to migrate onto the Development Lands from the Dedicated Lands or the Roads, the Owner shall at its sole expense Remediate any such Contaminants that have migrated onto the Development Lands and cause such Remediation Works to be installed, maintained and monitored to Remediate, prevent and protect the Development Lands from any such migrating Contaminants; and

(d) the Owner shall submit electronic copies of all remediation and environmental reports with respect to the Development Lands to the City's Environmental Contamination Team for review.

ARTICLE 3
REMEDIATION OF ROADS AND DEDICATED LANDS

3.1 Remediation of Roads and Dedicated Lands. Subject to Section 4.6 and without limiting the obligations of the Owner or any rights of the City under Sections 3.2 and 3.4:

(a) if any Contaminants, including any Historical Contaminants, are found to exist on the Dedicated Lands or any Road Contamination exists on the Roads which have migrated thereon or were Introduced into the Environment directly or indirectly from the Development Lands or the Dedicated Lands or exist therein as a result of or were caused by any operations, activities or uses of the Development Lands or the Dedicated Lands, or any portion thereof, by the Owner, the Owner's Personnel or any previous owner or occupier of the Development Lands or the Dedicated Lands, or any portion thereof:

(i) the Owner shall, at its sole expense, Remediate all Road Contamination and all Contaminants on the Dedicated Lands to Acceptable Contamination Levels and obtain one or more separate Certificates of Compliance from the MOE that covers all the Roads and the Dedicated Lands confirming that such Remediation of the Roads and the Dedicated Lands, has been completed to Acceptable Contamination Levels, or if applicable obtain Final Negative Determinations from the MOE in respect of the Dedicated Lands or the Roads, or any portion thereof. The Owner will complete the Remediation that may be required under this Section in phases to correspond with the Phases of the Development, as approved by the City Engineer. Each of the off-site areas (each an **"Off-Site Area"**) shown on Schedule D and identified in the "Legend" of Schedule D shall be Remediated as follows;

(A) the Off-Site Area shown cross-hatched on Schedule D will be Remediated concurrently with Phase 1a; and

(B) the Off-Site Area shown hatched on Schedule D will be Remediated concurrently with Phase 2c or 2d, whichever Phase proceeds first.

For clarity, the designation of an area as an "Off-Site Area" is not an acknowledgement that an area is Contaminated or that any obligation to Remediate that "Off-Site Area" arises under this section, but if Contaminated then it shall be Remediated in accordance with this Agreement and the timing provided in this sub-section;

(ii) notwithstanding subsection 3.1(a)(i), the City, in its sole discretion, shall have the right, but not the obligation, to Remediate all Road Contamination and all Contaminants (including Historical Contaminants) on the Dedicated Lands, or any portion thereof, to Acceptable Contamination Levels at any time after the execution of this Agreement if deemed necessary by the City, and the Owner shall pay to the City the City's Remediation Costs with respect thereto;

(b) without limiting the foregoing, if the Dedicated Lands contain or are, at any time hereafter, found to contain Contaminants, or the Roads contain any Road Contamination which originated on the Development Lands or the Dedicated Lands, which has or could reasonably be expected in the future to migrate from the Roads or the Dedicated Lands, onto the Development Lands or onto any Neighbouring Lands or into the Environment, the Owner shall at its sole expense Remediate or pay the City's costs and expenses to Remediate to Acceptable Contamination Levels any such Contaminants, that have migrated or hereafter migrates therefrom or cause such Remediation Works to be installed, maintained and monitored to Remediate, prevent and protect the Development Lands, any Neighbouring Lands or the Environment, respectively, from any such migrating Road Contamination;

(c) if the City at any time hereafter accepts risk based standards of Remediation by the Owner for the Roads, or the Dedicated Lands, or any portion thereof, such acceptance shall not be a bar or otherwise restrict the City from later

requiring a more stringent level or standard of Remediation of the Roads or the Dedicated Lands, by the Owner, at the Owner's sole cost and expense, if:

(i) the MOE approval of risk based standards of remediation for the Contaminants on the Dedicated Lands or the Road Contamination changes or is withdrawn or if any MOE conditions set out in a risk based Certificate of Compliance are not met; or

(ii) the remediation standards or requirements provided for in the Act or otherwise required by the MOE should change to become more stringent for any Contaminants on the Dedicated Lands or any Road Contamination; or

(iii) the City Engineer, in his sole discretion, determines that the Road Contamination remaining in the Roads or any Contaminants remaining in the Dedicated Lands and being risk managed or remediated to risk based standards is causing or could be expected to cause any damage to any Road Works or any Utilities or any Future Road Works or result in any health or safety issues for any City Personnel or any third party workers performing any work in the Roads; or

(iv) any Road Contamination or Contaminants in the Dedicated Lands is resulting in any Claims being made against or suffered by the City,

provided that the Owner covenants and agrees that any acceptance by the City of risk based standards of Remediation for any of the Road Contamination or any Contaminants in the Dedicated Lands shall not in any way release the Owner or be deemed to be a waiver by the City of the Owner's obligations under the Act, this Agreement or the common law in respect of any Road Contamination or any Contaminants in the Dedicated Lands. The Owner acknowledges that as a condition of the City's approval of risk based standards of Remediation, the Owner and the City, if required by the City, shall enter into an amendment of this Agreement or a new or an addendum to this Agreement to specifically deal with the terms and conditions upon which the risk based remediation will be approved or accepted; and

(d) the Owner shall submit electronic copies of all environmental reports and all the Remediation Plans with respect to the Roads to the City's Environmental Consultant for review.

3.2 Remediation During Construction of Road Works or Future Road Works. Without derogating from, but in addition to, any other obligations of the Owner in this Agreement or any rights of the City, pursuant to Sections 3.1, 3.4 or otherwise, to conduct any Remediation of any Road Contamination or any Contaminants in the Dedicated Lands, the Owner, subject to Section 4.6, covenants and agrees that, if any Contaminants, including Historical Contaminants, on the Roads or the Dedicated Lands, are detected by the City or the City Personnel or the Owner or the Owner's Personnel or are suspected to exist by the City or the City Personnel, acting reasonably, in the course of constructing, installing, performing or completing any Road Works or Future Road Works:

(a) the Owner, at its sole cost and expense, shall retain and cause the Owner's Environmental Consultant to be present and to do or perform, including as and when requested by the City or the City Personnel, when any Road Works or Future Road Works adjacent to or in the vicinity of the Development Lands are being conducted by the City or any City Personnel or by the Owner or the Owner's Personnel, the following:

(i) sample, test and characterize any soil, groundwater or vapour being excavated or found within any Roads or the Dedicated Lands which are being excavated, disturbed or impacted by the Road Works or Future Road Works and submit electronic copies of all reports and findings to the City's Environmental Consultant;

(ii) take possession of, excavate, dispose of and Remediate any soil or groundwater suspected or determined to be Contaminants (including Historical Contaminants), by the City or any City Personnel or by the Owner or the Owner's Personnel, as deemed necessary in the City Engineer's sole opinion to complete or install the Road Works or Future Road Works;

(iii) assist the City and the City Personnel, as directed, to safely excavate and dispose of and/or collect and treat any Contaminants (including Historical Contaminants), as necessary, to enable the City or the City Personnel or the Owner or the Owner's Personnel, as applicable, to safely complete, construct, install, maintain, repair, upgrade or replace any Road Works or Future Road Works in a manner such that the City or any City Personnel do not incur any additional costs in performing such Road Works or Future Road Works. The Owner shall reimburse the City for all the City's Remediation Costs, including without limitation, specifically those costs or expenses incurred by the City or any City Personnel which are additional or incremental costs or expenses from those that would have been incurred by the City or any City Personnel if no Contaminants (including Historical Contaminants), were present in the Roads or the Dedicated Lands when completing the Road Works or Future Road Works;

(iv) if any Contaminants (including Historical Contaminants), are found by the City or any City Personnel or by the Owner or the Owner's Personnel in performing the Road Works or Future Road Works, the Owner's Environmental Consultant shall, if and when requested by the City or the City Personnel, remove or Remediate those Contaminants (including Historical Contaminants), as deemed necessary in the City Engineer's sole opinion, to complete the Road Works or Future Road Works and transport the Contaminants (including Historical Contaminants), to a licensed facility;

(v) subsequent to the removal or Remediation of any contaminated soil, groundwater or vapour from the Roads or the Dedicated Lands, as may be required hereunder, the Owner's Environmental Consultant shall collect confirmatory post-remediation samples required by the City or the MOE and forward copies of all of the Owner's Environmental

Consultant's reports to the City for such period and frequency, as directed by the City or the MOE, until the MOE, if so required by Section 3.1 herein, issues one or more separate Certificates of Compliance for that portion of the Roads and the Dedicated Lands, on which Contaminants were found or until the Owner otherwise confirms to the satisfaction of the City that the Contaminants (including any Historical Contaminants) in the Roads and the Dedicated Lands have been Remediated to standards as deemed necessary by the City Engineer to complete the Road Works or Future Road Works;

(vi) install any Remediation Works, as required by the City or the MOE, to prevent the migration of any Contaminants from the Roads or the Dedicated Lands and to collect, treat, sample, remediate and dispose of any Contaminants (including any Historical Contaminants), as deemed necessary by the City Engineer, to complete or install the Road Works or Future Road Works to the City Engineer's satisfaction or to satisfy any other conditions or requirements of the MOE; and

(vii) if necessary to ensure human health and safety is not compromised as a result of any Contaminants (including any Historical Contaminants) in the Roads and the Dedicated Lands, the Owner shall prepare, assist and advise the City and all City Personnel in adhering to a health and safety plan while conducting any Road Works or Future Road Works;

(b) the Owner shall pay all the costs and expenses related to the Owner's Environmental Consultant performing the work and activities described in Section 3.2(a) and shall reimburse the City for any and all of the City's Remediation Costs and any other additional or incremental costs incurred by the City in completing the Road Works or Future Road Works that are caused directly or indirectly by the Contaminants (including any Historical Contaminants);

(c) if the City or any City Personnel performs any Remediation of any Contaminants (including Historical Contaminants), as deemed necessary by the City Engineer to complete the Road Works or Future Road Works, then Section 3.4 shall apply, but nothing herein shall obligate the City or any City Personnel to carry out any Remediation;

(d) the Owner shall or will cause the Owner's Environmental Consultant, at the Owner's sole cost and expense, to inform all private and public utility companies with Utilities in the Roads and the Dedicated Lands in the areas of known or potential Road Contamination or whose Utilities may be affected by any Contaminants (including Historical Contaminants), of the Owner's Remediation activities and shall provide any private or public utility company, upon their request, all assessment reports, remediation reports and the Remediation Plan. Without restricting the generality of the foregoing, the Owner covenants and agrees to fully disclose to each public or private utility company with Utilities in the Roads and the Dedicated Lands in the areas where any Road Works or Future Road Works are being performed or which may be impacted by any Contaminants of the nature and extent of any Contaminants now or in the future which the Owner is or becomes aware of and to fully

cooperate with the utility companies to prevent any damage to their respective Utilities from any such Contaminants (including Historical Contaminants);

(e) if any Historical Contaminants or contaminated fill remains "in situ" in the Dedicated Lands or the Roads or the City accepts risk based remediation of any Contaminants in the Dedicated Lands or Roads, it must be geotechnically suitable to the satisfaction of the City Engineer for the future use of the Dedicated Lands or Roads as a roadway and if such fill is not geotechnically suitable it should be excavated and replaced with geotechnically suitable material at the Owner's cost and expense; and

(f) if the Owner obtains a numerical based Certificate of Compliance as described in Section 1.1(a)(ii) for any portion of the Dedicated Lands, then the parties agree that the Owner will have no obligation under Section 3.2 for any Future Road Works on that portion of the Dedicated Lands, which is subject to a numerical based Certificate of Compliance, and the City expressly agrees that it will not seek recovery of any City Remediation Costs associated with Future Road Works on any Dedicated Lands, which are subject to a numerical based Certificate of Compliance.

3.3 Approval of Remediation of Roads and Dedicated Lands. Prior to conducting any Remediation of the Roads or Dedicated Lands or installing any Remediation Works in the Roads or the Dedicated Lands, the Owner shall obtain the City's consent and all permits for the same, including without limitation obtaining any permits or approvals for the installation and Monitoring of any Remediation Works, if necessary, on City property, and shall execute such legal agreements on terms and conditions satisfactory to the Director of Legal Services related to any Remediation Works encroaching on the Roads or Dedicated Lands.

3.4 City May Remediate Roads and Dedicated Lands. The City may, without obligation to do so, in its sole discretion and without notice to the Owner, Remediate the Road Contamination (or any portion thereof) to Acceptable Contamination Levels or any Contaminants (including Historical Contaminants) in the Dedicated Lands or Roads, as deemed necessary by the City Engineer, to complete the Road Works or Future Road Works to the satisfaction of the City Engineer. In the event that the City or any City Personnel performs any such Remediation, the City may charge the Owner the full amount of the City's Remediation Costs, plus interest at the rate of three (3%) percent above the Prime Rate, calculated monthly not in advance, on any amounts the Owner fails to pay within thirty (30) days of any written demand or being invoiced therefor by the City for so long as such amounts remain unpaid. The Owner covenants and agrees that it shall forthwith on demand pay to the City the City's Remediation Costs. Notwithstanding that the City has no obligation to provide notice, the City will endeavour to provide notice to the Owner in advance of commencing any Remediation of the Roads or the Dedicated Lands. Upon receiving an invoice for the City's Remediation Costs, the Owner may make requests for documents and information from the City to assess the necessity and reasonableness of the costs incurred by the City, but the amount of the City's Remediation Costs, as invoiced, shall remain payable except to the extent of any adjustments approved by the City Engineer.

3.5 Monitoring. The Owner shall, at its own cost and expense, engage the Owner's Environmental Consultant to perform all Monitoring functions and testing of the soils, groundwater and vapour in respect of the Roads and the Dedicated Lands, including the

Dedicated Lands, as provided for in any Remediation Plans, the MOE Approval in Principle, any Certificate of Compliance, any performance verification plan or as otherwise required by the MOE or by the City with respect to any portion of the Dedicated Lands or Roads, including any areas which the City may, in its sole discretion, permit or approve to be risk assessed or risk managed. Without limiting the generality of the foregoing, but in addition thereto, the Owner shall:

(a) perform or cause the Owner's Environmental Consultant to conduct all Monitoring required and as directed by the MOE or the City Engineer until the Contaminants on the Dedicated Lands and any other Road Contamination, as herein required, have been Remediated to Acceptable Contamination Levels and the MOE's and the City's Monitoring requirements have been satisfied; and

(b) perform or cause the Owner's Environmental Consultant to prepare and deliver to the City periodic reports of the results of all its Monitoring, as required by the MOE or the City Engineer, which reports shall contain the Owner's Environmental Consultant's assessment of the degree to which the presence and concentration of the Contaminants in the Roads or the Dedicated Lands have abated from that disclosed in the initial assessment, based upon all samples analysed pursuant to the Monitoring and provide confirmation that, in the Owner's Environmental Consultant's opinion, there are no human health risks to the Owner's Personnel, the City Personnel or the general public as a result of any soil, groundwater or any vapour Contaminants on the Roads or the Dedicated Lands.

ARTICLE 4
GENERAL REMEDIATION PROVISIONS

4.1 Conduct of Remediation. The Remediation described in Sections 2.1, 3.1 and 3.2 shall be conducted and completed as follows:

(a) in accordance with the terms and conditions of this Agreement; and

(b) in accordance with the terms and conditions of the Act (including, without limitation, in accordance with the MOE Approval in Principle, except to the extent that the MOE Approval in Principle conflicts with or is inconsistent with the terms of this Agreement, then the terms of this Agreement shall govern and prevail), all Environmental Laws, any performance verification plan, all Remediation Plans, if any, and all requirements of the MOE, and in respect of the Roads and the Dedicated Lands, all requirements of the City, as a prudent land owner in respect of work done on City property, but the City is not in any way approving or verifying the effectiveness of the Owner's Remediation Plan or any of its Remediation activities.

4.2 Groundwater or Dewatering.

(a) If the Remediation of the Development Lands, the Roads or the Dedicated Lands, or any portion thereof, includes any groundwater or dewatering discharges into the City's sewer system, including any Excluded Contaminants, the Owner shall, in addition to its other obligations in this Agreement:

(i) ensure that in respect of all such discharges and dewaterings, it obtains and keeps current all necessary discharge permits and approvals required and meets all standards, pursuant to the Act, or any City, provincial or federal by-laws or statutes which are applicable from time to time, including without limitation the *Water Sustainability Act*, S.B.C. 2014, c. 15, and all Regulations made thereunder from time to time; and

(ii) monitor discharge Contaminant levels in accordance with the Act and any applicable City policy relating to groundwater discharge in effect from time to time, or any City, provincial or federal bylaws or statutes which are applicable from time to time.

(b) The Owner, at its sole expense, shall be required to decommission any groundwater or vapour monitoring wells installed on the Roads or the Dedicated Lands by or on behalf of the Owner, in accordance with all requirements of the MOE and the Environmental Laws, including the Groundwater Protection Regulation, and all requirements of the City to the satisfaction of the City Engineer.

4.3 Remediation Plans. The Owner will promptly provide the City with true and complete copies of any and all Approvals in Principle, all consultant's reports related to the Development Lands, the Roads and the Dedicated Lands and all Remediation Plans, if and as applicable, and, as the City may request from time to time, any other reports, plans, information and materials (including monitoring reports) that are prepared or required by the MOE to be prepared by the Owner with respect to Contaminants in and/or Remediation of the Development Lands, the Roads and the Dedicated Lands.

4.4 Certificates of Compliance. Upon completion of the Remediation of the Development Lands, the Roads and the Dedicated Lands or any Phase, the Owner shall apply to the MOE for separate Certificates of Compliance or Final Negative Determinations (as to the Roads and the Dedicated Lands) for each of the following: (a) each Phase of the Development Lands based on metes and bounds descriptions or based upon the respective legal parcels in the respective Phase, as applicable; and (b) the Roads and the Dedicated Lands contained in each Off-Site Area (as such Off-Site Areas correspond with the Phases of the Development Lands), all as required by this Agreement or pursuant to the Act. Without in any way derogating from the Owner's obligations to obtain and deliver one or more Certificates of Compliance pursuant to Section 3.1, for clarity, the Owner is not required to apply to the MOE for a Certificate of Compliance or Final Negative Determination with respect to Remediation of the Roads required to be Remediated under Section 3.2 to complete the Road Works or in respect of any Historical Contaminants in the Dedicated Lands in respect of any Future Road Works. Once the Owner obtains the Certificates of Compliance or Final Negative Determinations, as may be applicable, the Owner shall forthwith provide to the City true copies of same.

4.5 MOE Approval in Principle. The Owner shall, to the satisfaction of the MOE, comply with and satisfy all of the conditions set out in the MOE Approval in Principle and any subsequent or other MOE-issued Remediation conditions or requirements, including pursuant to any performance verification plans.

4.6 Excluded Contaminants. For purposes of this Agreement, the Owner and the City agree that the obligation of the Owner, or any successor owner, respectively, to Remediate any Contaminants or pay the City's Remediation Costs excludes the following Contaminants:

(a) in respect of any Contaminants that the Owner, or any successor, respectively, can prove to the satisfaction of the MOE or a Court of competent jurisdiction were brought, deposited, stored or caused to be present on the Development Lands by a Third Party Responsible Person after the issuance of a Certificate of Compliance or a Final Negative Determination for the Development Lands as confirmed by the MOE or a Court issuing a directive, statement, order or other confirmation that a Third Party Responsible Person is responsible for the remediation of the Development Lands, or any portion thereof, and that the Contaminants on the Development Lands were not caused by, related to or did not result from any past or present operations on the Development Lands by the Owner or the Owner's Personnel or any previous owner or operator thereon, and that such Contaminants are not the result of or caused by any Remediation activities performed by the Owner, the Owner's Personnel, the City or the City's Personnel pursuant to or as required in this Agreement;

(b) without limiting subsection 4.6(d) or 4.6(f), in respect of any Contaminants discovered on the Roads or the Dedicated Lands after the issuance of a Certificate of Compliance or a Final Negative Determination for the Roads and the Dedicated Lands, that the Owner can prove to the satisfaction of the MOE, as confirmed by the MOE issuing a directive, statement, order or other confirmation, or otherwise to the satisfaction of the City, are Contaminants that were brought, deposited, stored or caused to be present on the Roads or the Dedicated Lands by a Third Party Responsible Person after the issuance of a Certificate of Compliance or a Final Negative Determination therefor, except for those Contaminants in the Roads or the Dedicated Lands that the City Engineer determines are required to be Remediated to complete the Road Works;

(c) any Contaminants that the City or any of the City Personnel brings on, deposits or causes to exist on the Roads or the Dedicated Lands after the date of this Agreement, except for those Contaminants brought on, deposited or caused to exist on the Roads or the Dedicated Lands as a result of, related to or caused by the City or any of the City Personnel conducting any Remediation activities in respect of the Contaminants which the Owner is obligated to Remediate pursuant to this Agreement; provided that this exclusion does not include any Contaminants that the City accepts can be risk managed or risk assessed pursuant to this Agreement;

(d) any Contaminants on the Roads, except as required to complete the Road Works in accordance with Section 3.2, that did not originate on or from the Development Lands or the Dedicated Lands or were not the result of, related to or caused by any past or present operations on the Development Lands or the Dedicated Lands by the Owner or the Owner's Personnel or any previous owner or operator thereon, all as proven to the satisfaction of the MOE. For certainty, this exclusion does not in any way alter or diminish the Owner's obligations set out in Section 2.1(c) hereof, and in particular, the Owner shall,

at its sole expense, Remediate any Contaminants that migrated onto the Development Lands or the Dedicated Lands from the Roads, regardless of the source of such contamination, and cause Remediation Works to be installed, maintained and monitored to Remediate, prevent and protect the Development Lands from any such migrating Contaminants;

(e) in respect of the Development Lands and Neighbouring Lands, any Historical Contaminants that are not required to be delineated or Remediated in accordance with the Act by the MOE; and

(f) in respect of the Roads, any Historical Contaminants, except those that are specifically provided to be Remediated in this Agreement, including in Section 1.1(a)(iii), and which are required to be Remediated for the completion of the Road Works,

(collectively, the "**Excluded Contaminants**").

The parties acknowledge that a portion of the Site was part of False Creek and was filled in with imported fill containing Contaminants. The parties agree that the placement of the fill was not related to or caused by any past operations on the Development Lands or Dedicated Lands by any previous owner or operator thereon.

ARTICLE 5
STATUTORY RIGHT OF WAY

5.1 Statutory Right of Way. Pursuant to Section 218 of the *Land Title Act*, the Owner hereby grants to the City the full and free right, liberty, easement and statutory right of way over the Lands to freely enter the Lands at any time, with workers, vehicles, equipment, tools and materials, and to carry out any works thereon that may be reasonably necessary for it to prevent the migration of any Contaminants from the Development Lands onto the Roads or the Dedicated Lands or to Remediate the Road Contamination or any other Contaminants in the Roads or the Dedicated Lands in connection with the Road Works or Future Road Works, pursuant to this Agreement. This statutory right of way is necessary for the operation and maintenance of the City's undertaking.

The City will exercise its rights in Section 5.1 only over those portions of the Development Lands that are reasonably necessary for the exercise of such rights.

ARTICLE 6
INSURANCE

6.1 Insurance Coverage Required. If the Owner installs or performs any Remediation Works on the Roads or the Dedicated Lands, then the Owner is required to obtain and maintain, at its own expense, the insurance coverage provided for in Schedule B attached hereto.

6.2 General Insurance Requirements.

(a) Prior to commencement of any Remediation work or activities on City property, the Owner will lodge or arrange for the lodging with the City Engineer evidence of the insurance coverage required in Schedule B. The Owner will forward similar evidence of renewals, extensions or replacement of any such insurance to the City Engineer. Receipt by the City of certificates of insurance or copies of insurance policies will in no way constitute confirmation by the City that the insurance complies with the terms of this Agreement. Responsibility for ensuring that the insurance coverages required in Schedule B are in place rests solely with the Owner. If the Owner fails to perform its obligations pursuant Schedule B, the City may effect such insurance on behalf of the Owner and all the City's costs in so doing will be paid by the Owner forthwith upon written request from the City therefor. The Owner expressly agrees to indemnify and save harmless the City or the City's Personnel from and against any claim, cost or expense incurred by the City or the City's Personnel if the Owner fails to obtain or maintain the required insurance coverages or does not comply with any of the insurance requirements.

(b) The required insurance shall not be cancelled or endorsed to reduce the limits of liability without 60 days' notice in writing by registered mail to the City. Should the policy be endorsed to restrict coverage mid-term, notice of such restriction will be provided in writing by registered mail to the City no later than the effective date of such change.

6.3 Owner to be "Prime Contractor". The Owner will be the "prime contractor" (as defined in the *Workers Compensation Act*) for any Remediation work performed by the Owner or the Owner's Personnel, including, without limitation, in respect of any Remediation Works, for Workers Compensation Board ("**WCB**") purposes. The Owner will accept all responsibilities of the prime contractor as outlined in the City's Multiple-Employer Workplace/Contractor Coordination Program (2003), *Workers Compensation Act* (Part 3) and WCB Occupational Health and Safety Regulation and the City may consider any WCB violation by the Owner as prime contractor as a material breach of this Agreement; Provided that the Owner may delegate its responsibilities as "prime contractor" to the contractor engaged to install or operate the Remediation Works or to perform any Remediation activities by the Owner or the Owner's Personnel (and further provided that the Owner will not be relieved of its obligations under this clause).

ARTICLE 7
OCCUPANCY PERMIT AND SUBDIVISION RESTRICTIONS

7.1 Occupancy and Subdivision Restrictions. Pursuant to Section 219 of the *Land Title Act*, the Owner covenants and agrees with the City, as a covenant running with and binding the Development Lands that, until:

(a) as to each Phase of the Development Lands, a separate Certificate of Compliance or Final Negative Determination has been issued by the MOE and received by the City confirming that the Contaminants on such Phase of the Development Lands have been remediated to Acceptable Contamination Levels; and

(b) as to each Off-Site Area that corresponds with the applicable Phase of the Development Lands, if any Contaminants exists:

(i) as to the Dedicated Lands within a particular Off-Site Area (if any), one or more separate Certificates of Compliance or Final Negative Determinations have been issued by the MOE and received by the City confirming that the Contaminants on such Dedicated Lands have been remediated to Acceptable Contamination Levels and, in addition, where Section 1.1(a)(iii) applies:

(A) one or more separate Certificates of Compliance or Final Negative Determinations have been issued by the MOE and received by the City confirming that any soil Contaminants on such Dedicated Lands in the top one meter of soil in areas of boulevards or streets medians have been remediated to the numeric standards applicable to residential land use as provided for in the Act; or

(B) the following have been received by the City:

(I) written confirmation from an Approved Professional confirming that the top one meter of soil in areas of boulevards or streets medians have been Remediated to the numeric standards applicable to residential land use as provided for in the Act; and

(II) a separate Certificate of Compliance or a Final Negative Determination issued by the MOE confirming that the Contaminants on the Dedicated Lands below the top one meter of soil in areas of boulevards or streets medians have been remediated to Acceptable Contamination Levels,

or some other form of confirmation satisfactory to the City, in its sole and absolute discretion, confirming that the Contaminants on the Dedicated Lands have been remediated to Acceptable Contamination Levels;

(ii) as to the Roads within a particular Off-Site Area, if any Road Contamination as described in Section 1.1(ddd)(ii) exists, a Certificate of Compliance or a Final Negative Determination confirming that such Road Contamination has been Remediated to Acceptable Contamination Levels has been issued by the MOE and received by the City, and, in addition, where Section 1.1(a)(iii) applies:

(A) one or more separate Certificates of Compliance or Final Negative Determinations have been issued by the MOE and received by the City confirming that any Road Contamination comprised of soil in areas of boulevards or streets medians have been Remediated to the Acceptable Contamination Levels; or

(B) the following have been received by the City:

(I) written confirmation from an Approved Professional confirming that the top one meter of soil in areas of boulevards or streets medians have been remediated to the numeric standards applicable to residential land use as provided for in the Act, including if and when applicable to either low or high residential land use standards based upon the density applicable for the Development Lands; and

(II) a separate Certificate of Compliance or a Final Negative Determination issued by the MOE confirming that such Road Contamination below the top one meter of soil in areas of boulevards or streets medians have been remediated to Acceptable Contamination Levels,

or some other form of confirmation satisfactory to the City, in its sole and absolute discretion, confirming that such Road Contamination has been remediated to Acceptable Contamination Levels; and

the Owner acknowledges and agrees that the obligations and deliverables set out above in respect of each Off-Site Area are to be completed or delivered on or before the delivery of the Certificate of Compliance for the corresponding Phase of the Development Lands, such that upon completion of the entire Development on the Development Lands, the Owner will have completed, as may be required hereunder, the Remediation of all Contaminants on the Dedicated Lands and the Road Contamination to Acceptable Contamination Levels and delivered evidence satisfactory to the City establishing same;

(c) as to any Roads or Dedicated Lands within a particular Off-Site Area, if any Contaminants, except for the Excluded Contaminants, are found in the course of performing, completing or installing any Road Works, the Owner shall have Remediated those Contaminants as deemed necessary, in the sole opinion of the City Engineer, for the Road Works to be completed to the City Engineer's satisfaction;

(d) as to the Neighbouring Lands, in the event that it is found or determined that Contaminants originating from or which have migrated from the Development Lands or the Dedicated Lands directly or indirectly through the Roads, except for Excluded Contaminants, have migrated onto the Neighbouring Lands, then:

(i) a Certificate of Compliance confirming that the Contaminants originating from or which have migrated from the Development Lands or Dedicated Lands through the Roads or directly from the Roads or the Dedicated Lands, onto the Neighbouring Lands have been remediated to Acceptable Contamination Levels has been issued by the MOE and received by the City; or

(ii) a Remediation Plan has been accepted by the MOE and an Approval in Principle for the Remediation of the Contaminants originating from or

which have migrated from the Development Lands through the Roads or directly from the Roads or the Dedicated Lands, onto the Neighbouring Lands has been granted by the MOE and such Remediation Plan and Approval in Principle have been provided to the City; and

(e) as to each of Phase 1a, Phase 1b, Phase 2a, Phase 2b, Phase 2c and Phase 2d, the Owner has fulfilled all of its obligations in this Agreement relating to that particular Phase together with each of their respective corresponding Off-Site Areas, if any, including without limitation, preventing and protecting against the following, as such obligations may relate to such Phases:

(i) any migration of Contaminants onto and from the Development Lands; and

(ii) any migration of any Road Contamination from the Roads or of any Contaminants from the Dedicated Lands onto the Neighbouring Lands or into the Environment,

as herein provided,

then the use of that particular Phase of the Development Lands shall be subject to the following restrictions:

(A) neither the Owner nor any other person whatsoever shall suffer, cause or permit the use or occupation of any Building, or any part thereof located within the applicable Phase of the Development Lands;

(B) neither the Owner nor any other person whatsoever shall apply for an Occupancy Permit or take any action, directly or indirectly, to compel the issuance of an Occupancy Permit for any Building within the applicable Phase of the Development Lands;

(C) the City shall be under no obligation to issue an Occupancy Permit for any Building notwithstanding that all other conditions and City by-law requirements in respect thereof may have been fulfilled for any Building within the applicable Phase of the Development Lands, and

(D) neither the Owner nor any other person shall seek to or apply to subdivide the portion of the Development Lands contained within the applicable Phase of the Development Lands by strata plan or airspace parcel subdivision or take any action, directly or indirectly, to compel the City's or the City's Approving Officer's approval of any such strata plan or airspace parcel subdivision.

Notwithstanding the foregoing or any other provision of this Agreement, if the Owner, despite having proceeded diligently to satisfy the conditions referred to in subsections (a) through (e) of this Section 7.1, is delayed in doing so by the occurrence of a public health emergency or other Event of Force Majeure, the City will work with the Owner in good faith to arrive at a

mutually acceptable arrangement under which a withholding or delay in issuance of an Occupancy Permit or any other permit in respect of a Building or the Development Lands will be avoided, it being understood and agreed, notwithstanding the foregoing, that the City will in no way be obligated to issue any such permit until and unless such conditions have been satisfied.

ARTICLE 8
RELEASE AND INDEMNITY

8.1 Release. The Owner hereby releases, remises and forever discharges the City and the City Personnel from any and all Claims, except to the extent attributable to the wrongful intentional acts or gross negligence of the City or City Personnel, suffered or incurred by the Owner now or at any time in the future by reason of, arising out of, related to or in any way connected with or to this Agreement or the subject matter thereof, and, without limiting the generality of the foregoing, the Owner hereby releases and forever discharges the City and all City Personnel from and against:

(a) all Claims resulting from or in any way connected to any Contaminants on the Development Lands or the Dedicated Lands or migrating or which have migrated from the Development Lands or the Dedicated Lands onto the Roads or into the Environment;

(b) all Claims resulting from or in any way connected to Contaminants migrating or which have migrated from the Roads or the Dedicated Lands onto the Development Lands, except for any Contaminants proven by the Owner to have been brought or deposited by the City or any of the City Personnel or caused to exist on the Roads or the Dedicated Lands after the date of this Agreement, other than those Contaminants brought on, deposited or caused to exist on the Roads or the Dedicated Lands as a result of, related to or caused by the City or any of the City Personnel conducting any Remediation activities in respect of the Contaminants which the Owner is obligated to Remediate pursuant to this Agreement. For certainty, the foregoing exclusion does not include any Contaminants that the City accepts can be risk managed or risk assessed pursuant to this Agreement;

(c) all Claims resulting from the issuance or granting or refusal to issue or grant any permits or to approve any further subdivision, zoning, development or any other Permits whatsoever with respect to the Development Lands as a result of any Contaminants to be Remediated by the Owner pursuant to this Agreement or any non-compliance or breach of this Agreement by the Owner or of any requirements of the MOE which must be satisfied prior thereto;

(d) all Claims relating to or resulting from the existence of any Contaminants on the Dedicated Land or any Road Contamination;

(e) all Claims resulting from or in any way connected to any Contaminants migrating or which have migrated onto the Development Lands or the Dedicated Lands or from the Development Lands or the Dedicated Lands onto the Roads or into the Environment;

(f) all Claims resulting from or in any way connected to Contaminants migrating or which have migrated from the Development Lands or the Dedicated Lands directly or indirectly through the Roads or the Dedicated Lands onto any Neighbouring Lands or into the Environment;

(g) all Claims resulting from the City or any City Personnel performing any Remediation activities of any Contaminants on the Dedicated Lands or any Road Contamination, or of any Contaminants in the Dedicated Lands, or in the Roads in performing or completing any Road Works or Future Road Works;

(h) all Claims resulting from or in any way connected to the stockpiling on the Development Lands of any Contaminants removed from the Roads or the Dedicated Lands, which are determined to be Road Contamination or any Contaminants as deemed necessary by the City Engineer to complete the Road Works or Future Road Works, while being tested or sampled regarding their nature or source; and

(i) all Claims for personal injury, death or property damage suffered by the Owner or the Owner's Personnel in performing any Remediation of Contaminants as required by this Agreement, including without limitation in respect of the Road Contamination.

8.2 Indemnity. The Owner hereby covenants and agrees with the City that the Owner shall, on an ongoing basis, in perpetuity, indemnify and save harmless and shall reimburse the City and all City Personnel from and against all Claims, except to the extent attributable to the wrongful intentional acts or gross negligence of the City or City Personnel, which are instituted, asserted or made against the City or any City Personnel or paid, suffered or incurred by the City or any City Personnel by reason of, arising out of, relating to or which are in any way attributable to or in connection with this Agreement or the subject matter of this Agreement and, without limiting the generality of the foregoing, the Owner hereby indemnifies and saves harmless the City and City Personnel, from and against:

(a) all Claims resulting from or in any way connected to any Contaminants on the Development Lands or the Dedicated Lands or migrating from or which are Introduced into the Environment from or related to any past uses or operations of the Development Lands or the Dedicated Lands, including onto the Roads or into the Environment;

(b) all Claims resulting from or in any way connected to Contaminants migrating or which have migrated from the Roads or the Dedicated Lands onto the Development Lands, except for any Contaminants proven by the Owner to have been brought on or deposited by the City or any of the City Personnel or caused to exist on the Roads or the Dedicated Lands after the date of this Agreement, other than those Contaminants brought on, deposited or caused to exist on the Roads or the Dedicated Lands as a result of, related to or caused by the City or any of the City Personnel conducting any Remediation activities in respect of the Contaminants which the Owner is obligated to Remediate pursuant to this Agreement. For certainty, the foregoing exclusion does not include any Contaminants that the City accepts can be risk managed or risk assessed pursuant to this Agreement;

(c) all Claims resulting from the issuance or granting or refusal to issue or grant any permits or to approve any further subdivision, zoning, development or any other Permits whatsoever by the City with respect to the Development Lands as a result of any Contaminants to be Remediated by the Owner pursuant to this Agreement or any non-compliance or breach of this Agreement by the Owner or of any requirements of the MOE which must be satisfied prior thereto;

(d) all Claims suffered or incurred by the City or any City Personnel in relation to or resulting from any Contaminants on the Development Lands.

(e) all Claims relating to or resulting from the existence of any Contaminants on the Dedicated Land or any Road Contamination;

(f) all Claims resulting from or in any way connected to any Contaminants migrating onto the Development Lands or the Dedicated Lands or from the Development Lands or the Dedicated Lands onto the Roads or into the Environment;

(g) all Claims resulting from or in any way connected to Contaminants, except for any Excluded Contaminants, migrating from the Development Lands or the Dedicated Lands directly or indirectly through the Roads or the Dedicated Lands onto the Neighbouring Lands or into the Environment or from any Contaminants Introduced into the Environment, including onto the Roads, from any present or past uses or operations on the Development Lands or the Dedicated Lands;

(h) any Claims resulting from the City complying with any notice or order of any governmental authority (including the MOE) having jurisdiction, whether or not the City is obligated or required to do so in connection with any Road Contamination or Contaminants on the Dedicated Lands to be cleaned up, contained, removed or dealt with in any manner whatsoever;

(i) all Claims resulting from the City or any City Personnel performing any Remediation activities of any Contaminants in the Dedicated Lands and of any Road Contamination, and of any Contaminants in the Dedicated Lands, or in the Roads in performing any Road Works or Future Road Works, including any Claims resulting from the migration of any Contaminants from the Development Lands onto the Roads or the Dedicated Lands or from the Roads or the Dedicated Lands onto the Development Lands or any Neighbouring Lands;

(j) all Claims suffered or incurred by the City or any City Personnel in the course of or as a result of doing any Road Works or Future Road Works related to or resulting from any Contaminants in the Roads or Dedicated Lands which migrated or originated from the Development Lands or the Dedicated Lands; and

(k) all Claims for personal injury, death or property damage suffered by the Owner or the Owner's Personnel in performing any Remediation of Contaminants as required by this Agreement.

8.3 Release and Indemnity to Survive. The releases and indemnities found in Sections 8.1 and 8.2, respectively, shall survive the expiration or earlier termination of this Agreement and shall survive any modification, release or partial release of any of the covenants created by this Agreement. The indemnities in Section 8.2 will be both covenants of the Owner and integral parts of the Section 219 covenants granted hereby.

8.4 Conduct of Proceedings.

(a) In the event that a Claim is made against the City which, pursuant to the terms of this Agreement, requires the Owner to indemnify the City or the City Personnel, then the City will give written notice of such claim to the Owner and, subject to Section 8.4(b), the Owner will have the right, upon written notice to the City, to conduct the proceedings in defence of such Claim. If the Owner elects not to conduct the proceedings in the defence of such Claim, the City will conduct the defence of such Claim.

(b) Section 8.4(a) will not apply and the City will have the right to conduct the defence of any Claim described in Section 8.4(a) in the following circumstances, where:

(i) the Director of Legal Services determines that the proper administration of the municipal government requires that decisions with respect to the Claim be made by the City;

(ii) the Director of Legal Services determines that the public interest requires that the matter be resolved in an open and public way; or

(iii) in the opinion of the Director of Legal Services, the Claim is of a nature where decisions with respect to settling or defending it would create a precedent with respect to other existing or potential claims affecting or involving the City.

(c) If the City wishes to settle any Claim, whether in connection with a Claim made under Section 8.4(a) or 8.4(b), the City will not do so without the prior written consent of the Owner, which consent will not be unreasonably withheld. In conducting any defence or making any settlement, the City will act in a manner reasonably consistent with the manner in which the City would act in connection with the defence or settlement of claims, suits, demands, actions or proceedings which would not be indemnified against under the provisions of this Section 8.4.

(d) Regardless of whether the Claim is being defended under Section 8.4(a) or 8.4(b), the party having conduct of the proceedings will, upon written request of the other party, provide to the other party all information in its possession relating to the proceedings which may be properly disclosed at law. If the party not having conduct of the proceedings so requests in writing in a timely fashion, the party having conduct of the proceedings will join the other party as a third party to the proceedings.

ARTICLE 9
EQUITABLE CHARGE

9.1 Equitable Charge. The Owner hereby grants to the City an equitable charge over the Lands as security for the payment of all sums which may at any time hereafter be payable by the Owner to the City under the terms of this Agreement (including pursuant to the indemnity provisions contained in this Agreement). Subject to Section 10.1 herein, this Section 9.1 will run with and bind the Lands and will survive the expiration or earlier termination of this Agreement. This equitable charge may be enforced by the appointment of a receiver for the sale of the Lands. This Equitable Charge will be discharged and released from title to the Lands in accordance with Section 10.1.

ARTICLE 10
RELEASES

10.1 Release of Statutory Right of Way, Section 219 Covenant and Equitable Charge. The City shall, without in any way affecting the Owner's personal covenants otherwise set out in this Agreement:

(a) partially release the Statutory Right of Way described in Section 5.1, the Section 219 Covenant described in Section 7.1 and the Equitable Charge described in Section 9.1 from each of the portions of the Lands within each of Phases 1a – 1b and Phases 2a – 2d,, respectively, if and when:

(i) in respect of each such Phase of the Development Lands, the Owner has complied with Section 7.1(a);

(ii) in respect of the Dedicated Lands contained within each such corresponding Off-Site Area (if any), the Owner has complied with Section 7.1(b);

(iii) in respect of Roads contained within each such corresponding Off-Site Area, the Owner has complied with Section 7.1(b)(ii);

(iv) in respect of Roads and the Dedicated Lands, contained within each such corresponding Off-Site Area, if any Contaminants, excluding the Excluded Contaminants, are found in the course of performing, completing or installing any Road Works or Future Road Works, the Owner has complied with Section 7.1(c);

(b) fully release the Statutory Right of Way described in Section 5.1, the Section 219 Covenant described in Section 7.1 and the Equitable Charge described in Section 9.1 from the final Phase of the Development if and when:

(i) in respect of Neighbouring Lands, if it is found or determined that Contaminants originating from or which have migrated from the Development Lands or Dedicated Lands directly or indirectly through the Roads, except for Excluded Contaminants, extend to or have migrated onto Neighbouring Lands, the Owner has complied with Section 7.1(d); and

(ii) all of the Owner's covenants and obligations in this Agreement have been fully satisfied and all amounts due and payable to the City pursuant to this Agreement have been paid to the City's satisfaction, or the Owner has made arrangements to secure the fulfilment any outstanding obligations, satisfactory to, in the sole discretion of, the City Engineer and the Director of Legal Services,

provided, however that in each case:

(c) the City shall have no obligation to execute any discharge until a written request therefor from the Owner has been received by the City;

(d) the cost of preparation of any discharge, and the cost of registration of same in the New Westminster Land Title Office shall be paid by the Owner; and

(e) the City shall have reasonable time within to which to execute any discharge and return the same to the Owner.

ARTICLE 11
LETTER OF CREDIT

11.1 Amount of Letter of Credit. In the event that any Contaminants from the Development Lands or the Dedicated Lands are found, at any time, to have extended to or migrated onto the Roads or the Dedicated Lands, or any Road Contamination exists on the Roads or any Contaminants exist on the Dedicated Lands which in the City Engineer's discretion need to be Remediated in order to complete the Road Works to the City Engineer's satisfaction, then the Owner shall, in addition to its other obligations under this Agreement, prior to enactment of the Rezoning, provide to the City a letter of credit or an additional letter of credit in the amount of the Estimated Remediation Costs and the costs of preventing or addressing the migration of any Road Contamination from the Roads or Dedicated Lands onto the Development Lands or any Neighbouring Lands or into the Environment and the migration of any Contaminants from the Dedicated Lands, including all costs related to the installation, maintenance, monitoring and removal of any Remediation Works, if any (the "Letter of Credit"). The Estimated Remediation Costs and the amount of the Letter of Credit shall in no way limit the Owner's obligation to the City under this Agreement to pay the City's Remediation Costs, as the Letter of Credit amount, if any, is only an estimate of the Remediation costs. The amount of the Letter of Credit required at the time of execution of this Agreement shall be **$1,500,000**, but shall be increased if any additional Road Contamination, including any Contaminants on the Dedicated Lands, is found after the date of execution of this Agreement which increases the Estimated Remediation Costs or may be increased or decreased if based upon further soils investigations performed by the Owner or the Owner's Environmental Consultant after the date of execution of this Agreement the Estimated Remediation Costs are revised by the Owner's Environmental Consultant and accepted by the City to be greater or lesser than the original Estimated Remediation Costs.

11.2 Terms of Letter of Credit. All Letters of Credit shall be irrevocable and unconditional demand letters of credit and shall comply strictly in all respects with the City's Letter of Credit Policy and shall otherwise be in a form and content which is acceptable to the City's Director of Legal Services. All Letters of Credit shall be provided for a period of one year with the provision for an automatic renewal or extension without amendment from year to

year until the Owner has delivered to the City one or more separate Certificates of Compliance or Final Negative Determinations for the Remediation of the Road Contamination and for the Contaminants on the Dedicated Lands and the Owner has, to the City's full satisfaction, complied with all of the Owner's obligations under this Agreement.

11.3 Calling Upon Letter of Credit. The City may call upon the Letter(s) of Credit if:

(a) the Owner fails to expeditiously carry out the Remediation of the Roads or the Dedicated Lands;

(b) the bank issuing the Letter of Credit refuses to extend or renew the expiry date of the Letter of Credit;

(c) the City is required by the MOE to conduct any Remediation of the Road Contamination or any Contaminants on the Dedicated Lands, or the City in its own discretion decides, as provided in Section 3.4 of this Agreement, to Remediate the Road Contamination or any Contaminants on the Dedicated Lands in the course of completing the Road Works;

(d) any Claims are made against the City or any City Personnel by any third parties in respect of any Contaminants which the Owner is responsible to Remediate pursuant to this Agreement; or

(e) the Owner defaults on any of its obligations under this Agreement and fails to cure such default (or if such default cannot reasonably be cured within such time, the Owner fails to pursue such curing with diligence), after receiving no less than 14 days' prior written notice from the City.

11.4 Replenishing Letter of Credit. In the event that the City makes use of all or any portion of the Letter of Credit or if the Estimated Remediation Costs shall change, the Owner shall forthwith replenish the Letter of Credit in an amount and form that the City may, in its absolute discretion, require from time to time to ensure that all of the City's Remediation Costs are paid by the Owner.

11.5 Release of Letter of Credit. The City will release and/or return the Letter of Credit to the Owner upon the City receiving one or more separate Certificates of Compliance or Final Negative Determinations in respect of the Contaminants on the Dedicated Lands and all other Road Contamination, if applicable, and all of the City's Remediation Costs having been paid by the Owner to the City.

ARTICLE 12
TRANSFERS

12.1 Purchasers Bound. The Owner covenants and agrees with the City that:

(a) if prior to:

(i) completion of the Remediation and the delivery to the City of the Certificate of Compliance for the Development Lands; and

(ii) completion of the Remediation of the Contaminants on the Dedicated Lands and of any Road Contamination and the delivery to the City of the separate Certificates of Compliance or Final Negative Determinations for the Roads,

any legal or beneficial interest therein, are transferred or otherwise conveyed to any purchaser or transferee then, prior to or concurrently with such transfer or conveyance, the Owner shall obtain from such purchaser or transferee (but excluding the City or any lessee or mortgagee of the Development Lands) and deliver to the City an agreement binding upon such purchaser or transferee whereby the purchaser or transferee agree, together with the Owner, to be jointly and severally responsible for all of the obligations and indemnities of the Owner under this Agreement. The Owner shall also provide to the purchaser or transferee all information, documentation and working plans and procedures for any Remediation Works on the Development Lands and the Roads and the Dedicated Lands, specifically in respect of any vapour management systems. The provisions in this Section 12.1(a) shall apply equally to all subsequent purchasers and assignees; and

(b) without derogating from Section 7.1, if the Development Lands, or any portion thereof, are subdivided by a strata plan, this Agreement shall charge title to each of the strata lots and the common property comprising such strata plan and:

(i) the strata corporation or the strata corporation so created shall perform and observe the Owner's covenant herein at the expense of the strata lot owners; and

(ii) the liability of each strata lot owner and the performance and observance of the Owner's covenant and obligations herein shall be in proportion to the unit entitlement of his, her or its strata lot as established by the strata plan.

12.2 Subdivision by Strata Plan. In the event that the Development Lands, or any portion thereof, are subdivided by way of strata plan, the Owner's obligations in Section 12.1 shall cease to apply in respect of that portion of the Development Lands only and the Owner shall not be obligated to obtain or provide to the City any written acknowledgements or agreements, pursuant to Section 12.1, from any purchasers of the strata lots so created by the deposit of the strata plan provided that the Owner has, prior to the subdivision of the Development Lands, or any portion thereof, by way of strata plan, Remediated the Contaminants on the Development Lands, the Dedicated Lands and any Road Contamination to Acceptable Contamination Levels, except for any Excluded Contaminants, and has obtained and provided to the City Certificates of Compliance with respect to the Development Lands and Certificates of Compliance or Final Negative Determinations with respect to the Roads (a the Dedicated Lands) and has paid to the City the City's Remediation Costs and all other amounts due to the City under this Agreement.

12.3 Agreements Runs with the Lands. Subject to Section 10.1, the statutory right of way, the Section 219 covenants and the Equitable Charge granted herein will run with and bind the Development Lands and all parcels and all portions thereof into which the

Development Lands at any time hereafter may be consolidated or subdivided, including but not limited to by strata plan.

ARTICLE 13
GENERAL

13.1 Nature of Covenants. The Owner acknowledges to the City, and covenants and agrees with the City that the covenants and indemnities of the Owner contained in this Agreement are personal covenants, binding on it and its successors, and that the Owner shall continue to be bound, notwithstanding that the Owner may transfer, convey, dedicate or otherwise dispose of the Development Lands or any legal or beneficial interest therein and notwithstanding any modification, release, partial release or the discharge of the registered covenants and charges in this Agreement (or any portion of this Agreement) from the Land Title Office.

13.2 Joint and Several. Any covenants, agreements, conditions, or promises made by two (2) or more persons shall be construed as several as well as joint, including any payments or compensation to be paid pursuant to this Agreement. If the fee simple owner of the Development Lands, or any portion thereof, shall consist of more than one person, such parties shall be jointly and severally liable to the City for the performance and observance of this Agreement.

13.3 Notices. Any notice, approval or request required or permitted to be given under this Agreement shall be in writing and may be given by delivering such notice, approval or request to a representative of the party for whom it is intended or by mailing such notice, approval or request by prepaid registered mail from any post office in British Columbia to the addresses set forth below:

(a) in the case of the Owner, addressed to it at:

c/o St. Paul's Hospital
344 Burrard Building
1081 Burrard Street
Vancouver, British Columbia
V6Z 1Y6
Attention: President and CEO, Providence Health Care

With a concurrent copy to the Owner's solicitors, addressed to them at:

Alexander Holburn Beaudin & Lang LLP
Suite 2700 – 700 West Georgia Street
Vancouver, British Columbia
V7Y 1B8
Attention: John Goundrey

(b) in the case of the City, addressed to it at:

City of Vancouver
453 West 12th Avenue
Vancouver, British Columbia V5Y 1V4
Attention: City Clerk
with concurrent copies to the Manager of Environmental Protection and the Director of Legal Services,

or at such other address as the parties may from time to time advise by notice in writing. Any such notice, approval or request shall be deemed to have been received on the date of delivery of such notice, approval or request or, on the third business day next following the date of such mailing if mailed as aforesaid, provided that if mailed should there be, between mailing and the actual receipt of such notice, approval or request, a mail strike, slowdown or other labour dispute which might affect the delivery of such notice, approval or request, such notice, approval or request shall only be effective if actually delivered.

13.4 Damages Insufficient. The Owner agrees that damages may be an inadequate remedy for the City for any breach by the Owner of its obligations under this Agreement and the Owner agrees that the City is entitled to seek and obtain an order for specific performance, or a prohibitory or mandatory injunction, in order to compel performance by the Owner of its obligations under this Agreement.

13.5 City's Other Remedies. Notwithstanding anything to the contrary herein provided, no mention in this Agreement of any particular right or remedy of the City in respect of any default or in the payment of any sums which at anytime hereafter may be payable, due or owing by the Owner shall preclude the City from any other right or remedy in respect thereof, whether available at law or in equity or by statute or as expressly provided for in this Agreement. No right or remedy shall be exclusive or dependent upon any one or more of such rights or remedies independently or in combination, such remedies or rights being cumulative and not alternative.

13.6 No Derogation. Nothing contained or implied in this Agreement will derogate from the obligations of the Owner under any other agreement with the City or, if the City so elects, prejudice or affect the City's rights, powers, duties or obligations in the exercise of its functions pursuant to the *Vancouver Charter* as amended from time to time and the rights, powers, duties and obligations of the City under all public and private statutes, by-laws, orders and regulations, which may be, if the City so elects, as fully and effectively exercised in relation to the Development Lands, the Dedicated Lands, and the Roads as if this Agreement had not been executed and delivered by the Owner and the City.

13.8 Severability. If any term of this Agreement is held to be invalid, illegal or unenforceable by a court having the jurisdiction to do so, that term is to be considered to have been severed from the rest of this Agreement and the rest of this Agreement remains in force unaffected by that holding or by the severance of that term.

13.9 No Waiver. No alleged waiver of any breach of this Agreement is effective unless it is an express waiver in writing of the breach in respect of which it is asserted against the party alleged to have given the waiver. No waiver by the City or the Owner of any breach of this Agreement operates as a waiver of any other breach of this Agreement.

13.10 Entire Agreement. This is the entire agreement between the City and the Owner concerning its subject and it may be changed only in a document executed by the City and the Owner.

13.11 Priority. This Agreement shall be registered as a first charge against the Development Lands in priority over all other charges existing at the time this Agreement is deposited for registration in the Land Title Office other than those charges in favour the City or as contained in the original Crown grant or which the Director of Legal Services has determined, in her sole discretion, may rank in priority to the registrable interests in land granted pursuant to this Agreement.

13.12 Time of the Essence. Time shall be of the essence.

13.13 Enurement. This Agreement shall enure to the benefit of and be binding upon the parties hereto and their respective successors and permitted assigns.

13.14 Governing Law. This Agreement shall be governed by the laws of British Columbia and Canada and the parties irrevocably attorn to the jurisdiction of the Courts of British Columbia.

13.15 Further Assurances. The parties hereby agree to execute such further documents and assurances as are required to carry out and more fully effect the intent of this Agreement.

13.16 No Partnership. The relationship of the City and the Owner created by this Agreement shall not constitute a partnership and is to be limited to dealings with the Contaminants in accordance with the terms of this Agreement.

13.17 No Assignment. The Owner shall not assign this Agreement or any of its rights or obligations hereunder.

13.18 *Force Majeure*. If an Event of *Force Majeure* occurs or is likely to occur, the Owner will promptly notify the City of the particulars of the relevant event or circumstance and, if reasonably possible, supply supporting evidence. The Owner will use its best efforts to remove, curtail or contain the cause of the delay, interruption or failure (provided that the terms of settlement of any labour disturbance, dispute, strike or lockout will be wholly in the discretion of the Owner) and to resume, with the least possible delay, its compliance with duties, covenants and obligations under this Agreement. Neither the City nor the Owner will be liable to the other for any delay, interruption or failure in the performance of its duties, covenants, or obligations under this Agreement if caused by an Event of *Force Majeure*, and the date limited for the performance of such duties, covenants or obligations under this Agreement will be postponed for a period equal to the delay occasioned by such an Event of *Force Majeure*.

Schedule A

MOE Approval in Principle

BRITISH COLUMBIA

REGISTERED MAIL AND EMAIL

Files: 26250-20/22656, 1100, 6477, 6478
Site IDs: 22656, 1100, 6477, 6478

July 20, 2020

PROVIDENCE HEALTH CARE SOCIETY
5th Floor, 1190 Hornby Street
Vancouver, BC V6Z 2KS

Attn: Clayton Wong

Dear Clayton Wong:

Re: Approval in Principle – 1002 Station Street, 250 Prior Street, and 310 Prior Street, Vancouver, British Columbia

Please find enclosed an Approval in Principle respecting the contaminated site referenced above and which supersedes those issued July 26, 1999 (1002 Station St; SITE 1100), April 28, 2000 (310 Prior St; SITE 6477) and June 12, 2000 (250 Prior St; SITE 6478).

In addition to the conditions set out in Schedule B of the enclosed Approval in Principle, please be advised of the following:

1. Information about the site will be included in the Site Registry established under the *Environmental Management Act*.

2. The provisions of this Approval in Principle are without prejudice to the right of the Director to make orders or impose requirements as the Director may deem necessary in accordance with applicable laws. Nothing in this Approval in Principle will restrict or impair the Director's powers in this regard.

3. A qualified environmental consultant must be available to identify, characterize and appropriately manage:
   (a) any environmental media that may be contaminated, or
   (b) soil which may exceed the standards triggering a Contaminated Soil Relocation Agreement set out in Part 8 of the Contaminated Sites Regulation

   and may be encountered during any future subsurface work at the site.

Ministry of Environment and Climate Change Strategy
Land Remediation Section
Environmental Emergencies and Land Remediation Branch
Environmental Protection Division
Mailing Address:
PO Box 9342 Stn Prov Govt
Victoria BC V8W 9M1
Telephone: 250 387-4441
Website: www.gov.bc.ca/env

4. This Approval in Principle does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the persons undertaking remediation. It is also the responsibility of those persons to ensure that all activities conducted under this Approval in Principle are carried out with due regard to the rights of third parties, and comply with other applicable legislation that may be in force.

5. Additional permits and approvals may be required before remediation begins.

6. All site materials (e.g., excavated soil, replaced soil, groundwater from dewatering, pumping, well development etc.) must be characterized and managed in accordance with applicable legislation and ministry guidance.

7. Groundwater wells that are no longer required must be properly decommissioned in accordance with the *Water Sustainability Act's* Groundwater Protection Regulation.

8. Please be advised that there are inherent health and safety risks associated with remediation activities at contaminated sites. Development of site-specific work procedures in accordance with WorkSafeBC regulations is warranted. Please direct related questions to the WorkSafeBC office at 604-276-3100 (Lower Mainland only) or 1-888-621-7233 (toll free in B.C.).

9. Any substantial modifications to the approved remediation plan, including substantial changes to the remediation schedule, conditions or circumstances described in the risk assessment upon which the remediation plan is based, or changes in land use, must be promptly identified by written submission to the Director.

10. If an application for a Certificate of Compliance is to be submitted for the site, the confirmation of remediation report accompanying the application must demonstrate compliance with the remediation standards and criteria in force at the time the application for the Certificate is made, which may differ from the remediation standards and criteria in force at the time of issuance of this Approval in Principle.

Issuance of this Approval in Principle is a decision that may be appealed under Part 8 of the *Environmental Management Act*.

If you require clarification of any aspect of this Approval in Principle, please contact csp_cio@Victoria1.gov.bc.ca .

Yours truly,

Alan W. McCammon
for Director, *Environmental Management Act*

Enclosure

cc: Christiaan Iacoe, P.Ag. City of Vancouver
453 West 12th Avenue, Vancouver, BC V5Y 1W4
Christiaan.Iacoe@vancouver.ca

Duncan Macdonald, Approved Professional, PGL Environmental Consultants
dmacdonald@pggroup.com

Client Information Officer, ENV, Victoria csp_cio@Victoria1.gov.bc.ca

CSAP Society, apopova@csapsociety.bc.ca

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

APPROVAL IN PRINCIPLE

(Pursuant to Section 53 of the *Environmental Management Act*)

THIS IS TO CERTIFY that the remediation plan described herein submitted by PROVIDENCE HEALTH CARE SOCIETY for the contaminated site identified in Schedule A of this document has been approved.

The remediation plan must be implemented in accordance with the requirements and conditions specified in Schedule B.

The substances for which remediation will be conducted and for which this Approval in Principle is valid are specified in Schedule C.

I have issued this Approval in Principle based on a review of the documents listed in Schedule D. I, however, make no representation or warranty as to the accuracy or completeness of that information.

A Director may rescind this Approval in Principle if conditions imposed in the Approval in Principle are not complied with or any fees payable under Part 4 of the Act or regulations are outstanding.

This Approval in Principle should not be construed as an assurance that there are no hazards present at the site.

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

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Schedule A

The site covered by this Approval in Principle is located at 1002 Station Street, 250 Prior Street, and 310 Prior Street, Vancouver, British Columbia which is more particularly known and described as:

LOT A DISTRICT LOTS 196 AND 2037 PLAN LMP14138
PID: 018-550-185.
1002 Station Street, Vancouver, British Columbia.

LOT C BLOCKS 15 TO 18 DISTRICT LOTS 196 AND 2037 PLAN 12884
LOT D BLOCKS 15 TO 18 DISTRICT LOTS 196 AND 2037 PLAN 12884
LOT 19 DISTRICT LOTS 181, 196 AND 2037 PLAN 6780
PID: 008-776-300, 008-776-326, and 010-813-217.
250 Prior Street, Vancouver, British Columbia.

LOT E DISTRICT LOTS 196 AND 2037 PLAN 13449
LOT F DISTRICT LOTS 196 AND 2037 PLAN 13449
PID: 008-126-780 and 008-126-798
310 Prior Street, Vancouver, British Columbia

The approximate centre of the site using the NAD (North American Datum) 1983 convention is:

Latitude:	49°	16'	31.30"
Longitude:	123°	5'	47.60"

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Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
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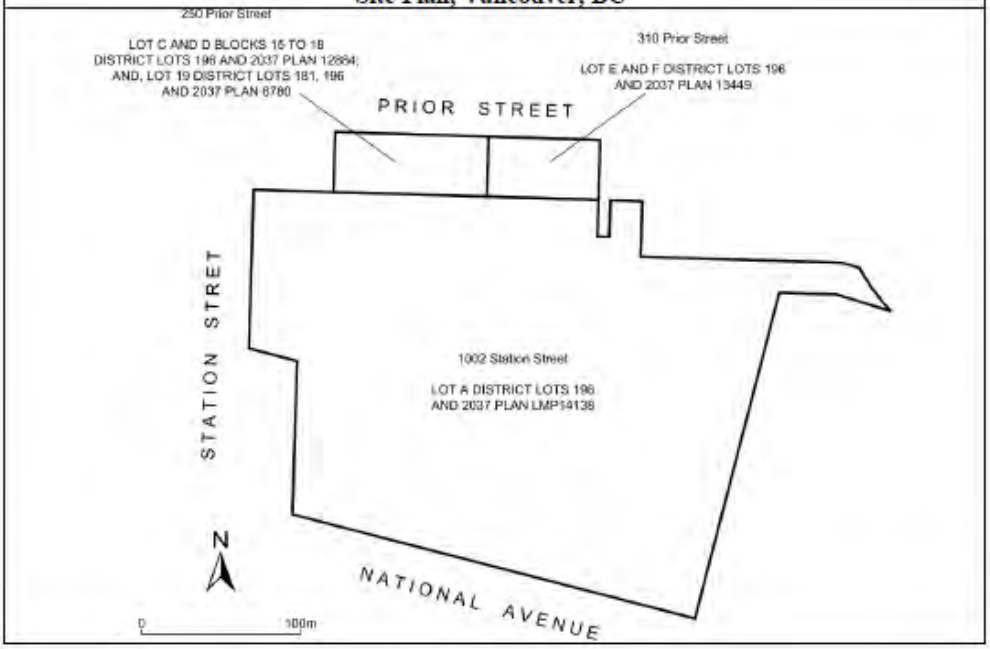
Site Plan, Vancouver, BC



Location Map, Vancouver, BC

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
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Schedule B

Requirements and Conditions

1. Remediation, including monitoring, inspections and maintenance of any works, must be undertaken by the responsible persons in the manner and schedule specified in the plan listed in Schedule D or as specified in a modification of the plan approved by the Director.

2. Any substantial modifications to the approved remediation plan, including substantial changes to the remediation schedule, conditions or circumstances described in the risk assessment upon which the remediation plan is based, or changes in land, vapour, water, or sediment use, must be promptly identified in a written submission by the responsible persons to the Director. An application for an amendment or new Approval in Principle may be necessary.

3. Up-to-date records of monitoring, inspections and maintenance of any works must be maintained by the responsible persons or their agent. The records must be available for inspection by the Director.

4. Remediation must be completed within five years of the date of issuance of this Approval in Principle.

5. Remediation must be confirmed in accordance with applicable legislation and ministry guidance. Within 90 days of completing remediation, a report summarizing confirmation of remediation must be prepared in accordance with section 49 (2) of the Contaminated Sites Regulation and submitted to the Director.

6. A statement signed by an Approved Professional must be submitted to the Director annually within 90 days of the anniversary of the date of issuance of this Approval in Principle. The statement must include the following:
   (a) A summary of remedial activities undertaken during the reporting period; and
   (b) An assessment comparing remediation progress to the actions and schedule set out in the plans referenced above. Refer to Condition 2 above if remedial progress differs substantially from the schedule set out in the approved plan.

   If requested by the Director, a report signed by an Approved Professional must be submitted for review to the Director and must include the following:
   (a) A summary of remedial activities undertaken to date;

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Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

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(b) An assessment comparing remediation progress to the actions and schedule set out in the plans referenced above. Refer to Condition 2 above if remedial progress differs substantially from the schedule set out in the approved plan; and,

(c) Supporting documentation (e.g., analytical reports, records of inspection, maintenance of treatment works, etc.).

7. The documents listed in Schedule D indicate that vapour attenuation factors were applied to meet Contaminated Sites Regulation numerical standards at and adjacent to the site. These vapour attenuation factors were selected based on assumptions about the structures, locations and depths of buildings existing or expected at and adjacent to the site. These assumptions include the following:

(a) Industrial land use standards and outdoor vapour attenuation factors apply to the site in its current configuration, except below the vacant onsite building at 310 Prior Street where sub-slab vapour attenuation factors apply. Soil vapour standards are not exceeded in the current configuration;

(b) Vapour concentrations at some areas onsite could exceed parkade standards and/or high-density residential land use standards when sub-slab vapour attenuation factors are applied. The remediation plan listed in Schedule D will be implemented before new buildings are constructed.

Any inconsistencies that arise between the structures, locations and depths of proposed or constructed buildings at or adjacent to the site and the range of structures, locations and depths of buildings assumed in the selection of vapour attenuation factors in the documents listed in Schedule D must be promptly identified by the responsible persons in a written submission to the Director. An application for an amendment or new Approval in Principle may be necessary.

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
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Schedule C

Substances and Uses

Substances to be remediated in soil for high density residential land soil use:

To meet numerical remediation standards:

anthracene	120-12-7	indeno(1,2,3-cd)pyrene	193-39-5
benz(a)anthracene	56-55-3	LEPHs	N/A
benzo(a)pyrene	50-32-8	naphthalene	91-20-3
benzo(b+j)fluoranthenes	205-99-2 & 205-82-3	phenanthrene	85-01-8

To meet risk-based remediation standards:

antimony	7440-36-0	iron	7439-89-6
arsenic	7440-38-2	lead	7439-9-1
cadmium	7440-43-9	nickel	7440-02-0
chromium	7440 47 3	selenium	7782-49-2
cobalt	7440-48-4	tin	7440-31-5
copper	7440-50-8	zinc	7440-66-6
HEPHs	N/A		

Substances to be remediated in water for marine aquatic life water use:

To meet numerical remediation standards:

pyrene	129-00-0

2020-07-20
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Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

Schedule D

Documents

- *Summary of Site Condition*, prepared by PGL Environmental Consultants, dated April 3, 2020;
- *Water Use Determination,* prepared by Ministry of Environment and Climate Change Strategy, dated April 3, 2020;
- *Stage2 Preliminary and Detailed Site Investigation, Screening Level Risk Assessment, and Remediation Plan,* prepared by PGL Environmental Consultants, dated February 2020;
- *Application for a Directors Water Use Determination – 1002 Station Street, and 250 and 310 Prior Street, Vancouver, BC,* prepared by PGL Environmental Consultants, dated December 5, 2019;
- *Stage 1 Preliminary Site Investigation,* prepared by PGL Environmental Consultants, dated, March 2019;
- *Results of Groundwater Monitoring at the Former Freighthouse Lands Site, Vancouver, British Columbia – 2014 Monitoring Program,* prepared by Golder Associates Ltd., dated March 6, 2015;
- *Results of Groundwater Monitoring at the Former Freighthouse Lands/Tech-Park Development Site, Vancouver, British Columbia – 2009 Monitoring Program* prepared by Golder Associates Ltd., dated October 2009;
- *Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated June 8, 2008;
- *Annual Groundwater Monitoring, Former Tech-Park Development Site, Vancouver, BC,* prepared by Golder Associates Ltd., dated August 10, 2004;
- *Annual Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated August 28, 2003;
- *Annual Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated June 13, 2002;
- *Stage 1 Preliminary Site Investigation, The H.Y Louie Site, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Detailed Environmental Site Investigation, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;

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Alan W. McCammon
For Director, *Environmental Management Act*

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- *Stage 2 Preliminary Site Investigation, 310 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan, 310 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan Freighthouse Lands, Vancouver, B.C., Addendum No. 2,* prepared by Golder Associates Ltd., dated February 2000;
- *Approvals in Principle (1002 Station Street, 310 Prior Street, 250 Prior Street* prepared by Ministry of Environment, Lands and Parks, dated July 26, 1999, April 28, 2000 and June 12, 2000, respectively);
- *Groundwater Monitoring, Freighthouse Lands and H.Y Louie Site, Vancouver, B.C,* prepared by Golder Associates Ltd., dated January 12, 1999;
- *Meeting Agenda, Risk Assessment of Freighthouse and Sequence 1706 Lands,* prepared by Golder Associates Ltd., dated June 21, 1996;
- *Remediation Plan and Soil and Water Management Procedures for the Former BNR Station Street Site, Vancouver, B.C.,* prepared by Golder Associates Ltd., dated May 1994;
- *Summary Report: Former BNR Yard Site Assessments,* prepared by Glacier Park Company, dated March 1992;
- *Phase II Environmental Assessment, BN Railyard, Vancouver, BC,* prepared by MTR Consultant Ltd., dated April 1990;
- *Preliminary Environmental Assessment, B.N.R. Railyard, Vancouver, BC,* prepared by MTR Consultant Ltd., dated June 1989; and
- *Burlington Northern Rail, Station Street Railyard, Phase III – Environmental Assessment,* prepared by MTR Consultant Ltd., dated January 1982.

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
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Schedule B

Insurance

If the Owner performs or installs any Remediation Works on the Roads or the Dedicated Lands, then the Owner will be required to obtain and maintain, at its own expense, the following insurance coverage:

1. Commercial General Liability Insurance.

(a) This insurance must protect the Owner against third party claims for bodily injury, death and property damage arising out of any Remediation activities on the Roads or the Dedicated Lands, including any liability arising out of use of City property.

(b) The limit of such insurance will not be less than $10,000,000 per occurrence with a limit of deductibility of not greater than $10,000. Such insurance must be maintained continuously throughout the entire duration that any Remediation activities are being conducted on the Roads or the Dedicated Lands until the later of:

(i) the issuance of the Certificate of Compliance or the Final Negative Determination for the Roads and the Dedicated Lands; and

(ii) the date upon which all Remediation Works, if any, have been decommissioned and removed from City property and the Roads (including the Dedicated Lands) have been restored to their condition prior to the installation of any Remediation Works, all to the satisfaction of the City Engineer.

(c) This insurance will be primary insurance and will add the City and the City Personnel as additional insureds with respect to liability arising out of the operation of or work performed by or on behalf of the Named Insured (Owner) on the Roads and the Dedicated Lands. Any insurance or self-insurance maintained by the City shall be in excess of this insurance and not contribute to it. This insurance shall contain a waiver of subrogation against the City.

(d) This insurance will provide the City with 60 days' written notice of cancellation or reduction of coverage and will contain the following extensions of coverage:

(i) Personal Injury;

(ii) Property Damage including Loss of Use;

(iii) Products and Completed Operations;

(iv) Cross Liability or Severability of Interest;

(v) Blanket Contractual Liability;

(vi) Non-Owned Auto Liability; and

(vii) Employees as Additional Insureds

and where such further risks exists, the following extensions of coverage will be included to cover the liability arising out of:

(viii) Demolition and removal;

(ix) Pile-driving, vibration, grading, shoring and underpinning;

(x) Excavation;

(xi) Blasting; and

(xii) Operation of hoist or attached machinery.

2. Contractor's Equipment Insurance. This insurance must cover all equipment owned or rented by the Owner and against all risks of loss or damage with coverage sufficient to allow for immediate replacement, and will contain a waiver of subrogation against the City.

3. All-Risks Course of Construction Insurance.

(a) This insurance, if applicable, including the perils of flood and earthquake, must cover the Remediation Works and all property of every description to be used in the construction or installation of the Owner's Remediation Works or performing the Remediation activities on the Roads and the Dedicated Lands, if any, required herein.

(b) This insurance will be primary, and, if and sol long as the City has an insurable interest in the Owner's Remediation Works or property, as the case may be, include the City as named insured, and contain a waiver of subrogation against the City; and

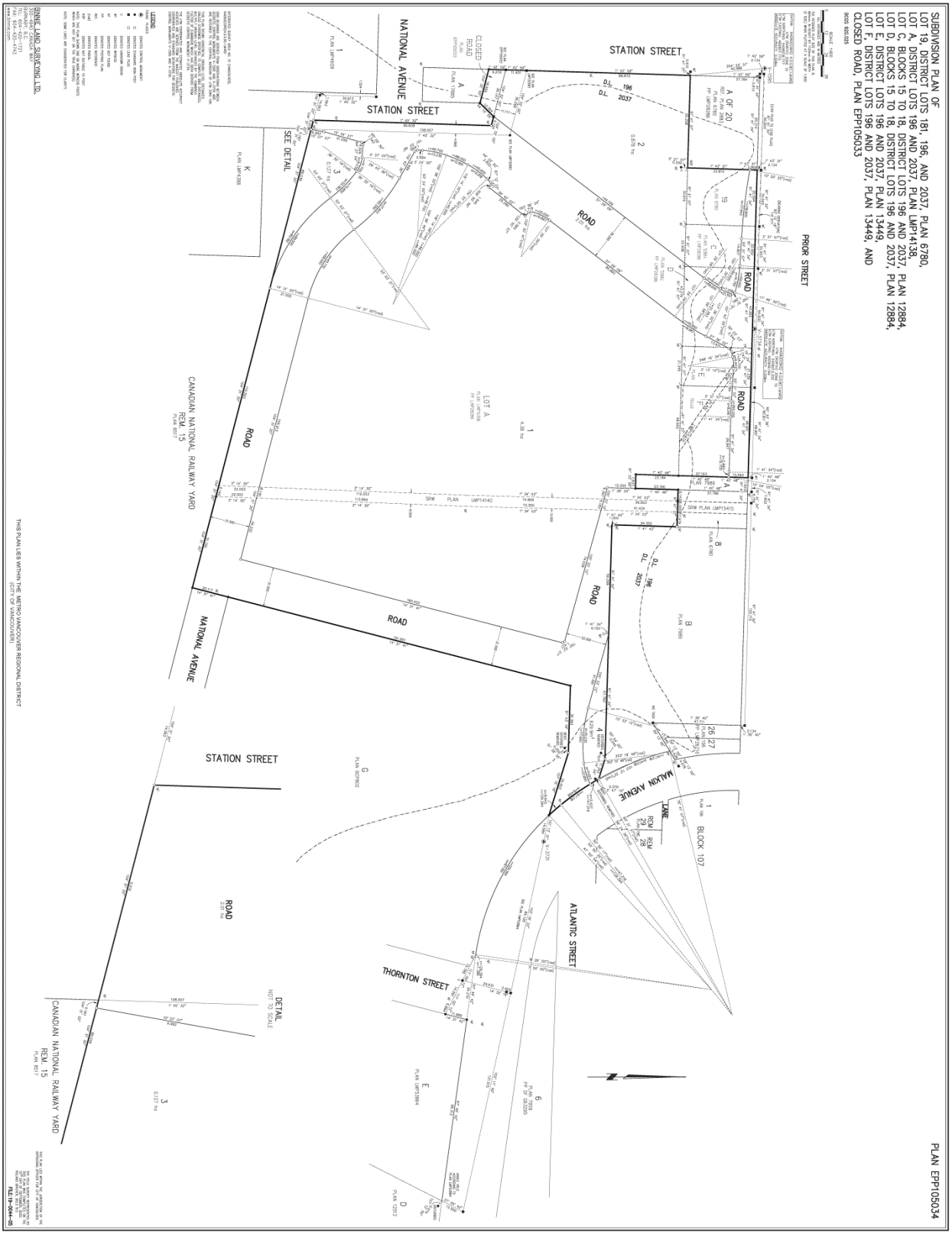
4. Environmental Impairment / Pollution Liability Insurance.

(a) This insurance must be for a limit not less than $10,000,000 per occurrence with a deductible not greater than $50,000 covering third party bodily injury, property damage and clean-up costs arising out of a pollution event including but not limited to unexpected and unintentional spill, discharge, emission, dispersal, leakage, migration, release or escape of pollutants.

(b) Coverage will include the transportation, loading and unloading of materials. Coverage will also include Non-Owned Disposal Site extension.

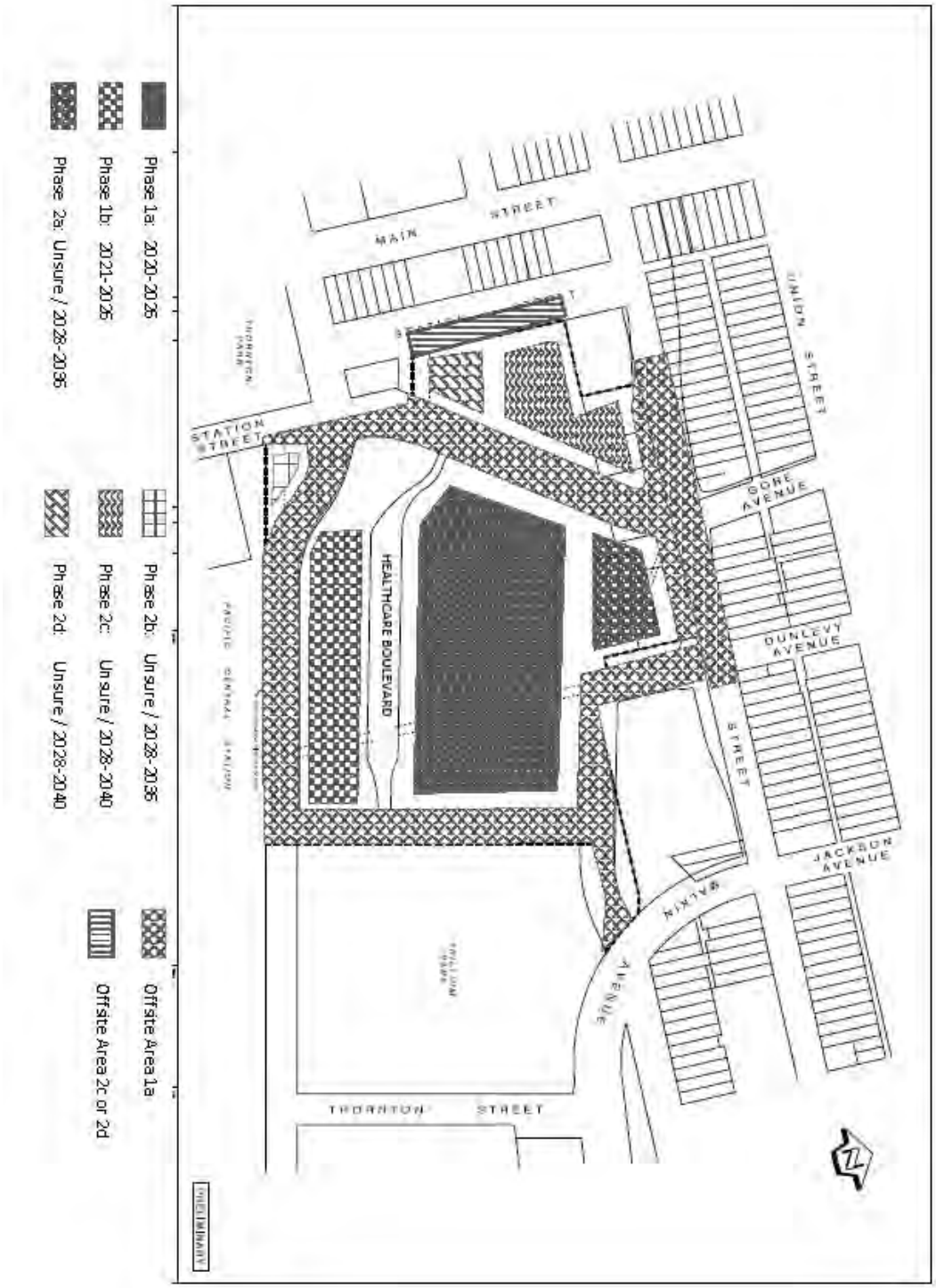
Schedule C

Plan of Dedicated Lands



Schedule D

Phasing Plan



END OF DOCUMENT

APPENDIX IV

City of Vancouver Dedicated Lands Letter

CITY OF VANCOUVER

REAL ESTATE AND FACILITIES MANAGEMENT
Strategic Operations Planning & Projgram Management
Environmental Services

February 4, 2021

Providence Health Care Society
St. Paul's Hospital
1081 Burrard Street
Vancouver, BC V6Z 1Y6

Via Email: Rhonda.lui@phsa.ca

Attention: Rhonda Lui

RE: Risk Assessment Approach for Roadway Contamination Adjacent to the Proposed St. Paul's Hospital Development Site at 1002 Station Street and 250-310 Prior Street, Vancouver, BC (the "Lands")

This letter responds to your request that the City of Vancouver (the "City") approve a risk assessment approach to remediate identified contamination in the Dedicated Lands and contamination that has or may have migrated from the Lands to adjacent City streets.

PGL Environmental Consultant's November 23, 2020 report titled *Application for Approval to Risk Assess Contamination on City Streets – New St Paul's Hospital Redevelopment Project* reports that certain contaminants exceed (or may exceed) the applicable standards as defined by the *Environmental Management Act*, S.B.C. 2003, (the "Contaminants").

The City approves the risk-based approach for the identified Contaminants outlined in your request based on the understanding that the Contaminants are not anticipated to pose unacceptable human health or environmental risks and provided that the following conditions are met:

- Providence Health Care Society provides a Health and Safety plan for trench workers who may be exposed to the Contaminants.
- Providence Health Care Society remediates all Hazardous Waste soil identified on the Dedicated Lands to numerical standards.
- Providence Health Care Society remediates soil to high density residential land use standards in the top 1 m of landscaped areas of the boulevards.
- Providence Health Care Society provides written documentation confirming that the Province does not require that contamination from historically placed area wide fill be delineated or remediated beyond the Lands parcel boundaries.
- Providence Health Care Society enter into a Remediation Agreement and any supplemental or amended Remediation Agreement, satisfactory to the Director of Legal Services and Manager, Environmental Services (with security for remediation of City lands and Road Works associated with the development or satisfactory to the

Manager, Environmental Services). The Remediation Agreement is to include the following terms:

- Providence Health Care Society will characterize and manage the disposal of contaminated soil and groundwater excavated for the Road Works (including but not limited to excavation for utility trenches and for geotechnical improvement) on the Dedicated Lands required for development and for any Road Works conducted in the future on the Dedicated Lands.
- Providence Health Care Society indemnifies the City against all claims arising from the risk-based Contaminants in the roadway (including Dedicated Lands) in perpetuity.
- Providence Health Care Society agrees to conduct additional remediation satisfactory to the Manager, Environmental Services if:
  - The Provincial approval of risk-based remediation is withdrawn or if any conditions set out in the approval are not met; or
  - The remediation standards or requirements of the Province change to become more stringent; or
  - The City Engineer determines that the contamination is (or could be) causing damage to any road works or utilities or result in any worker health and safety issues for City personnel or third party workers performing work in the roads; or
  - The contamination is resulting in any claims being made against or suffered by the City.
- Providence Health Care Society secures a Certificate of Compliance for the Dedicated Lands (demonstrating Provincial approval of the risk-based remediation) and that Providence Health Care Society be responsible for fulling any conditions of Provincial approval.

If the reported characterization of the contamination is found to have changed during remediation or through additional investigation, the City must be notified and the City will assess whether additional remediation or conditions of approval are required.

Please contact the undersigned if further information is required.

Best regards,

David Young, M.Env.Sc., P.Ag.
Contaminated Sites Specialist
320 - 507 West Broadway, Vancouver, BC V5Z 0B4
604-873-7055
dave.young@vancouver.ca

cc: Zayed Mohamed, PGL Environmental Consultants (via email)

APPENDIX V

Approval In Principal

Schedule A

MOE Approval in Principle

BRITISH COLUMBIA

REGISTERED MAIL AND EMAIL

Files: 26250-20/22656, 1100, 6477, 6478
Site IDs: 22656, 1100, 6477, 6478

July 20, 2020

PROVIDENCE HEALTH CARE SOCIETY
5th Floor, 1190 Hornby Street
Vancouver, BC V6Z 2KS

Attn: Clayton Wong

Dear Clayton Wong:

Re: Approval in Principle – 1002 Station Street, 250 Prior Street, and 310 Prior Street, Vancouver, British Columbia

Please find enclosed an Approval in Principle respecting the contaminated site referenced above and which supersedes those issued July 26, 1999 (1002 Station St; SITE 1100), April 28, 2000 (310 Prior St; SITE 6477) and June 12, 2000 (250 Prior St; SITE 6478).

In addition to the conditions set out in Schedule B of the enclosed Approval in Principle, please be advised of the following:

1. Information about the site will be included in the Site Registry established under the *Environmental Management Act*.

2. The provisions of this Approval in Principle are without prejudice to the right of the Director to make orders or impose requirements as the Director may deem necessary in accordance with applicable laws. Nothing in this Approval in Principle will restrict or impair the Director's powers in this regard.

3. A qualified environmental consultant must be available to identify, characterize and appropriately manage:
   (a) any environmental media that may be contaminated, or
   (b) soil which may exceed the standards triggering a Contaminated Soil Relocation Agreement set out in Part 8 of the Contaminated Sites Regulation

   and may be encountered during any future subsurface work at the site.

Ministry of Environment and Climate Change Strategy
Land Remediation Section
Environmental Emergencies and Land Remediation Branch
Environmental Protection Division
Mailing Address:
PO Box 9342 Stn Prov Govt
Victoria BC V8W 9M1
Telephone: 250 387-4441
Website: www.gov.bc.ca/env

4. This Approval in Principle does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the persons undertaking remediation. It is also the responsibility of those persons to ensure that all activities conducted under this Approval in Principle are carried out with due regard to the rights of third parties, and comply with other applicable legislation that may be in force.

5. Additional permits and approvals may be required before remediation begins.

6. All site materials (e.g., excavated soil, replaced soil, groundwater from dewatering, pumping, well development etc.) must be characterized and managed in accordance with applicable legislation and ministry guidance.

7. Groundwater wells that are no longer required must be properly decommissioned in accordance with the *Water Sustainability Act's* Groundwater Protection Regulation.

8. Please be advised that there are inherent health and safety risks associated with remediation activities at contaminated sites. Development of site-specific work procedures in accordance with WorkSafeBC regulations is warranted. Please direct related questions to the WorkSafeBC office at 604-276-3100 (Lower Mainland only) or 1-888-621-7233 (toll free in B.C.).

9. Any substantial modifications to the approved remediation plan, including substantial changes to the remediation schedule, conditions or circumstances described in the risk assessment upon which the remediation plan is based, or changes in land use, must be promptly identified by written submission to the Director.

10. If an application for a Certificate of Compliance is to be submitted for the site, the confirmation of remediation report accompanying the application must demonstrate compliance with the remediation standards and criteria in force at the time the application for the Certificate is made, which may differ from the remediation standards and criteria in force at the time of issuance of this Approval in Principle.

Issuance of this Approval in Principle is a decision that may be appealed under Part 8 of the *Environmental Management Act*.

If you require clarification of any aspect of this Approval in Principle, please contact csp_cio@Victoria1.gov.bc.ca .

Yours truly,

Alan W. McCammon
for Director, *Environmental Management Act*

Enclosure

cc: Christiaan Iacoe, P.Ag. City of Vancouver
453 West 12th Avenue, Vancouver, BC V5Y 1W4
Christiaan.Iacoe@vancouver.ca

Duncan Macdonald, Approved Professional, PGL Environmental Consultants
dmacdonald@pggroup.com

Client Information Officer, ENV, Victoria csp_cio@Victoria1.gov.bc.ca

CSAP Society, apopova@csapsociety.bc.ca

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

APPROVAL IN PRINCIPLE

(Pursuant to Section 53 of the *Environmental Management Act*)

THIS IS TO CERTIFY that the remediation plan described herein submitted by PROVIDENCE HEALTH CARE SOCIETY for the contaminated site identified in Schedule A of this document has been approved.

The remediation plan must be implemented in accordance with the requirements and conditions specified in Schedule B.

The substances for which remediation will be conducted and for which this Approval in Principle is valid are specified in Schedule C.

I have issued this Approval in Principle based on a review of the documents listed in Schedule D. I, however, make no representation or warranty as to the accuracy or completeness of that information.

A Director may rescind this Approval in Principle if conditions imposed in the Approval in Principle are not complied with or any fees payable under Part 4 of the Act or regulations are outstanding.

This Approval in Principle should not be construed as an assurance that there are no hazards present at the site.

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

1 of 8

Schedule A

The site covered by this Approval in Principle is located at 1002 Station Street, 250 Prior Street, and 310 Prior Street, Vancouver, British Columbia which is more particularly known and described as:

LOT A DISTRICT LOTS 196 AND 2037 PLAN LMP14138
PID: 018-550-185.
1002 Station Street, Vancouver, British Columbia.

LOT C BLOCKS 15 TO 18 DISTRICT LOTS 196 AND 2037 PLAN 12884
LOT D BLOCKS 15 TO 18 DISTRICT LOTS 196 AND 2037 PLAN 12884
LOT 19 DISTRICT LOTS 181, 196 AND 2037 PLAN 6780
PID: 008-776-300, 008-776-326, and 010-813-217.
250 Prior Street, Vancouver, British Columbia.

LOT E DISTRICT LOTS 196 AND 2037 PLAN 13449
LOT F DISTRICT LOTS 196 AND 2037 PLAN 13449
PID: 008-126-780 and 008-126-798
310 Prior Street, Vancouver, British Columbia

The approximate centre of the site using the NAD (North American Datum) 1983 convention is:

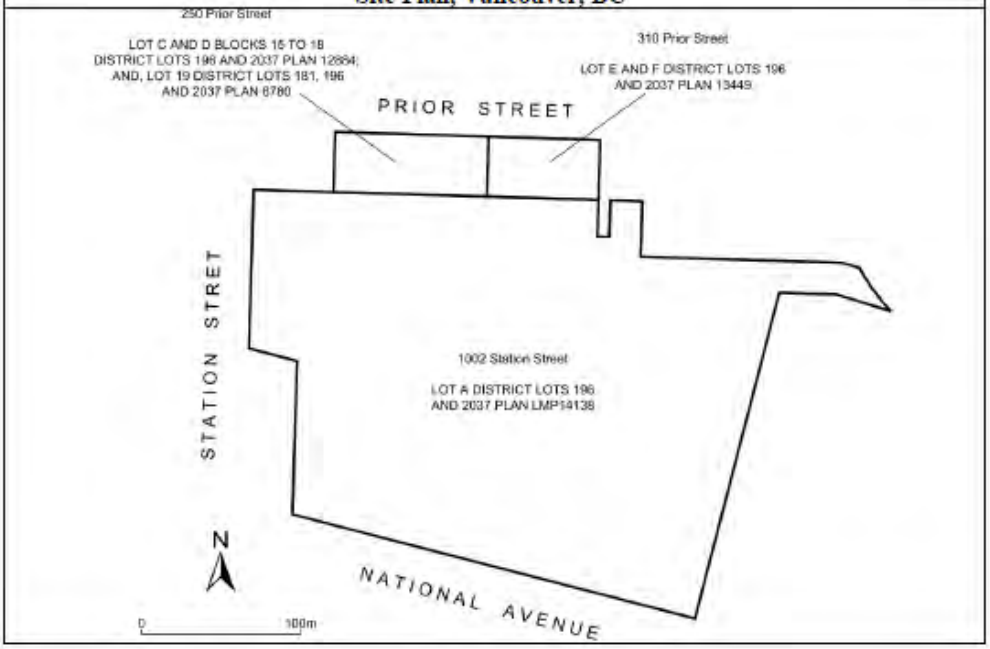
Latitude:	49°	16'	31.30"
Longitude:	123°	5'	47.60"

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

Site Plan, Vancouver, BC



Location Map, Vancouver, BC

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

3 of 8

Schedule B

Requirements and Conditions

1. Remediation, including monitoring, inspections and maintenance of any works, must be undertaken by the responsible persons in the manner and schedule specified in the plan listed in Schedule D or as specified in a modification of the plan approved by the Director.

2. Any substantial modifications to the approved remediation plan, including substantial changes to the remediation schedule, conditions or circumstances described in the risk assessment upon which the remediation plan is based, or changes in land, vapour, water, or sediment use, must be promptly identified in a written submission by the responsible persons to the Director. An application for an amendment or new Approval in Principle may be necessary.

3. Up-to-date records of monitoring, inspections and maintenance of any works must be maintained by the responsible persons or their agent. The records must be available for inspection by the Director.

4. Remediation must be completed within five years of the date of issuance of this Approval in Principle.

5. Remediation must be confirmed in accordance with applicable legislation and ministry guidance. Within 90 days of completing remediation, a report summarizing confirmation of remediation must be prepared in accordance with section 49 (2) of the Contaminated Sites Regulation and submitted to the Director.

6. A statement signed by an Approved Professional must be submitted to the Director annually within 90 days of the anniversary of the date of issuance of this Approval in Principle. The statement must include the following:
   (a) A summary of remedial activities undertaken during the reporting period; and
   (b) An assessment comparing remediation progress to the actions and schedule set out in the plans referenced above. Refer to Condition 2 above if remedial progress differs substantially from the schedule set out in the approved plan.

   If requested by the Director, a report signed by an Approved Professional must be submitted for review to the Director and must include the following:
   (a) A summary of remedial activities undertaken to date;

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

4 of 8

(b) An assessment comparing remediation progress to the actions and schedule set out in the plans referenced above. Refer to Condition 2 above if remedial progress differs substantially from the schedule set out in the approved plan; and,

(c) Supporting documentation (e.g., analytical reports, records of inspection, maintenance of treatment works, etc.).

7. The documents listed in Schedule D indicate that vapour attenuation factors were applied to meet Contaminated Sites Regulation numerical standards at and adjacent to the site. These vapour attenuation factors were selected based on assumptions about the structures, locations and depths of buildings existing or expected at and adjacent to the site. These assumptions include the following:

(a) Industrial land use standards and outdoor vapour attenuation factors apply to the site in its current configuration, except below the vacant onsite building at 310 Prior Street where sub-slab vapour attenuation factors apply. Soil vapour standards are not exceeded in the current configuration;

(b) Vapour concentrations at some areas onsite could exceed parkade standards and/or high-density residential land use standards when sub-slab vapour attenuation factors are applied. The remediation plan listed in Schedule D will be implemented before new buildings are constructed.

Any inconsistencies that arise between the structures, locations and depths of proposed or constructed buildings at or adjacent to the site and the range of structures, locations and depths of buildings assumed in the selection of vapour attenuation factors in the documents listed in Schedule D must be promptly identified by the responsible persons in a written submission to the Director. An application for an amendment or new Approval in Principle may be necessary.

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

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Schedule C

Substances and Uses

Substances to be remediated in soil for high density residential land soil use:

To meet numerical remediation standards:

anthracene	120-12-7	indeno(1,2,3-cd)pyrene	193-39-5
benz(a)anthracene	56-55-3	LEPHs	N/A
benzo(a)pyrene	50-32-8	naphthalene	91-20-3
benzo(b+j)fluoranthenes	205-99-2 & 205-82-3	phenanthrene	85-01-8

To meet risk-based remediation standards:

antimony	7440-36-0	iron	7439-89-6
arsenic	7440-38-2	lead	7439-9-1
cadmium	7440-43-9	nickel	7440-02-0
chromium	7440 47 3	selenium	7782-49-2
cobalt	7440-48-4	tin	7440-31-5
copper	7440-50-8	zinc	7440-66-6
HEPHs	N/A		

Substances to be remediated in water for marine aquatic life water use:

To meet numerical remediation standards:

pyrene	129-00-0

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

Schedule D

Documents

- *Summary of Site Condition*, prepared by PGL Environmental Consultants, dated April 3, 2020;
- *Water Use Determination,* prepared by Ministry of Environment and Climate Change Strategy, dated April 3, 2020;
- *Stage2 Preliminary and Detailed Site Investigation, Screening Level Risk Assessment, and Remediation Plan,* prepared by PGL Environmental Consultants, dated February 2020;
- *Application for a Directors Water Use Determination – 1002 Station Street, and 250 and 310 Prior Street, Vancouver, BC,* prepared by PGL Environmental Consultants, dated December 5, 2019;
- *Stage 1 Preliminary Site Investigation,* prepared by PGL Environmental Consultants, dated, March 2019;
- *Results of Groundwater Monitoring at the Former Freighthouse Lands Site, Vancouver, British Columbia – 2014 Monitoring Program,* prepared by Golder Associates Ltd., dated March 6, 2015;
- *Results of Groundwater Monitoring at the Former Freighthouse Lands/Tech-Park Development Site, Vancouver, British Columbia – 2009 Monitoring Program* prepared by Golder Associates Ltd., dated October 2009;
- *Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated June 8, 2008;
- *Annual Groundwater Monitoring, Former Tech-Park Development Site, Vancouver, BC,* prepared by Golder Associates Ltd., dated August 10, 2004;
- *Annual Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated August 28, 2003;
- *Annual Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated June 13, 2002;
- *Stage 1 Preliminary Site Investigation, The H.Y Louie Site, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Detailed Environmental Site Investigation, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

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- *Stage 2 Preliminary Site Investigation, 310 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan, 310 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan Freighthouse Lands, Vancouver, B.C., Addendum No. 2,* prepared by Golder Associates Ltd., dated February 2000;
- *Approvals in Principle (1002 Station Street, 310 Prior Street, 250 Prior Street* prepared by Ministry of Environment, Lands and Parks, dated July 26, 1999, April 28, 2000 and June 12, 2000, respectively);
- *Groundwater Monitoring, Freighthouse Lands and H.Y Louie Site, Vancouver, B.C,* prepared by Golder Associates Ltd., dated January 12, 1999;
- *Meeting Agenda, Risk Assessment of Freighthouse and Sequence 1706 Lands,* prepared by Golder Associates Ltd., dated June 21, 1996;
- *Remediation Plan and Soil and Water Management Procedures for the Former BNR Station Street Site, Vancouver, B.C.,* prepared by Golder Associates Ltd., dated May 1994;
- *Summary Report: Former BNR Yard Site Assessments,* prepared by Glacier Park Company, dated March 1992;
- *Phase II Environmental Assessment, BN Railyard, Vancouver, BC,* prepared by MTR Consultant Ltd., dated April 1990;
- *Preliminary Environmental Assessment, B.N.R. Railyard, Vancouver, BC,* prepared by MTR Consultant Ltd., dated June 1989; and
- *Burlington Northern Rail, Station Street Railyard, Phase III – Environmental Assessment,* prepared by MTR Consultant Ltd., dated January 1982.

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Identification Number 22656
Version 9.0 R

8 of 8

REGISTERED MAIL AND EMAIL

Files: 26250-20/22656, 1100, 6477, 6478
Site IDs: 22656, 1100, 6477, 6478

July 20, 2020

PROVIDENCE HEALTH CARE SOCIETY
5th Floor, 1190 Hornby Street
Vancouver, BC V6Z 2KS

Attn: Clayton Wong

Dear Clayton Wong:

Re: Approval in Principle – 1002 Station Street, 250 Prior Street, and 310 Prior Street, Vancouver, British Columbia

Please find enclosed an Approval in Principle respecting the contaminated site referenced above and which supersedes those issued July 26, 1999 (1002 Station St; SITE 1100), April 28, 2000 (310 Prior St; SITE 6477) and June 12, 2000 (250 Prior St; SITE 6478).

In addition to the conditions set out in Schedule B of the enclosed Approval in Principle, please be advised of the following:

1. Information about the site will be included in the Site Registry established under the *Environmental Management Act.*

2. The provisions of this Approval in Principle are without prejudice to the right of the Director to make orders or impose requirements as the Director may deem necessary in accordance with applicable laws. Nothing in this Approval in Principle will restrict or impair the Director's powers in this regard.

3. A qualified environmental consultant must be available to identify, characterize and appropriately manage:
   (a) any environmental media that may be contaminated, or
   (b) soil which may exceed the standards triggering a Contaminated Soil Relocation Agreement set out in Part 8 of the Contaminated Sites Regulation

   and may be encountered during any future subsurface work at the site.

Ministry of Environment and Climate Change Strategy
Land Remediation Section
Environmental Emergencies and Land Remediation Branch
Environmental Protection Division
Mailing Address:
PO Box 9342 Stn Prov Govt
Victoria BC V8W 9M1
Telephone: 250 387-4441
Website: www.gov.bc.ca/env

4. This Approval in Principle does not authorize entry upon, crossing over, or use for any purpose of private or Crown lands or works, unless and except as authorized by the owner of such lands or works. The responsibility for obtaining such authority rests with the persons undertaking remediation. It is also the responsibility of those persons to ensure that all activities conducted under this Approval in Principle are carried out with due regard to the rights of third parties, and comply with other applicable legislation that may be in force.

5. Additional permits and approvals may be required before remediation begins.

6. All site materials (e.g., excavated soil, replaced soil, groundwater from dewatering, pumping, well development etc.) must be characterized and managed in accordance with applicable legislation and ministry guidance.

7. Groundwater wells that are no longer required must be properly decommissioned in accordance with the *Water Sustainability Act's* Groundwater Protection Regulation.

8. Please be advised that there are inherent health and safety risks associated with remediation activities at contaminated sites. Development of site-specific work procedures in accordance with WorkSafeBC regulations is warranted. Please direct related questions to the WorkSafeBC office at 604-276-3100 (Lower Mainland only) or 1-888-621-7233 (toll free in B.C.).

9. Any substantial modifications to the approved remediation plan, including substantial changes to the remediation schedule, conditions or circumstances described in the risk assessment upon which the remediation plan is based, or changes in land use, must be promptly identified by written submission to the Director.

10. If an application for a Certificate of Compliance is to be submitted for the site, the confirmation of remediation report accompanying the application must demonstrate compliance with the remediation standards and criteria in force at the time the application for the Certificate is made, which may differ from the remediation standards and criteria in force at the time of issuance of this Approval in Principle.

Issuance of this Approval in Principle is a decision that may be appealed under Part 8 of the *Environmental Management Act*.

If you require clarification of any aspect of this Approval in Principle, please contact csp_cio@Victoria1.gov.bc.ca .

Yours truly,

Alan W. McCammon
for Director, *Environmental Management Act*

Enclosure

cc: Christiaan Iacoe, P.Ag. City of Vancouver
453 West 12th Avenue, Vancouver, BC V5Y 1W4
Christiaan.Iacoe@vancouver.ca

Duncan Macdonald, Approved Professional, PGL Environmental Consultants
dmacdonald@pggroup.com

Client Information Officer, ENV, Victoria csp_cio@Victoria1.gov.bc.ca

CSAP Society, apopova@csapsociety.bc.ca

BRITISH COLUMBIA | Ministry of Environment and Climate Change Strategy

APPROVAL IN PRINCIPLE

(Pursuant to Section 53 of the *Environmental Management Act*)

THIS IS TO CERTIFY that the remediation plan described herein submitted by PROVIDENCE HEALTH CARE SOCIETY for the contaminated site identified in Schedule A of this document has been approved.

The remediation plan must be implemented in accordance with the requirements and conditions specified in Schedule B.

The substances for which remediation will be conducted and for which this Approval in Principle is valid are specified in Schedule C.

I have issued this Approval in Principle based on a review of the documents listed in Schedule D. I, however, make no representation or warranty as to the accuracy or completeness of that information.

A Director may rescind this Approval in Principle if conditions imposed in the Approval in Principle are not complied with or any fees payable under Part 4 of the Act or regulations are outstanding.

This Approval in Principle should not be construed as an assurance that there are no hazards present at the site.

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Schedule A

The site covered by this Approval in Principle is located at 1002 Station Street, 250 Prior Street, and 310 Prior Street, Vancouver, British Columbia which is more particularly known and described as:

LOT A DISTRICT LOTS 196 AND 2037 PLAN LMP14138
PID: 018-550-185.
1002 Station Street, Vancouver, British Columbia.

LOT C BLOCKS 15 TO 18 DISTRICT LOTS 196 AND 2037 PLAN 12884
LOT D BLOCKS 15 TO 18 DISTRICT LOTS 196 AND 2037 PLAN 12884
LOT 19 DISTRICT LOTS 181, 196 AND 2037 PLAN 6780
PID: 008-776-300, 008-776-326, and 010-813-217.
250 Prior Street, Vancouver, British Columbia.

LOT E DISTRICT LOTS 196 AND 2037 PLAN 13449
LOT F DISTRICT LOTS 196 AND 2037 PLAN 13449
PID: 008-126-780 and 008-126-798
310 Prior Street, Vancouver, British Columbia

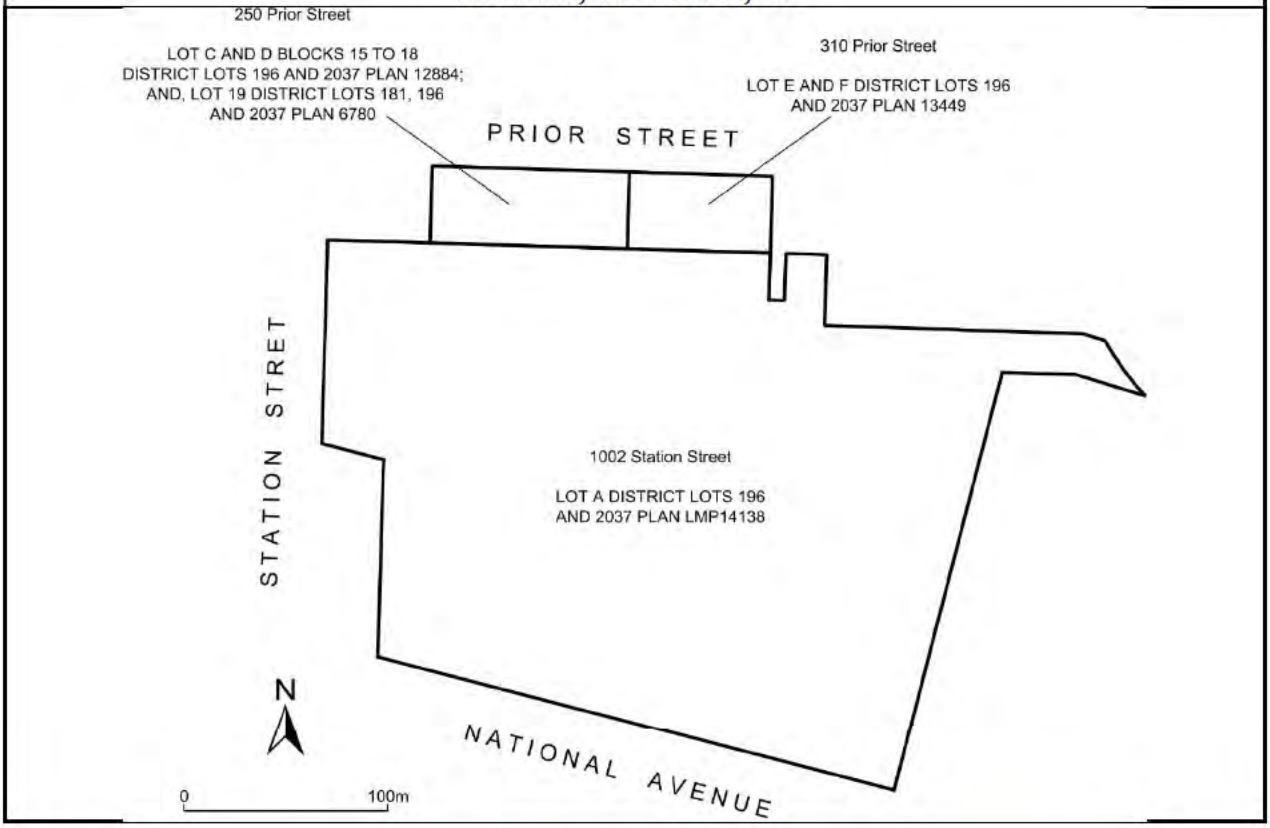
The approximate centre of the site using the NAD (North American Datum) 1983 convention is:

Latitude:	49°	16'	31.30"
Longitude:	123°	5'	47.60"

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Site Plan, Vancouver, BC



Location Map, Vancouver, BC

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Schedule B

Requirements and Conditions

1. Remediation, including monitoring, inspections and maintenance of any works, must be undertaken by the responsible persons in the manner and schedule specified in the plan listed in Schedule D or as specified in a modification of the plan approved by the Director.

2. Any substantial modifications to the approved remediation plan, including substantial changes to the remediation schedule, conditions or circumstances described in the risk assessment upon which the remediation plan is based, or changes in land, vapour, water, or sediment use, must be promptly identified in a written submission by the responsible persons to the Director. An application for an amendment or new Approval in Principle may be necessary.

3. Up-to-date records of monitoring, inspections and maintenance of any works must be maintained by the responsible persons or their agent. The records must be available for inspection by the Director.

4. Remediation must be completed within five years of the date of issuance of this Approval in Principle.

5. Remediation must be confirmed in accordance with applicable legislation and ministry guidance. Within 90 days of completing remediation, a report summarizing confirmation of remediation must be prepared in accordance with section 49 (2) of the Contaminated Sites Regulation and submitted to the Director.

6. A statement signed by an Approved Professional must be submitted to the Director annually within 90 days of the anniversary of the date of issuance of this Approval in Principle. The statement must include the following:
   (a) A summary of remedial activities undertaken during the reporting period; and
   (b) An assessment comparing remediation progress to the actions and schedule set out in the plans referenced above. Refer to Condition 2 above if remedial progress differs substantially from the schedule set out in the approved plan.

   If requested by the Director, a report signed by an Approved Professional must be submitted for review to the Director and must include the following:
   (a) A summary of remedial activities undertaken to date;

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

(b) An assessment comparing remediation progress to the actions and schedule set out in the plans referenced above. Refer to Condition 2 above if remedial progress differs substantially from the schedule set out in the approved plan; and,

(c) Supporting documentation (e.g., analytical reports, records of inspection, maintenance of treatment works, etc.).

7. The documents listed in Schedule D indicate that vapour attenuation factors were applied to meet Contaminated Sites Regulation numerical standards at and adjacent to the site. These vapour attenuation factors were selected based on assumptions about the structures, locations and depths of buildings existing or expected at and adjacent to the site. These assumptions include the following:

(a) Industrial land use standards and outdoor vapour attenuation factors apply to the site in its current configuration, except below the vacant onsite building at 310 Prior Street where sub-slab vapour attenuation factors apply. Soil vapour standards are not exceeded in the current configuration;

(b) Vapour concentrations at some areas onsite could exceed parkade standards and/or high-density residential land use standards when sub-slab vapour attenuation factors are applied. The remediation plan listed in Schedule D will be implemented before new buildings are constructed.

Any inconsistencies that arise between the structures, locations and depths of proposed or constructed buildings at or adjacent to the site and the range of structures, locations and depths of buildings assumed in the selection of vapour attenuation factors in the documents listed in Schedule D must be promptly identified by the responsible persons in a written submission to the Director. An application for an amendment or new Approval in Principle may be necessary.

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Schedule C

Substances and Uses

Substances to be remediated in soil for high density residential land soil use:

To meet numerical remediation standards:

anthracene	120-12-7	indeno(1,2,3-cd)pyrene	193-39-5
benz(a)anthracene	56-55-3	LEPHs	N/A
benzo(a)pyrene	50-32-8	naphthalene	91-20-3
benzo(b+j)fluoranthenes	205-99-2 & 205-82-3	phenanthrene	85-01-8

To meet risk-based remediation standards:

antimony	7440-36-0	iron	7439-89-6
arsenic	7440-38-2	lead	7439-9-1
cadmium	7440-43-9	nickel	7440-02-0
chromium	7440 47 3	selenium	7782-49-2
cobalt	7440-48-4	tin	7440-31-5
copper	7440-50-8	zinc	7440-66-6
HEPHs	N/A		

Substances to be remediated in water for marine aquatic life water use:

To meet numerical remediation standards:

pyrene	129-00-0

2020-07-20
Date Issued

Alan W. McCammon
For Director, *Environmental Management Act*

Schedule D

Documents

- *Summary of Site Condition*, prepared by PGL Environmental Consultants, dated April 3, 2020;
- *Water Use Determination,* prepared by Ministry of Environment and Climate Change Strategy, dated April 3, 2020;
- *Stage2 Preliminary and Detailed Site Investigation, Screening Level Risk Assessment, and Remediation Plan,* prepared by PGL Environmental Consultants, dated February 2020;
- *Application for a Directors Water Use Determination – 1002 Station Street, and 250 and 310 Prior Street, Vancouver, BC,* prepared by PGL Environmental Consultants, dated December 5, 2019;
- *Stage 1 Preliminary Site Investigation,* prepared by PGL Environmental Consultants, dated, March 2019;
- *Results of Groundwater Monitoring at the Former Freighthouse Lands Site, Vancouver, British Columbia – 2014 Monitoring Program,* prepared by Golder Associates Ltd., dated March 6, 2015;
- *Results of Groundwater Monitoring at the Former Freighthouse Lands/Tech-Park Development Site, Vancouver, British Columbia – 2009 Monitoring Program* prepared by Golder Associates Ltd., dated October 2009;
- *Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated June 8, 2008;
- *Annual Groundwater Monitoring, Former Tech-Park Development Site, Vancouver, BC,* prepared by Golder Associates Ltd., dated August 10, 2004;
- *Annual Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated August 28, 2003;
- *Annual Groundwater Monitoring, Tech-Park Development, Vancouver, BC,* prepared by Golder Associates Ltd., dated June 13, 2002;
- *Stage 1 Preliminary Site Investigation, The H.Y Louie Site, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Detailed Environmental Site Investigation, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan, 250 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;

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- *Stage 2 Preliminary Site Investigation, 310 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan, 310 Prior Street, Vancouver, BC,* prepared by Golder Associates Ltd., dated February 2000;
- *Remediation Plan Freighthouse Lands, Vancouver, B.C., Addendum No. 2,* prepared by Golder Associates Ltd., dated February 2000;
- *Approvals in Principle (1002 Station Street, 310 Prior Street, 250 Prior Street* prepared by Ministry of Environment, Lands and Parks, dated July 26, 1999, April 28, 2000 and June 12, 2000, respectively);
- *Groundwater Monitoring, Freighthouse Lands and H.Y Louie Site, Vancouver, B.C,* prepared by Golder Associates Ltd., dated January 12, 1999;
- *Meeting Agenda, Risk Assessment of Freighthouse and Sequence 1706 Lands,* prepared by Golder Associates Ltd., dated June 21, 1996;
- *Remediation Plan and Soil and Water Management Procedures for the Former BNR Station Street Site, Vancouver, B.C.,* prepared by Golder Associates Ltd., dated May 1994;
- *Summary Report: Former BNR Yard Site Assessments,* prepared by Glacier Park Company, dated March 1992;
- *Phase II Environmental Assessment, BN Railyard, Vancouver, BC,* prepared by MTR Consultant Ltd., dated April 1990;
- *Preliminary Environmental Assessment, B.N.R. Railyard, Vancouver, BC,* prepared by MTR Consultant Ltd., dated June 1989; and
- *Burlington Northern Rail, Station Street Railyard, Phase III – Environmental Assessment,* prepared by MTR Consultant Ltd., dated January 1982.

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