

APPENDIX 'C'

ALS ENVIRONMENTAL ANALYTICAL REPORT



Dillon Consulting Engineers
ATTN: HEATHER FISHER
1558 Willson Place
Winnipeg MB R3T 0Y4

Date Received: 02-AUG-13
Report Date: 14-AUG-13 15:19 (MT)
Version: FINAL

Client Phone: 204-453-2301

Certificate of Analysis

Lab Work Order #: L1342263
Project P.O. #: NOT SUBMITTED
Job Reference: 12-6576
C of C Numbers:
Legal Site Desc:

Paul Nicolas

Paul Nicolas
Account Manager

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ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1342263-1 TH13-B02 @ 11'							
Sampled By: STC on 02-AUG-13 @ 11:30							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Toluene	<0.050		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Ethyl benzene	<0.015		0.015	mg/kg	03-AUG-13	13-AUG-13	R2671229
o-Xylene	<0.050		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
m+p-Xylenes	<0.050		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Xylenes	<0.10		0.10	mg/kg	03-AUG-13	13-AUG-13	R2671229
F1 (C6-C10)	<10		10	mg/kg	03-AUG-13	13-AUG-13	R2671229
Surrogate: 4-Bromofluorobenzene (SS)	87.6		70-130	%	03-AUG-13	13-AUG-13	R2671229
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	08-AUG-13	08-AUG-13	R2668700
F3 (C16-C34)	<50		50	mg/kg	08-AUG-13	08-AUG-13	R2668700
F4 (C34-C50)	<50		50	mg/kg	08-AUG-13	08-AUG-13	R2668700
Chrom. to baseline at nC50	YES				08-AUG-13	08-AUG-13	R2668700
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		14-AUG-13	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		14-AUG-13	
Miscellaneous Parameters							
% Moisture	32		0.10	%	03-AUG-13	06-AUG-13	R2665648
Metals							
Aluminum (Al)	21600	DLA	50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Antimony (Sb)	0.76		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Arsenic (As)	8.45		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Barium (Ba)	236		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Beryllium (Be)	0.96		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Bismuth (Bi)	0.307		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Boron (B)	16		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Cadmium (Cd)	0.386		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Calcium (Ca)	27300		100	mg/kg	07-AUG-13	07-AUG-13	R2667800
Chromium (Cr)	45.5		1.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Cobalt (Co)	15.7		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Copper (Cu)	40.3		1.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Iron (Fe)	31700		25	mg/kg	07-AUG-13	07-AUG-13	R2667800
Lead (Pb)	22.8		0.20	mg/kg	07-AUG-13	07-AUG-13	R2667800
Magnesium (Mg)	17600		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Manganese (Mn)	674	DLA	5.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Molybdenum (Mo)	1.66		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Nickel (Ni)	41.4		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Phosphorus (P)	560		100	mg/kg	07-AUG-13	07-AUG-13	R2667800
Potassium (K)	4380		25	mg/kg	07-AUG-13	07-AUG-13	R2667800
Selenium (Se)	0.96		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Silver (Ag)	0.24		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Sodium (Na)	1100		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Strontium (Sr)	75.1		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Thallium (Tl)	0.32		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Tin (Sn)	<5.0		5.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Titanium (Ti)	185		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Uranium (U)	1.85		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Vanadium (V)	70.1		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Zinc (Zn)	88		10	mg/kg	07-AUG-13	07-AUG-13	R2667800

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1342263-2 TH13-B02 @ 15'							
Sampled By: STC on 02-AUG-13 @ 11:30							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Toluene	<0.050		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Ethyl benzene	<0.015		0.015	mg/kg	03-AUG-13	13-AUG-13	R2671229
o-Xylene	<0.050		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
m+p-Xylenes	<0.050		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Xylenes	<0.10		0.10	mg/kg	03-AUG-13	13-AUG-13	R2671229
F1 (C6-C10)	<10		10	mg/kg	03-AUG-13	13-AUG-13	R2671229
Surrogate: 4-Bromofluorobenzene (SS)	114.9		70-130	%	03-AUG-13	13-AUG-13	R2671229
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	471		25	mg/kg	08-AUG-13	08-AUG-13	R2668700
F3 (C16-C34)	827		50	mg/kg	08-AUG-13	08-AUG-13	R2668700
F4 (C34-C50)	387		50	mg/kg	08-AUG-13	08-AUG-13	R2668700
Chrom. to baseline at nC50	YES				08-AUG-13	08-AUG-13	R2668700
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		14-AUG-13	
Total Hydrocarbons (C6-C50)	1690		76	mg/kg		14-AUG-13	
Miscellaneous Parameters							
% Moisture	39		0.10	%	03-AUG-13	06-AUG-13	R2665648
Metals							
Aluminum (Al)	12800	DLA	50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Antimony (Sb)	5.29		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Arsenic (As)	7.02		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Barium (Ba)	159		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Beryllium (Be)	0.69		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Bismuth (Bi)	1.10		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Boron (B)	15		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Cadmium (Cd)	0.541		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Calcium (Ca)	79800	DLA	1000	mg/kg	07-AUG-13	07-AUG-13	R2667800
Chromium (Cr)	32.0		1.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Cobalt (Co)	7.83		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Copper (Cu)	197		1.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Iron (Fe)	21000		25	mg/kg	07-AUG-13	07-AUG-13	R2667800
Lead (Pb)	323		0.20	mg/kg	07-AUG-13	07-AUG-13	R2667800
Magnesium (Mg)	24400		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Manganese (Mn)	355		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Molybdenum (Mo)	1.97		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Nickel (Ni)	24.4		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Phosphorus (P)	600		100	mg/kg	07-AUG-13	07-AUG-13	R2667800
Potassium (K)	2310		25	mg/kg	07-AUG-13	07-AUG-13	R2667800
Selenium (Se)	1.50		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Silver (Ag)	0.64		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Sodium (Na)	1430		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Strontium (Sr)	107		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Thallium (Tl)	0.26		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Tin (Sn)	33.5		5.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Titanium (Ti)	165		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Uranium (U)	5.63		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Vanadium (V)	39.0		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Zinc (Zn)	187		10	mg/kg	07-AUG-13	07-AUG-13	R2667800

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1342263-3 TH13-B02 @ 17'							
Sampled By: STC on 02-AUG-13 @ 11:30							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	0.0077		0.0050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Toluene	0.060		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Ethyl benzene	<0.015		0.015	mg/kg	03-AUG-13	13-AUG-13	R2671229
o-Xylene	<0.050		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
m+p-Xylenes	<0.050		0.050	mg/kg	03-AUG-13	13-AUG-13	R2671229
Xylenes	<0.10		0.10	mg/kg	03-AUG-13	13-AUG-13	R2671229
F1 (C6-C10)	<10		10	mg/kg	03-AUG-13	13-AUG-13	R2671229
Surrogate: 4-Bromofluorobenzene (SS)	112.4		70-130	%	03-AUG-13	13-AUG-13	R2671229
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	08-AUG-13	08-AUG-13	R2668700
F3 (C16-C34)	<50		50	mg/kg	08-AUG-13	08-AUG-13	R2668700
F4 (C34-C50)	<50		50	mg/kg	08-AUG-13	08-AUG-13	R2668700
Chrom. to baseline at nC50	YES				08-AUG-13	08-AUG-13	R2668700
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		14-AUG-13	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		14-AUG-13	
Miscellaneous Parameters							
% Moisture	33		0.10	%	03-AUG-13	06-AUG-13	R2665648
Metals							
Aluminum (Al)	22100	DLA	50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Antimony (Sb)	0.50		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Arsenic (As)	8.68		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Barium (Ba)	111		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Beryllium (Be)	1.16		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Bismuth (Bi)	0.326		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Boron (B)	14		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Cadmium (Cd)	0.229		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Calcium (Ca)	24300		100	mg/kg	07-AUG-13	07-AUG-13	R2667800
Chromium (Cr)	44.7		1.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Cobalt (Co)	14.8		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Copper (Cu)	33.9		1.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Iron (Fe)	33300		25	mg/kg	07-AUG-13	07-AUG-13	R2667800
Lead (Pb)	15.8		0.20	mg/kg	07-AUG-13	07-AUG-13	R2667800
Magnesium (Mg)	14400		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Manganese (Mn)	443		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Molybdenum (Mo)	1.35		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Nickel (Ni)	41.2		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Phosphorus (P)	540		100	mg/kg	07-AUG-13	07-AUG-13	R2667800
Potassium (K)	4490		25	mg/kg	07-AUG-13	07-AUG-13	R2667800
Selenium (Se)	0.61		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Silver (Ag)	0.20		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Sodium (Na)	493		10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Strontium (Sr)	79.3		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Thallium (Tl)	0.33		0.10	mg/kg	07-AUG-13	07-AUG-13	R2667800
Tin (Sn)	<5.0		5.0	mg/kg	07-AUG-13	07-AUG-13	R2667800
Titanium (Ti)	141		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Uranium (U)	2.19		0.020	mg/kg	07-AUG-13	07-AUG-13	R2667800
Vanadium (V)	71.3		0.50	mg/kg	07-AUG-13	07-AUG-13	R2667800
Zinc (Zn)	87		10	mg/kg	07-AUG-13	07-AUG-13	R2667800

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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BTEXS+F1-HSMS-WP	Soil	BTX plus F1 by GCMS	EPA SW846 8260B REV 2
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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.

F1-F4-CALC-WP	Soil	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB# 1310-L
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Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

In samples where BTEX and F1 were analyzed, F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:

1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:

1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-TMB-FID-WP	Soil	CCME Total Extractable Hydrocarbons	CCME CWS-PHC Dec-2000 - Pub# 1310
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A soil or sediment sample is extracted with 1:1 hexane/acetone in a tumbler, followed by a silica gel clean up to facilitate separation of the hydrocarbons from other polar extractions. An aliquot of the solvent is analyzed using a gas chromatograph equipped with a flame-ionization detector.

MET-200.2-MS-WP	Soil	Metals	EPA 200.8/200.2 /BCMOE-S
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This analysis is carried out using procedures adapted from US EPA method 200.2. Sample preparation procedure for spectrochemical determination of total recoverable elements. Soil samples are dried (<60 C) and homogenized and a representative subsample of the dry material is digested. The digested samples are analyzed by ICPMS.

The results are reported as mg/Kg dry weight or mg/Kg wet weight this is equivalent to ug/g dry weight or ug/g wet weight.

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that maybe environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not mobile in the environment. This method has known stability issues for determining Silicon.

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

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

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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.



Quality Control Report

Workorder: L1342263

Report Date: 14-AUG-13

Page 1 of 7

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4

Contact: HEATHER FISHER

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP								
	Soil							
Batch	R2671229							
WG1720249-8	DUP	L1342263-3						
Benzene		0.0077	<0.0050	RPD-NA	mg/kg	N/A	50	13-AUG-13
Toluene		0.060	<0.050	RPD-NA	mg/kg	N/A	50	13-AUG-13
Ethyl benzene		<0.015	<0.015	RPD-NA	mg/kg	N/A	50	13-AUG-13
o-Xylene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	13-AUG-13
m+p-Xylenes		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	13-AUG-13
F1 (C6-C10)		<10	<10	RPD-NA	mg/kg	N/A	50	13-AUG-13
WG1720249-6	LCS							
Benzene			105.8		%		70-130	13-AUG-13
Toluene			91.8		%		70-130	13-AUG-13
Ethyl benzene			95.7		%		70-130	13-AUG-13
o-Xylene			103.8		%		70-130	13-AUG-13
m+p-Xylenes			85.6		%		70-130	13-AUG-13
WG1720249-7	LCS							
F1 (C6-C10)			82.1		%		80-120	13-AUG-13
WG1720249-5	MB							
Benzene			<0.0050		mg/kg		0.005	13-AUG-13
Toluene			<0.050		mg/kg		0.05	13-AUG-13
Ethyl benzene			<0.015		mg/kg		0.015	13-AUG-13
o-Xylene			<0.050		mg/kg		0.05	13-AUG-13
m+p-Xylenes			<0.050		mg/kg		0.05	13-AUG-13
F1 (C6-C10)			<10		mg/kg		10	13-AUG-13
Surrogate: 4-Bromofluorobenzene (SS)			95.6		%		70-130	13-AUG-13
F2-F4-TMB-FID-WP								
	Soil							
Batch	R2668700							
WG1722790-3	DUP	L1344471-7						
F2 (C10-C16)		<25	<25	RPD-NA	mg/kg	N/A	40	08-AUG-13
F3 (C16-C34)		<50	<50	RPD-NA	mg/kg	N/A	40	08-AUG-13
F4 (C34-C50)		<50	<50	RPD-NA	mg/kg	N/A	40	08-AUG-13
WG1722790-4	IRM	ALS PHC2 IRM						
F2 (C10-C16)			85.6		%		70-130	08-AUG-13
F3 (C16-C34)			88.5		%		70-130	08-AUG-13
F4 (C34-C50)			85.1		%		70-130	08-AUG-13
WG1722790-2	LCS							
F2 (C10-C16)			112.5		%		80-120	08-AUG-13



Quality Control Report

Workorder: L1342263

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Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4

Contact: HEATHER FISHER

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-TMB-FID-WP		Soil						
Batch	R2668700							
WG1722790-2	LCS							
F3 (C16-C34)			114.7		%		80-120	08-AUG-13
F4 (C34-C50)			109.4		%		80-120	08-AUG-13
WG1722790-1	MB							
F2 (C10-C16)			<25		mg/kg		25	08-AUG-13
F3 (C16-C34)			<50		mg/kg		50	08-AUG-13
F4 (C34-C50)			<50		mg/kg		50	08-AUG-13
MET-200.2-MS-WP		Soil						
Batch	R2667800							
WG1722295-2	CRM	NRC PACS-2						
Aluminum (Al)			98.1		%		70-130	07-AUG-13
Arsenic (As)			99.0		%		70-130	07-AUG-13
Beryllium (Be)			89.1		%		70-130	07-AUG-13
Boron (B)			104.3		%		70-130	07-AUG-13
Cadmium (Cd)			113.6		%		70-130	07-AUG-13
Calcium (Ca)			99.5		%		70-130	07-AUG-13
Chromium (Cr)			101.4		%		70-130	07-AUG-13
Cobalt (Co)			95.9		%		70-130	07-AUG-13
Copper (Cu)			104.0		%		70-130	07-AUG-13
Iron (Fe)			103.4		%		70-130	07-AUG-13
Lead (Pb)			106.0		%		70-130	07-AUG-13
Magnesium (Mg)			99.0		%		70-130	07-AUG-13
Manganese (Mn)			97.5		%		70-130	07-AUG-13
Molybdenum (Mo)			104.0		%		70-130	07-AUG-13
Nickel (Ni)			97.9		%		70-130	07-AUG-13
Phosphorus (P)			105.7		%		70-130	07-AUG-13
Potassium (K)			92.7		%		70-130	07-AUG-13
Silver (Ag)			109.1		%		70-130	07-AUG-13
Sodium (Na)			99.6		%		70-130	07-AUG-13
Strontium (Sr)			99.2		%		70-130	07-AUG-13
Thallium (Tl)			101.7		%		70-130	07-AUG-13
Tin (Sn)			110.2		%		70-130	07-AUG-13
Titanium (Ti)			97.4		%		70-130	07-AUG-13
Uranium (U)			93.9		%		70-130	07-AUG-13
Vanadium (V)			103.6		%		70-130	07-AUG-13



Quality Control Report

Workorder: L1342263

Report Date: 14-AUG-13

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Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4

Contact: HEATHER FISHER

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP								
	Soil							
Batch	R2667800							
WG1722295-2	CRM	NRC PACS-2						
Zinc (Zn)			96.1		%		70-130	07-AUG-13
WG1722295-3	CRM	NRC MESS-3						
Aluminum (Al)			76.4		%		70-130	07-AUG-13
Antimony (Sb)			119.7		%		70-130	07-AUG-13
Arsenic (As)			92.7		%		70-130	07-AUG-13
Barium (Ba)			113.1		%		70-130	07-AUG-13
Beryllium (Be)			71.3		%		70-130	07-AUG-13
Cadmium (Cd)			98.2		%		70-130	07-AUG-13
Calcium (Ca)			108.5		%		70-130	07-AUG-13
Chromium (Cr)			85.9		%		70-130	07-AUG-13
Cobalt (Co)			105.5		%		70-130	07-AUG-13
Copper (Cu)			106.2		%		70-130	07-AUG-13
Iron (Fe)			113.0		%		70-130	07-AUG-13
Lead (Pb)			100.1		%		70-130	07-AUG-13
Magnesium (Mg)			103.9		%		70-130	07-AUG-13
Manganese (Mn)			117.7		%		70-130	07-AUG-13
Molybdenum (Mo)			96.8		%		70-130	07-AUG-13
Nickel (Ni)			100.3		%		70-130	07-AUG-13
Phosphorus (P)			100.1		%		70-130	07-AUG-13
Potassium (K)			74.1		%		70-130	07-AUG-13
Selenium (Se)			123.2		%		70-130	07-AUG-13
Silver (Ag)			114.8		%		70-130	07-AUG-13
Sodium (Na)			116.4		%		70-130	07-AUG-13
Strontium (Sr)			96.6		%		70-130	07-AUG-13
Tin (Sn)			83.1		%		70-130	07-AUG-13
Uranium (U)			94.2		%		70-130	07-AUG-13
Vanadium (V)			78.9		%		70-130	07-AUG-13
Zinc (Zn)			101.3		%		70-130	07-AUG-13
WG1722295-4	CRM	OGGEO08						
Aluminum (Al)			101.8		%		70-130	07-AUG-13
Antimony (Sb)			103.7		%		70-130	07-AUG-13
Arsenic (As)			98.7		%		70-130	07-AUG-13
Barium (Ba)			125.6		%		70-130	07-AUG-13
Beryllium (Be)			103.9		%		70-130	07-AUG-13



Quality Control Report

Workorder: L1342263

Report Date: 14-AUG-13

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Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4

Contact: HEATHER FISHER

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP								
	Soil							
Batch	R2667800							
WG1722295-4	CRM	OGGEO08						
Bismuth (Bi)			101.5		%		70-130	07-AUG-13
Boron (B)			127.3		%		50-150	07-AUG-13
Cadmium (Cd)			92.1		%		70-130	07-AUG-13
Calcium (Ca)			96.6		%		70-130	07-AUG-13
Chromium (Cr)			98.7		%		70-130	07-AUG-13
Cobalt (Co)			95.6		%		70-130	07-AUG-13
Copper (Cu)			106.0		%		70-130	07-AUG-13
Iron (Fe)			105.6		%		70-130	07-AUG-13
Lead (Pb)			96.4		%		70-130	07-AUG-13
Magnesium (Mg)			100.8		%		70-130	07-AUG-13
Manganese (Mn)			99.1		%		70-130	07-AUG-13
Molybdenum (Mo)			104.6		%		70-130	07-AUG-13
Nickel (Ni)			100.1		%		70-130	07-AUG-13
Phosphorus (P)			102.0		%		70-130	07-AUG-13
Potassium (K)			104.1		%		70-130	07-AUG-13
Selenium (Se)			89.3		%		70-130	07-AUG-13
Silver (Ag)			101.6		%		70-130	07-AUG-13
Sodium (Na)			113.4		%		70-130	07-AUG-13
Strontium (Sr)			99.8		%		70-130	07-AUG-13
Thallium (Tl)			103.0		%		70-130	07-AUG-13
Tin (Sn)			100.9		%		70-130	07-AUG-13
Titanium (Ti)			103.7		%		70-130	07-AUG-13
Uranium (U)			97.7		%		70-130	07-AUG-13
Vanadium (V)			100.9		%		70-130	07-AUG-13
Zinc (Zn)			102.1		%		70-130	07-AUG-13
WG1722295-6	DUP	WG1722295-5						
Aluminum (Al)		28900	27100		mg/kg	6.6	40	07-AUG-13
Antimony (Sb)		0.33	0.31		mg/kg	6.8	30	07-AUG-13
Arsenic (As)		7.53	7.34		mg/kg	2.5	30	07-AUG-13
Barium (Ba)		239	232		mg/kg	2.9	40	07-AUG-13
Beryllium (Be)		0.93	0.83		mg/kg	11	30	07-AUG-13
Bismuth (Bi)		0.298	0.306		mg/kg	2.3	30	07-AUG-13
Boron (B)		15	15		mg/kg	3.5	30	07-AUG-13



Quality Control Report

Workorder: L1342263

Report Date: 14-AUG-13

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Client: Dillon Consulting Engineers
 1558 Willson Place
 Winnipeg MB R3T 0Y4

Contact: HEATHER FISHER

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP								
	Soil							
Batch	R2667800							
WG1722295-6	DUP	WG1722295-5						
Cadmium (Cd)		0.302	0.293		mg/kg	3.3	30	07-AUG-13
Calcium (Ca)		8230	7810		mg/kg	5.3	30	07-AUG-13
Chromium (Cr)		63.8	61.7		mg/kg	3.3	30	07-AUG-13
Cobalt (Co)		17.5	16.8		mg/kg	4.1	30	07-AUG-13
Copper (Cu)		34.4	33.0		mg/kg	4.0	30	07-AUG-13
Iron (Fe)		39100	38300		mg/kg	2.1	30	07-AUG-13
Lead (Pb)		15.7	15.1		mg/kg	4.3	40	07-AUG-13
Magnesium (Mg)		13500	12700		mg/kg	6.5	30	07-AUG-13
Manganese (Mn)		969	924		mg/kg	4.8	30	07-AUG-13
Molybdenum (Mo)		0.931	0.934		mg/kg	0.3	40	07-AUG-13
Nickel (Ni)		51.9	48.9		mg/kg	6.0	30	07-AUG-13
Phosphorus (P)		850	800		mg/kg	5.9	30	07-AUG-13
Potassium (K)		6260	5790		mg/kg	7.8	40	07-AUG-13
Selenium (Se)		0.71	0.59		mg/kg	19	30	07-AUG-13
Silver (Ag)		0.19	0.19		mg/kg	1.2	40	07-AUG-13
Sodium (Na)		574	526		mg/kg	8.7	40	07-AUG-13
Strontium (Sr)		45.4	42.7		mg/kg	6.2	40	07-AUG-13
Thallium (Tl)		0.45	0.43		mg/kg	5.7	30	07-AUG-13
Tin (Sn)		<5.0	<5.0	RPD-NA	mg/kg	N/A	40	07-AUG-13
Titanium (Ti)		938	881		mg/kg	6.3	40	07-AUG-13
Uranium (U)		2.18	2.13		mg/kg	2.5	30	07-AUG-13
Vanadium (V)		79.2	74.9		mg/kg	5.7	30	07-AUG-13
Zinc (Zn)		102	100		mg/kg	2.8	30	07-AUG-13
WG1722295-1	MB							
Aluminum (Al)			<5.0		mg/kg		5	07-AUG-13
Antimony (Sb)			<0.10		mg/kg		0.1	07-AUG-13
Arsenic (As)			<0.10		mg/kg		0.1	07-AUG-13
Barium (Ba)			<0.50		mg/kg		0.5	07-AUG-13
Beryllium (Be)			<0.10		mg/kg		0.1	07-AUG-13
Bismuth (Bi)			<0.020		mg/kg		0.02	07-AUG-13
Boron (B)			<10		mg/kg		10	07-AUG-13
Cadmium (Cd)			<0.020		mg/kg		0.02	07-AUG-13
Calcium (Ca)			<100		mg/kg		100	07-AUG-13



Quality Control Report

Workorder: L1342263

Report Date: 14-AUG-13

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Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4

Contact: HEATHER FISHER

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	Soil							
Batch	R2667800							
WG1722295-1	MB							
Chromium (Cr)			<1.0		mg/kg		1	07-AUG-13
Cobalt (Co)			<0.020		mg/kg		0.02	07-AUG-13
Copper (Cu)			<1.0		mg/kg		1	07-AUG-13
Iron (Fe)			<25		mg/kg		25	07-AUG-13
Lead (Pb)			<0.20		mg/kg		0.2	07-AUG-13
Magnesium (Mg)			<10		mg/kg		10	07-AUG-13
Manganese (Mn)			<0.50		mg/kg		0.5	07-AUG-13
Molybdenum (Mo)			<0.020		mg/kg		0.02	07-AUG-13
Nickel (Ni)			<0.50		mg/kg		0.5	07-AUG-13
Phosphorus (P)			<100		mg/kg		100	07-AUG-13
Potassium (K)			<25		mg/kg		25	07-AUG-13
Selenium (Se)			<0.50		mg/kg		0.5	07-AUG-13
Silver (Ag)			<0.10		mg/kg		0.1	07-AUG-13
Sodium (Na)			<10		mg/kg		10	07-AUG-13
Strontium (Sr)			<0.10		mg/kg		0.1	07-AUG-13
Thallium (Tl)			<0.10		mg/kg		0.1	07-AUG-13
Tin (Sn)			<5.0		mg/kg		5	07-AUG-13
Titanium (Ti)			<0.50		mg/kg		0.5	07-AUG-13
Uranium (U)			<0.020		mg/kg		0.02	07-AUG-13
Vanadium (V)			<0.50		mg/kg		0.5	07-AUG-13
Zinc (Zn)			<10		mg/kg		10	07-AUG-13

Quality Control Report

Workorder: L1342263

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Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4

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Contact: HEATHER FISHER

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

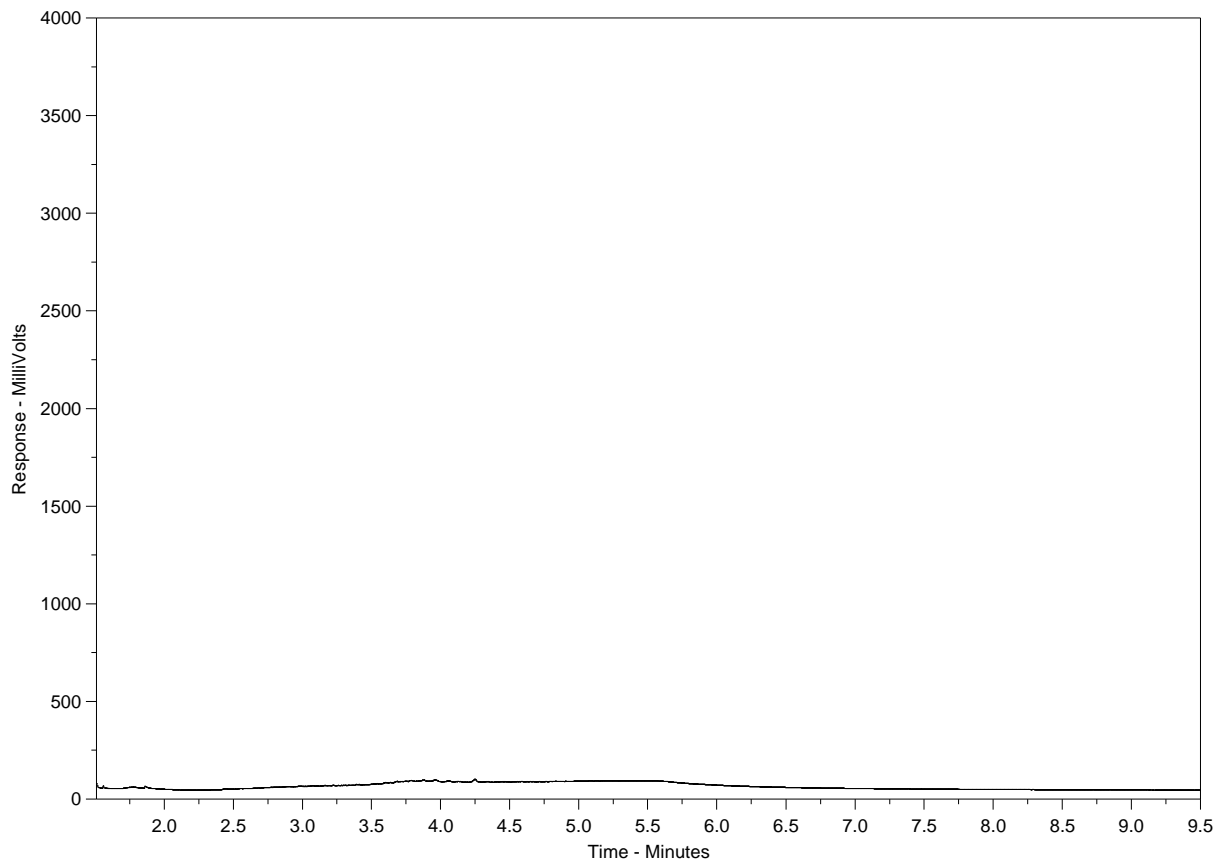
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1342263-1
 Client Sample ID: TH13-B02 @ 11'



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
← Gasoline →			← Motor Oils / Lube Oils / Grease →		
← Diesel / Jet Fuels →					

The CCME F2-F4 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 four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

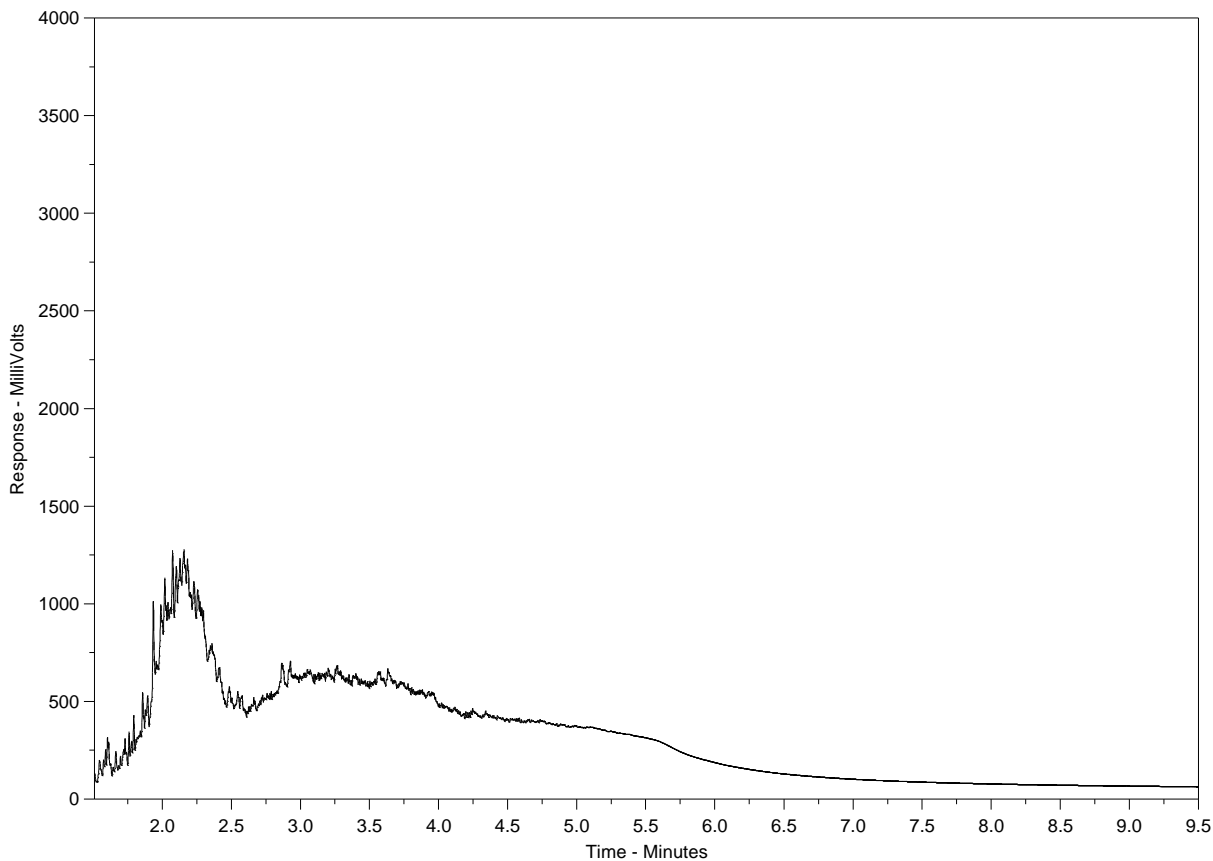
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1342263-2
 Client Sample ID: TH13-B02 @ 15'



← F2 →		← F3 →		← F4 →	
nC10	nC16		nC34		nC50
174°C	287°C		481°C		575°C
346°F	549°F		898°F		1067°F
← Gasoline →		← Motor Oils / Lube Oils / Grease →			
← Diesel / Jet Fuels →					

The CCME F2-F4 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 four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

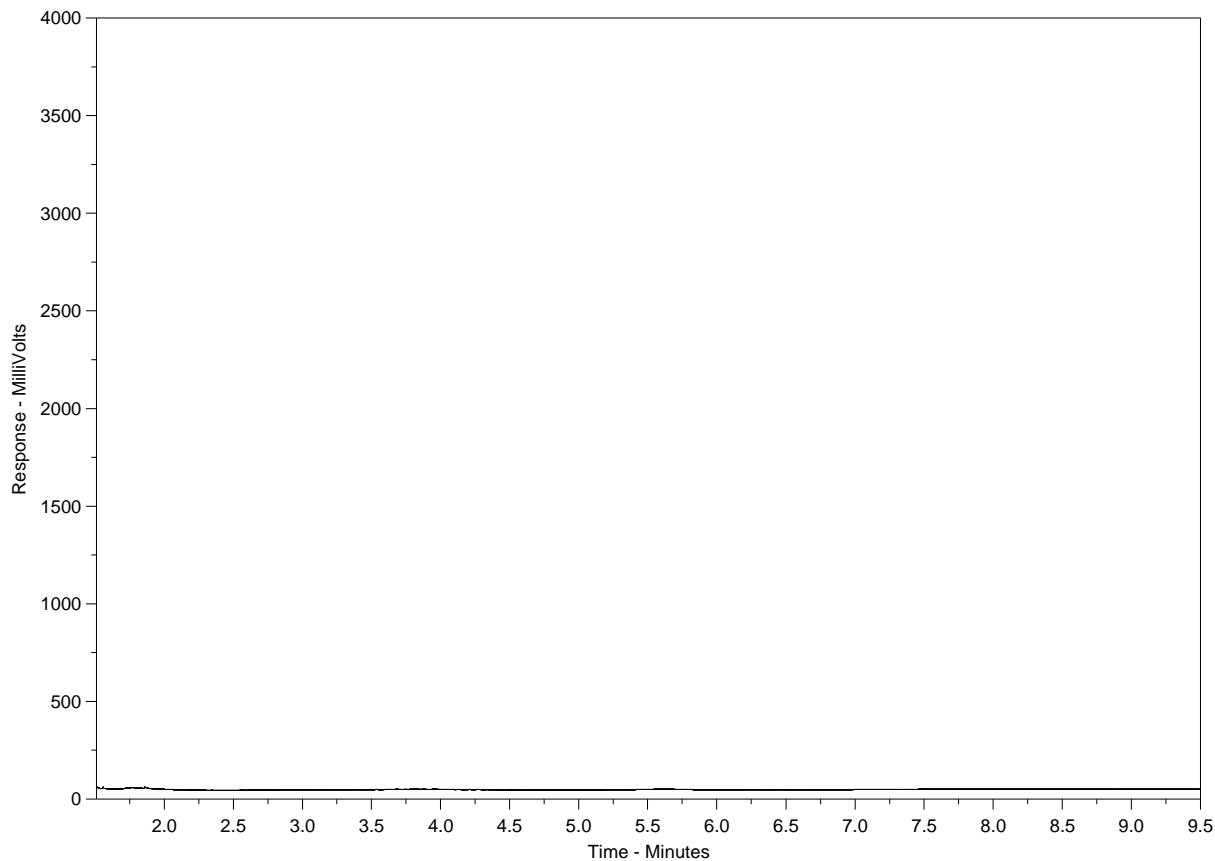
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1342263-3
 Client Sample ID: TH13-B02 @ 17'



← F2 →		← F3 →		← F4 →	
nC10	nC16	nC34	nC50		
174°C	287°C	481°C	575°C		
346°F	549°F	898°F	1067°F		
← Gasoline →		← Motor Oils / Lube Oils / Grease →			
← Diesel / Jet Fuels →					

The CCME F2-F4 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 four 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.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 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 / Analytical Request Form
 Canada Toll Free: 1 800 668 9878
 www.alsglobal.com

L1342263

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: <u>DILLON CONSULTING</u>	Standard: <input checked="" type="checkbox"/> Other (specify):	<input checked="" type="checkbox"/> Regular (Standard Turnaround Times - Business Days)
Contact: <u>HEATHER FISHER</u>	Select: PDF <input checked="" type="checkbox"/> Excel <input checked="" type="checkbox"/> Digital Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: <u>1558 WILSON PL, WPS, MS</u>	Email 1: <u>HFISHER@DILLON.CA</u>	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: <u>204-453-2301</u> Fax: <u>204-452-4412</u>	Email 2:	Same Day or Weekend Emergency - Contact ALS to confirm TAT

Invoice To Same as Report? (circle <input checked="" type="checkbox"/> Yes or No (if No, provide details)	Client / Project Information	Analysis Request (Indicate Filtered or Preserved, F/P)																		
Copy of Invoice with Report? (circle <input checked="" type="checkbox"/> Yes or No	Job #: <u>12-6576</u>																			
Company:	PO / AFE:																			
Contact:	LSD:																			
Address:	Quote #:																			
Phone: Fax:	ALS Contact: <u>JUDY</u>	Sampler: <u>STC</u>																		

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	BTEX	FI-FU	MEALS													
	<u>TH 13 - B02 @ 11'</u>	<u>2-AUG-13</u>	<u>11:30</u>	<u>SOIL</u>	<u>X</u>	<u>X</u>	<u>X</u>													<u>3</u>
	<u>TH 13 - B02 @ 15'</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>X</u>	<u>X</u>	<u>X</u>													<u>4</u>
	<u>TH 13 - B02 @ 17'</u>				<u>X</u>	<u>X</u>	<u>X</u>													<u>5</u>



Special Instructions / Regulation with water or land use (CCME- Freshwater Aquatic Life/BC CSR-Commercial/AB Tier 1-Natural/ETC) / Hazardous Details

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.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)			SHIPMENT VERIFICATION (lab use only)				
Released by: <u>[Signature]</u>	Date: <u>2-AUG-13</u>	Time: <u>12:30</u>	Received by: <u>TT</u>	Date: <u>02/08/2013</u>	Time: <u>12:25pm</u>	Temperature: <u>22 °C</u>	Verified by:	Date:	Time:	Observations: Yes / No? If Yes add SIF