2019

SOURIS, MANITOBA

Licence # 3181

SW 35-8-21W Landfill

ANNUAL REPORT

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2019 @ a Glance

✓ Accepted 25,822.01 tonnes of waste generated by an outside source, up from 2018 at 23,065.97 tonnes.

- Residential Trash consisted of 4,627.00 tonnes
- ICI consisted of 12,281.42 tonnes
- Construction and Demolition Waste consisted of 166.53 tonnes
- Recycled Scrap Steel consisted of 147.96 tonnes
- SRM (Specified Risk Material) consisted of 125.10 tonnes
- Dead Stock consisted of 366.40 tonnes
- Asbestos consisted of 2.37 tonnes
- Hydrovac Slurry mixed off to pass a slump test and approved for disposal in our landfill cell consisted of 2,018.95 tonnes
- Non-Impacted Earth Material approved for disposal in our landfill cell or stockpile consisted of 4,331.10 tonnes
- Impacted Earth Material approved for disposal on our treatment pad consisted of 1,412.99 tonnes

✓ Commenced construction of new concrete pad for future fueling station. Project will be completed in early spring 2020

✓ We are in the planning stages for development of a new cell for future use

✓ Groundwater monitoring Well Purging September 25/19, results are attached with previous year trends

✓ Contaminated Soil sampling done October 30-31/19, results are attached

✓ Groundwater Sampling November 21-22-27/19, results are attached with previous year trends

1.0 Introduction

Our current License #3181 for Municipal Waste Management Ltd requires an annual report be submitted on or before April 15th, 2020. Under the terms and conditions set out in our license, the following information must be included in the report:

- a summary of all construction activities that occurred at the Development;
- the mass of each type of waste received (solid waste to tipping face, special waste, etc.);
- the mass of each type of material that was removed from the Development (recyclables, treated soils, etc.);
- a summary of the monitoring report results from air, and groundwater as per Claus 72 and 80 respectively;
- the volume of leachate which was removed from the facility operations in accordance with Claus 75 of our license;
- summary report of noise or odor complaints received; and
- a summary report of any fires within the development requiring notification as per Claus 10.

This report has been generated using January 1st to December 31st, 2019 as a reporting timeline.

This report has been written and prepared by the Operations Manager of the facility, Brandi Bertholet.

2.0 Construction Activities

Trench was dug from machine shop to new fuel pad area to supply power to plug ins and new fuel pad. Roadway from equipment shed to new fuel pad was rebuilt with geo textile and covered with 12 in gravel.

3.0 Total Tonnage Accepted

The total tonnage of waste that was received at our landfill between January 1st, 2019 to December 31st, 2019 was 25,822.01

I.	MSW (Municipal Solid Waste)	4,627.00
II.	ICI (Industrial, Commercial, and Institutional)	12,623.04
III.	C&D (Construction and Demolition Waste)	166.53
IV.	SRM (Specified Risk Material)	147.96
V.	Dead Stock	366.40
VI.	Waste Oil	0
VII.	Asbestos	2.37
VIII.	Hydrovac Slurry	2,018.95
IX.	Impacted Soil	1,412.99
X.	Non-Impacted Soil	4,331.10
XI.	Recycled Scrap Steel	147.96

4.0 Recovered Material Removed from the Facility

Our facility was able to salvage 147.96 tonnes of scrap steel and non-ferrous material from January facilities: Westman Salvage, 2 & 10 Metal Recycling.

Ten separate sources of contaminated soil located on our treatment pad were aerated weekly to biweekly throughout the fall of 2018 to late summer 2019. Samples were taken October 30th and 31st, 2019. Prior to obtaining final samples, each mass of soil was respectively divided into a grid from which a bagged sample was taken from every section. With the use of a photoionization unit we were able to determine where to pull our grab samples from. Samples were sent to ALS – Winnipeg, MB, and based on the final analytical, we are able to remove nine of the ten sources which were successfully treated.

5.0 Leachate Control and Sustainability

During the 2019 calendar year, we experienced limited precipitation resulting in minimal production of leachate. Any leachate produced from the active cell and recently closed cell was pumped to the leachate evaporation pond. No leachate was treated or removed from the site.

6.0 Vector Control

The perimeter fence surrounding the compound was monitored regularly and repaired when necessary to ensure large vectors are unable to enter.

SRM and deadstock material is covered within 24 hours after disposal to keep birds and other animals away.

There are 30 bait stations placed strategically throughout the compound that are inspected quarterly for quantity of bait to ensure maximum control of smaller rodents. The current population is scarce.

7.0 Groundwater Chemistry

Testing of our groundwater monitoring wells was performed by Operations Manager, Brandi Bertholet, to the standards set out by Manitoba Conservation and Water Stewardship with regards to our license. An attached copy of these test results revealed no contamination. As requested, trends for previous years have been recorded on the attached report.

8.0 Environmental Impacts

No complaints of noise or odor were received from January 1st, 2019 to December 31st, 2019.

9.0 Plans for 2020

As we look ahead for 2020, we strive to continuously improve the quality of our landfill in a sustainable yet operational manner. Our first step in increasing our sustainability is working to become a LEED (Leadership in Energy and Environmental Design) Green Associate certified, for which we are currently undergoing training.

We will be removing nine different sources of treated soil throughout the spring and summer months. This soil will be stockpiled for future use as landfill cell cover.

We plan to continue the process of setting up an addendum to our license regarding handling compost as well as liquid waste, as mentioned in last year's report. We have also begun to research and consider options for incineration with thoughts to generate a portion of our own heat and/or power. The previously mentioned plans go hand in hand with our constant goal to divert as much material from the landfill as possible and increase our sustainability.

We expect an increase in diversion by facilitating the accessibility of resources to our customers and communities. Through our website and Facebook page, proper disposal processes as well as educational information regarding waste diversion will be easily accessible and tailored to individual communities. Our administrative staff is also equipped to answer many questions regarding diversion and are always more than willing to find the answer if unknown.

Appendix A – Contaminated Soil Spreadsheet

E M/V: Estimated Mass/Volume
NOS: Number of Shipments
TM (MT): Total Mass (Metric Tonnes)

MWM Environmental Incoming Impacted Earth Material - Licence No: 3181 File No: 5815.00								
Generator	**Approval #**	**Date of Deposit**	**Origin**	**E M/V***	**NOS***	**TM (MT)***	**Analytical**	**Placement on Treatment Pad**
Enbridge Pipelines Inc	1031-092118-NE060924	Nov 8/18	NE 06-09-24	520 MT	9	91.45	Enbridge 001-001\NE 06-09-24 W1M\Analytical.pdf	SW Corner
Banister	1042-102918-NW170925	Oct 31/18	NW 17-09-25	uncertain	3	37.03	Banister Pipelines\NW 17-09-25 (SSKP818.4)\NW 17-09-25 Analytical.pdf	SE Corner
Municipality of Glenboro South Cypress	1047-111518-SE210714W	Nov 21/18	SE 21-07-14	3 yards	1	3.09	Municipality of Glenboro South Cypress\SE 21-07-14W spill - Analytical.pdf	
Enbridge Pipelines Inc	1031-120718-SW320823	Dec 10/18-Dec 11/18	SW 32-08-23	520 MT	17	196.36	Enbridge 001-001\SW 32-08-23 W1M\Analytical SW 32-08-23 W1M.pdf	SW Corner
Tundra Energy Marketing Ltd	1048-121718-10161126	Dec 18/18-Jan 11/19	10-16-11-26	1500 MT	37	879.02	TEML\10-16-11-26 W1M\Analytical 10-16-11-26W1M.pdf	NW Corner
Tundra Energy Marketing Ltd	1048-121818-05271126	Dec 19/18	05-27-11-26	250 MT	7	169.77	TEML\05-27-11-26 W1M\Sample 18-S2 Analytical 05-27-11-26.pdf	SW Corner
Tundra Energy Marketing Ltd	1048-121818-12221126	Dec 19/18	12-22-11-26	150 MT	7	147.53	TEML\12-22-11-26 W1M\Sample 18-S1 Analytical 12-22-11-26.pdf	North end center
Banister Pipelines	1042-022719-NW050924	Feb 28/19-Mar 7/19	NW 05-09-24	uncertain	26	385.18	Banister Pipelines\NW 05-09-24 W1M\Final Analytical NW 05-09-24 W1M.pdf	WNW - off center
Tri-Wave	1069-071519-47N	July 16, 17/19	Shilo	420 m^3	24	564.41	Tri-Wave Construction Ltd\Defense Construction Analytical.pdf	
SA Energy	1071-081919-SW42714	Aug 19, 20/19	SW 04-02-07-14 W1	uncertain	13	252.26	SA Energy\SW 04-02-07-14 W1\Analytical SW 04-02-07-14 W1.pdf	

Appendix B – Contaminated Soil Analytical

MWM Environmental
ATTN: BRANDI BERTHOLET
Box 459
Souris MB R0K 2C0

Date Received: 04-NOV-19
Report Date: 26-NOV-19 10:30 (MT)
Version: FINAL

Client Phone: 204-483-3986

Certificate of Analysis

Lab Work Order #: L2376472
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2376472-1 I2-03							
Sampled By: CLIENT on 30-OCT-19 @ 14:45							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	30-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	30-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	87.4		70-130	%	30-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	06-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	126		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	<50		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	89.4		60-140	%	06-NOV-19	07-NOV-19	R4901116
Chrom. to baseline at nC50	YES				06-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<25		25	mg/kg		25-NOV-19	
F3-PAH	126		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	126		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	6.87		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	2610		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.18		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	4.29		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	52.6		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.16		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	<5.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.094		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	7780		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	5.44		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	3.05		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	3.44		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	8010		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	2.77		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	2.9		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	1920		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	327		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.36		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	7.77		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	329		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	320		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	<50		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	11.6		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.067		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2376472-1 I2-03							
Sampled By: CLIENT on 30-OCT-19 @ 14:45							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Titanium (Ti)	61.7		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.390		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	11.7		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	22.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	<1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.011		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	106.8		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	112.9		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	114.1		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	115.7		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-2 I4-01							
Sampled By: CLIENT on 30-OCT-19 @ 14:31							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	30-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	30-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	94.2		70-130	%	30-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	06-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	108		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	<50		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	93.9		60-140	%	06-NOV-19	07-NOV-19	R4901116

* 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
L2376472-2 I4-01							
Sampled By: CLIENT on 30-OCT-19 @ 14:31							
Matrix: SOIL							
CCME Total Extractable Hydrocarbons							
Chrom. to baseline at nC50	YES				06-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<25		25	mg/kg		25-NOV-19	
F3-PAH	108		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	108		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	6.05		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	3080		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.18		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	4.57		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	52.3		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.16		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	<5.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.090		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	8840		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	6.53		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	3.07		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	3.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	8850		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	3.98		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	3.3		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	2670		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	298		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.37		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	7.70		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	344		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	370		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	54		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	12.2		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.065		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	95.9		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.416		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	13.5		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	23.8		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	<1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-2 I4-01							
Sampled By: CLIENT on 30-OCT-19 @ 14:31							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	105.9		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	122.7		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	107.8		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	97.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-3 I3-04M							
Sampled By: CLIENT on 30-OCT-19 @ 14:37							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	30-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	30-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	93.2		70-130	%	30-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	06-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	118		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	<50		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	89.5		60-140	%	06-NOV-19	07-NOV-19	R4901116
Chrom. to baseline at nC50	YES				06-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<25		25	mg/kg		25-NOV-19	
F3-PAH	118		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	118		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	7.80		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	2940		50	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-3 I3-04M							
Sampled By: CLIENT on 30-OCT-19 @ 14:37							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Antimony (Sb)	0.23		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	4.60		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	54.4		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.20		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	<5.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.113		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	9940		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	6.09		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	3.20		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	4.37		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	8850		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	3.14		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	3.3		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	2940		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	295		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.38		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	9.28		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	338		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	350		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	58		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	14.1		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.078		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	74.2		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.566		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	13.2		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	25.6		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	<1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-3 I3-04M							
Sampled By: CLIENT on 30-OCT-19 @ 14:37							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Antimony (Sb)	0.23		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	4.60		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	54.4		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.20		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	<5.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.113		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	9940		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	6.09		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	3.20		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	4.37		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	8850		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	3.14		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	3.3		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	2940		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	295		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.38		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	9.28		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	338		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	350		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	58		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	14.1		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.078		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	74.2		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.566		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	13.2		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	25.6		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	<1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-6 H2-03							
Sampled By: CLIENT on 30-OCT-19 @ 15:03							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Lead (Pb)	10.1		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	20.8		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	17700		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	580		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	1.19		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	25.9		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	520		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	1800		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	0.26		0.20	mg/kg	12-NOV-19	18-NOV-19	R4916027
Silver (Ag)	0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	1480		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	135		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.259		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	59.2		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	2.38		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	46.8		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	65.2		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	7.4		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.010	DLCI	0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.045		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	81.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	115.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	96.0		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	102.6		60-130	%	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-7 H1-02M							
Sampled By: CLIENT on 30-OCT-19 @ 14:52							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	30-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	30-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	106.6		70-130	%	30-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	33		25	mg/kg	06-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	101		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	<50		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	96.4		60-140	%	06-NOV-19	07-NOV-19	R4901116
Chrom. to baseline at nC50	YES				06-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	33		25	mg/kg		25-NOV-19	
F3-PAH	101		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	134		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	24.2		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	17900		5000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.56		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	7.99		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	272		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.78		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	16.7		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.294		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	44000		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	25.2		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	9.17		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	22.5		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	22400		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	10.6		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	23.5		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	19000		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	574		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	1.18		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	26.5		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	555		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	2410		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	0.33		0.20	mg/kg	12-NOV-19	18-NOV-19	R4916027
Silver (Ag)	0.11		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	1890		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	146		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.273		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-7 H1-02M							
Sampled By: CLIENT on 30-OCT-19 @ 14:52							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Titanium (Ti)	49.8		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	3.79		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	51.5		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	68.1		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	8.6		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.058		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	94.5		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	122.5		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	83.2		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	96.4		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-10 G1-02							
Sampled By: CLIENT on 30-OCT-19 @ 16:02							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	30-OCT-19	14-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	30-OCT-19	14-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	30-OCT-19	14-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	30-OCT-19	14-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	30-OCT-19	14-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	30-OCT-19	14-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	96.8		70-130	%	30-OCT-19	14-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	06-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	<50		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	58		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	93.3		60-140	%	06-NOV-19	07-NOV-19	R4901116

* 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
L2376472-10 G1-02							
Sampled By: CLIENT on 30-OCT-19 @ 16:02							
Matrix: SOIL							
CCME Total Extractable Hydrocarbons							
Chrom. to baseline at nC50	YES				06-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<25		25	mg/kg		25-NOV-19	
F3-PAH	<50		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	25.4		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	9070		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.51		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	9.20		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	193		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.51		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	11.7		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.291		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	41900		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	15.6		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	7.83		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	15.9		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	16000		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	7.79		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	12.9		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	15700		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	618		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	1.58		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	22.8		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	398		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	1310		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	0.34		0.20	mg/kg	12-NOV-19	18-NOV-19	R4916027
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	283		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	65.6		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.228		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	65.4		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	1.36		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	32.3		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	49.1		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	7.7		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-10 G1-02							
Sampled By: CLIENT on 30-OCT-19 @ 16:02							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	111.7		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	121.0		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	111.4		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	104.8		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-11 G1-01M							
Sampled By: CLIENT on 30-OCT-19 @ 15:55							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	30-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	30-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	104.9		70-130	%	30-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	06-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	<50		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	<50		50	mg/kg	06-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	89.0		60-140	%	06-NOV-19	07-NOV-19	R4901116
Chrom. to baseline at nC50	YES				06-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<25		25	mg/kg		25-NOV-19	
F3-PAH	<50		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	14.5		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6610		50	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-11 G1-01M							
Sampled By: CLIENT on 30-OCT-19 @ 15:55							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Antimony (Sb)	0.38		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	6.94		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	110		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.43		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	10.2		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.184		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	29500		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	12.4		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	6.02		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	10.5		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	15300		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	5.91		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	9.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	10300		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	468		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	1.01		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	16.1		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	390		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	970		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	0.28		0.20	mg/kg	12-NOV-19	18-NOV-19	R4916027
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	200		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	51.3		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.160		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	78.6		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	1.19		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	26.5		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	37.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	3.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-11 G1-01M							
Sampled By: CLIENT on 30-OCT-19 @ 15:55							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	111.5		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	113.3		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	110.0		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	114.8		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-14 E2-03							
Sampled By: CLIENT on 30-OCT-19 @ 16:07							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	30-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	30-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	112.5		70-130	%	30-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<250	DLM	250	mg/kg	06-NOV-19	10-NOV-19	R4901116
F3 (C16-C34)	2370	DLM	500	mg/kg	06-NOV-19	10-NOV-19	R4901116
F4 (C34-C50)	1720	DLM	500	mg/kg	06-NOV-19	10-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	60.7		60-140	%	06-NOV-19	10-NOV-19	R4901116
Chrom. to baseline at nC50	NO				06-NOV-19	10-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<250		250	mg/kg		25-NOV-19	
F3-PAH	2370		500	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	4080		750	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	17.6		0.10	%		07-NOV-19	R4902864
F4G-SG	9940		500	mg/kg		16-NOV-19	R4912268
Metals in Soil by CRC ICPMS							
Aluminum (Al)	2490		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	2.16		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	45.4		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.15		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	<5.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.089		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	7500		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	6.19		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	2.23		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	2.79		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-14 E2-03							
Sampled By: CLIENT on 30-OCT-19 @ 16:07							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Iron (Fe)	5950		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	2.88		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	2.6		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	1950		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	200		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.16		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	6.37		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	431		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	470		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	55		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	13.0		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.054		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	77.1		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.507		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	13.1		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	18.1		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	1.1		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	0.060		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	0.092		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.010	DLCI	0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	0.022	EMPC	0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	0.061		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	0.077		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	0.015		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.020	DLCI	0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	0.057		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	0.025		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.044		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	0.029		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	0.20		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	88.1		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	84.2		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	116.7		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	113.0		60-130	%	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-15 E1-02M							
Sampled By: CLIENT on 30-OCT-19 @ 16:12							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	0.0396		0.0050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
Ethyl benzene	0.045		0.015	mg/kg	30-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	30-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	30-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	114.1		70-130	%	30-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<250	DLM	250	mg/kg	07-NOV-19	16-NOV-19	R4901116
F3 (C16-C34)	1610	DLM	500	mg/kg	07-NOV-19	16-NOV-19	R4901116
F4 (C34-C50)	1330	DLM	500	mg/kg	07-NOV-19	16-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	80.2		60-140	%	07-NOV-19	16-NOV-19	R4901116
Chrom. to baseline at nC50	NO				07-NOV-19	16-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		26-NOV-19	
F2-Naphth	<250		250	mg/kg		26-NOV-19	
F3-PAH	1610		500	mg/kg		26-NOV-19	
Total Hydrocarbons (C6-C50)	2930		750	mg/kg		26-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	19.6		0.10	%		07-NOV-19	R4902864
F4G-SG	7290		500	mg/kg		22-NOV-19	R4921870
Metals in Soil by CRC ICPMS							
Aluminum (Al)	2530		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	2.53		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	45.6		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.17		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	<5.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.099		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	10400		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	6.21		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	2.35		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	3.29		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	7150		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	2.86		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	2.7		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	3600		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	223		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.20		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	6.98		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	351		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	480		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	57		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	13.9		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-15 E1-02M							
Sampled By: CLIENT on 30-OCT-19 @ 16:12							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Thallium (Tl)	0.063		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	68.4		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.493		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	13.6		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	18.2		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	<1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	0.058		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	0.097		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.010	DLCI	0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.020	DLCI	0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.050	DLCI	0.050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	0.053		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	0.0057		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	0.011		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	0.058		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.050	DLCI	0.050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.035		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	0.021		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	0.27		0.25		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.051		0.051	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	103.0		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	82.4		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	117.5		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	116.0		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-18 D2-03							
Sampled By: CLIENT on 31-OCT-19 @ 14:20							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	123.5		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<130	DLM	130	mg/kg	07-NOV-19	10-NOV-19	R4901116
F3 (C16-C34)	690	DLM	250	mg/kg	07-NOV-19	10-NOV-19	R4901116

* 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
L2376472-18 D2-03							
Sampled By: CLIENT on 31-OCT-19 @ 14:20							
Matrix: SOIL							
CCME Total Extractable Hydrocarbons							
F4 (C34-C50)	400	DLM	250	mg/kg	07-NOV-19	10-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	78.7		60-140	%	07-NOV-19	10-NOV-19	R4901116
Chrom. to baseline at nC50	NO				07-NOV-19	10-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<130		130	mg/kg		25-NOV-19	
F3-PAH	690		250	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	1080		380	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	15.3		0.10	%		07-NOV-19	R4902864
F4G-SG	1500		500	mg/kg		16-NOV-19	R4912268
Metals in Soil by CRC ICPMS							
Aluminum (Al)	1920		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	2.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	55.2		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.14		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	<5.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.055		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	16900		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	5.13		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	2.31		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	2.31		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	5450		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	2.26		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	2.1		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	3440		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	235		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.21		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	5.41		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	347		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	250		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	<50		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	17.3		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	<0.050		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	87.2		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.496		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	9.27		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	12.5		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	<1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-18 D2-03							
Sampled By: CLIENT on 31-OCT-19 @ 14:20							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0050	DLCI	0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	0.017		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.018		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	99.0		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	115.7		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	99.5		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	114.1		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-19 D1-02M							
Sampled By: CLIENT on 31-OCT-19 @ 14:23							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	102.0		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<130	DLM	130	mg/kg	07-NOV-19	10-NOV-19	R4901116
F3 (C16-C34)	720	DLM	250	mg/kg	07-NOV-19	10-NOV-19	R4901116
F4 (C34-C50)	480	DLM	250	mg/kg	07-NOV-19	10-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	75.7		60-140	%	07-NOV-19	10-NOV-19	R4901116
Chrom. to baseline at nC50	NO				07-NOV-19	10-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<130		130	mg/kg		25-NOV-19	
F3-PAH	720		250	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	1200		380	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							

* 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
L2376472-19 D1-02M							
Sampled By: CLIENT on 31-OCT-19 @ 14:23							
Matrix: SOIL							
Moisture	10.9		0.10	%		07-NOV-19	R4902864
F4G-SG	1550		500	mg/kg		16-NOV-19	R4912268
Metals in Soil by CRC ICPMS							
Aluminum (Al)	1940		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.12		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	2.28		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	51.3		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.14		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	<5.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.086		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	18400		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	5.38		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	2.40		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	2.39		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	5840		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	2.53		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	2.1		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	3800		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	248		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.23		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	5.62		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	418		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	250		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	60		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	18.1		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	<0.050		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	102		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.587		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	9.95		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	20.4		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	0.017		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-19 D1-02M							
Sampled By: CLIENT on 31-OCT-19 @ 14:23							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.014		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	99.2		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	114.7		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	118.4		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	102.9		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-22 C1-02							
Sampled By: CLIENT on 31-OCT-19 @ 14:35							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	107.0		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	07-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	139		50	mg/kg	07-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	79		50	mg/kg	07-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	73.9		60-140	%	07-NOV-19	07-NOV-19	R4901116
Chrom. to baseline at nC50	YES				07-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<25		25	mg/kg		25-NOV-19	
F3-PAH	139		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	218		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	15.7		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	5840		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.30		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	5.54		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	111		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.31		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	9.4		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.255		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	59200		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	11.4		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-22 C1-02							
Sampled By: CLIENT on 31-OCT-19 @ 14:35							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Cobalt (Co)	4.83		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	9.09		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	11900		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	4.98		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	8.7		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	15200		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	556		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.67		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	14.0		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	399		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	850		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	18-NOV-19	R4916027
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	181		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	64.1		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.152		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	124		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.991		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	24.8		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	36.7		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	1.8		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	109.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	109.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	86.6		50-130	%	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-22 C1-02							
Sampled By: CLIENT on 31-OCT-19 @ 14:35							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
Surrogate: Phenanthrene d10	112.3		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-23 C1-03M							
Sampled By: CLIENT on 31-OCT-19 @ 14:38							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	108.7		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	130	DLM	130	mg/kg	07-NOV-19	10-NOV-19	R4901116
F3 (C16-C34)	890	DLM	250	mg/kg	07-NOV-19	10-NOV-19	R4901116
F4 (C34-C50)	420	DLM	250	mg/kg	07-NOV-19	10-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	71.2		60-140	%	07-NOV-19	10-NOV-19	R4901116
Chrom. to baseline at nC50	NO				07-NOV-19	10-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<130		130	mg/kg		25-NOV-19	
F3-PAH	890		250	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	1440		380	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	15.3		0.10	%		07-NOV-19	R4902864
F4G-SG	1510		500	mg/kg		16-NOV-19	R4912268
Metals in Soil by CRC ICPMS							
Aluminum (Al)	6000		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.27		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	5.27		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	103		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.28		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	8.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.206		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	38900		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	10.5		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	4.75		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	8.53		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	11100		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	5.19		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	7.2		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	11500		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	634		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.57		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	13.7		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	397		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	790		100	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-23 C1-03M							
Sampled By: CLIENT on 31-OCT-19 @ 14:38							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Selenium (Se)	0.23		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	150		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	49.1		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.146		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	104		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.929		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	22.2		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	42.1		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	1.6		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.020	DLCI	0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	0.014		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	0.018		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.035		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	98.2		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	81.9		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	105.8		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	115.9		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-26 B2-01							
Sampled By: CLIENT on 31-OCT-19 @ 14:52							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700

* 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
L2376472-26 B2-01							
Sampled By: CLIENT on 31-OCT-19 @ 14:52							
Matrix: SOIL							
BTX plus F1 by GCMS							
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	97.0		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	122		25	mg/kg	07-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	136		50	mg/kg	07-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	<50		50	mg/kg	07-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	91.9		60-140	%	07-NOV-19	07-NOV-19	R4901116
Chrom. to baseline at nC50	YES				07-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	122		25	mg/kg		25-NOV-19	
F3-PAH	136		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	258		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	11.9		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	2400		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.14		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	3.55		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	134		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.14		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	5.6		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.127		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	44400		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	6.04		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	2.51		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	3.09		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	7080		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	2.51		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	3.9		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	10100		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	545		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.81		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	6.44		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	365		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	410		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	85		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	69.2		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.065		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	91.4		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.632		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	11.1		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	15.7		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-26 B2-01							
Sampled By: CLIENT on 31-OCT-19 @ 14:52							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Zirconium (Zr)	<1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.015		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	88.3		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	110.8		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	119.2		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	110.4		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-27 B2-03M							
Sampled By: CLIENT on 31-OCT-19 @ 14:55							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	108.3		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	36		25	mg/kg	07-NOV-19	07-NOV-19	R4901116
F3 (C16-C34)	55		50	mg/kg	07-NOV-19	07-NOV-19	R4901116
F4 (C34-C50)	<50		50	mg/kg	07-NOV-19	07-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	88.3		60-140	%	07-NOV-19	07-NOV-19	R4901116
Chrom. to baseline at nC50	YES				07-NOV-19	07-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	36		25	mg/kg		25-NOV-19	
F3-PAH	55		50	mg/kg		25-NOV-19	

* 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
L2376472-27 B2-03M							
Sampled By: CLIENT on 31-OCT-19 @ 14:55							
Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	92		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	13.4		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	2570		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.14		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	3.79		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	115		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.15		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Boron (B)	5.6		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.109		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	42900		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	6.24		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	2.50		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	2.97		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	7180		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	2.58		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	4.1		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	9280		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	360		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	0.63		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	6.41		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	353		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	430		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	74		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	71.5		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.062		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	77.9		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	0.648		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	11.7		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	15.9		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	<1.0		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-27 B2-03M							
Sampled By: CLIENT on 31-OCT-19 @ 14:55							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	109.8		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	117.8		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	102.9		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	118.3		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-30 A4-02							
Sampled By: CLIENT on 31-OCT-19 @ 15:11							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	110.0		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	98		25	mg/kg	07-NOV-19	10-NOV-19	R4901116
F3 (C16-C34)	611		50	mg/kg	07-NOV-19	10-NOV-19	R4901116
F4 (C34-C50)	314		50	mg/kg	07-NOV-19	10-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	79.4		60-140	%	07-NOV-19	10-NOV-19	R4901116
Chrom. to baseline at nC50	NO				07-NOV-19	10-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	98		25	mg/kg		25-NOV-19	
F3-PAH	611		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	1020		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	17.9		0.10	%		07-NOV-19	R4902864
F4G-SG	1140		500	mg/kg		16-NOV-19	R4912268
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7010		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Antimony (Sb)	0.41		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Arsenic (As)	5.87		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Barium (Ba)	122		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Beryllium (Be)	0.35		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529

* 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
L2376472-30 A4-02							
Sampled By: CLIENT on 31-OCT-19 @ 15:11							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Boron (B)	9.0		5.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Bismuth (Bi)	<0.20		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cadmium (Cd)	0.302		0.020	mg/kg	12-NOV-19	12-NOV-19	R4906529
Calcium (Ca)	62500		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Chromium (Cr)	12.4		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Cobalt (Co)	5.69		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Copper (Cu)	11.9		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Iron (Fe)	13400		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lead (Pb)	5.68		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Lithium (Li)	9.1		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Magnesium (Mg)	18700		20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Manganese (Mn)	694		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Molybdenum (Mo)	1.21		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Nickel (Ni)	16.2		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Phosphorus (P)	496		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Potassium (K)	910		100	mg/kg	12-NOV-19	12-NOV-19	R4906529
Selenium (Se)	<0.20		0.20	mg/kg	12-NOV-19	18-NOV-19	R4916027
Silver (Ag)	<0.10		0.10	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sodium (Na)	228		50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Strontium (Sr)	70.3		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Sulfur (S)	<1000		1000	mg/kg	12-NOV-19	12-NOV-19	R4906529
Thallium (Tl)	0.189		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tin (Sn)	<2.0		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Titanium (Ti)	90.3		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Tungsten (W)	<0.50		0.50	mg/kg	12-NOV-19	12-NOV-19	R4906529
Uranium (U)	1.46		0.050	mg/kg	12-NOV-19	12-NOV-19	R4906529
Vanadium (V)	26.8		0.20	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zinc (Zn)	38.5		2.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Zirconium (Zr)	3.3		1.0	mg/kg	12-NOV-19	12-NOV-19	R4906529
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.023		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-30 A4-02							
Sampled By: CLIENT on 31-OCT-19 @ 15:11							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	110.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	108.2		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	102.0		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	120.2		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-31 A8-04							
Sampled By: CLIENT on 31-OCT-19 @ 15:16							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	117.4		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<130	DLM	130	mg/kg	07-NOV-19	09-NOV-19	R4901116
F3 (C16-C34)	690	DLM	250	mg/kg	07-NOV-19	09-NOV-19	R4901116
F4 (C34-C50)	380	DLM	250	mg/kg	07-NOV-19	09-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	85.9		60-140	%	07-NOV-19	09-NOV-19	R4901116
Chrom. to baseline at nC50	NO				07-NOV-19	09-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	<130		130	mg/kg		25-NOV-19	
F3-PAH	690		250	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	1070		380	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	14.3		0.10	%		07-NOV-19	R4902864
F4G-SG	1770		500	mg/kg		16-NOV-19	R4912268
Metals in Soil by CRC ICPMS							
Aluminum (Al)	7290		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Antimony (Sb)	0.40		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Arsenic (As)	6.33		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Barium (Ba)	133		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Beryllium (Be)	0.35		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Boron (B)	9.2		5.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Bismuth (Bi)	<0.20		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Cadmium (Cd)	0.294		0.020	mg/kg	13-NOV-19	14-NOV-19	R4907389
Calcium (Ca)	47700		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Chromium (Cr)	13.2		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Cobalt (Co)	6.00		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Copper (Cu)	11.4		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Iron (Fe)	12800		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Lead (Pb)	5.85		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Lithium (Li)	9.4		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Magnesium (Mg)	15500		20	mg/kg	13-NOV-19	14-NOV-19	R4907389

* 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
L2376472-31 A8-04							
Sampled By: CLIENT on 31-OCT-19 @ 15:16							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Manganese (Mn)	665		1.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Molybdenum (Mo)	1.14		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Nickel (Ni)	17.3		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Phosphorus (P)	479		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Potassium (K)	1000		100	mg/kg	13-NOV-19	14-NOV-19	R4907389
Selenium (Se)	0.21		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Silver (Ag)	<0.10		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Sodium (Na)	165		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Strontium (Sr)	57.0		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Sulfur (S)	<1000		1000	mg/kg	13-NOV-19	14-NOV-19	R4907389
Thallium (Tl)	0.208		0.050	mg/kg	13-NOV-19	14-NOV-19	R4907389
Tin (Sn)	<2.0		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Titanium (Ti)	116		1.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Tungsten (W)	<0.50		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Uranium (U)	1.66		0.050	mg/kg	13-NOV-19	14-NOV-19	R4907389
Vanadium (V)	28.7		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Zinc (Zn)	37.9		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Zirconium (Zr)	4.3		1.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.020	DLCI	0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	0.013		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.018		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	108.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	119.0		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	117.3		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	117.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-32 A5-02M							
Sampled By: CLIENT on 31-OCT-19 @ 15:23							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							

* 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
L2376472-32 A5-02M							
Sampled By: CLIENT on 31-OCT-19 @ 15:23							
Matrix: SOIL							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	117.8		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	120		25	mg/kg	07-NOV-19	10-NOV-19	R4901116
F3 (C16-C34)	692		50	mg/kg	07-NOV-19	10-NOV-19	R4901116
F4 (C34-C50)	354		50	mg/kg	07-NOV-19	10-NOV-19	R4901116
Surrogate: 2-Bromobenzotrifluoride	76.6		60-140	%	07-NOV-19	10-NOV-19	R4901116
Chrom. to baseline at nC50	NO				07-NOV-19	10-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	120		25	mg/kg		25-NOV-19	
F3-PAH	692		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	1170		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	22.0		0.10	%		07-NOV-19	R4902864
F4G-SG	1050		500	mg/kg		16-NOV-19	R4912268
Metals in Soil by CRC ICPMS							
Aluminum (Al)	8300		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Antimony (Sb)	0.39		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Arsenic (As)	5.93		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Barium (Ba)	125		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Beryllium (Be)	0.39		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Boron (B)	10.6		5.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Bismuth (Bi)	<0.20		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Cadmium (Cd)	0.297		0.020	mg/kg	13-NOV-19	14-NOV-19	R4907389
Calcium (Ca)	50800		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Chromium (Cr)	15.8		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Cobalt (Co)	6.29		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Copper (Cu)	11.6		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Iron (Fe)	13300		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Lead (Pb)	6.03		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Lithium (Li)	11.0		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Magnesium (Mg)	15900		20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Manganese (Mn)	575		1.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Molybdenum (Mo)	1.09		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Nickel (Ni)	18.5		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Phosphorus (P)	464		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Potassium (K)	1160		100	mg/kg	13-NOV-19	14-NOV-19	R4907389
Selenium (Se)	<0.20		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Silver (Ag)	<0.10		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Sodium (Na)	173		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Strontium (Sr)	60.2		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Sulfur (S)	<1000		1000	mg/kg	13-NOV-19	14-NOV-19	R4907389
Thallium (Tl)	0.211		0.050	mg/kg	13-NOV-19	14-NOV-19	R4907389

* 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
L2376472-32 A5-02M							
Sampled By: CLIENT on 31-OCT-19 @ 15:23							
Matrix: SOIL							
Metals in Soil by CRC ICPMS							
Tin (Sn)	<2.0		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Titanium (Ti)	145		1.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Tungsten (W)	<0.50		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Uranium (U)	1.47		0.050	mg/kg	13-NOV-19	14-NOV-19	R4907389
Vanadium (V)	33.0		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Zinc (Zn)	40.8		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Zirconium (Zr)	4.8		1.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.0040		0.0040	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.012	EMPC	0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	<0.15		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	117.4		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	123.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	113.5		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	120.6		60-130	%	07-NOV-19	14-NOV-19	R4906809
L2376472-35 F1-01M							
Sampled By: CLIENT on 31-OCT-19							
Matrix: SOIL							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Toluene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
Ethyl benzene	<0.015		0.015	mg/kg	31-OCT-19	07-NOV-19	R4898700
o-Xylene	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
m+p-Xylenes	<0.050		0.050	mg/kg	31-OCT-19	07-NOV-19	R4898700
F1 (C6-C10)	<10		10	mg/kg	31-OCT-19	07-NOV-19	R4898700
Surrogate: 4-Bromofluorobenzene (SS)	110.9		70-130	%	31-OCT-19	07-NOV-19	R4898700
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	33		25	mg/kg	08-NOV-19	08-NOV-19	R4901116
F3 (C16-C34)	3210		50	mg/kg	08-NOV-19	08-NOV-19	R4901116
F4 (C34-C50)	374		50	mg/kg	08-NOV-19	08-NOV-19	R4901116

* 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
L2376472-35 F1-01M							
Sampled By: CLIENT on 31-OCT-19							
Matrix: SOIL							
CCME Total Extractable Hydrocarbons							
Surrogate: 2-Bromobenzotrifluoride	83.4		60-140	%	08-NOV-19	08-NOV-19	R4901116
Chrom. to baseline at nC50	YES				08-NOV-19	08-NOV-19	R4901116
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		25-NOV-19	
F2-Naphth	33		25	mg/kg		25-NOV-19	
F3-PAH	3210		50	mg/kg		25-NOV-19	
Total Hydrocarbons (C6-C50)	3620		76	mg/kg		25-NOV-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.071		0.071	mg/kg		25-NOV-19	
Miscellaneous Parameters							
Moisture	19.6		0.10	%		07-NOV-19	R4902864
Metals in Soil by CRC ICPMS							
Aluminum (Al)	5380		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Antimony (Sb)	0.68		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Arsenic (As)	5.98		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Barium (Ba)	173		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Beryllium (Be)	0.38		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Boron (B)	11.9		5.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Bismuth (Bi)	<0.20		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Cadmium (Cd)	0.229		0.020	mg/kg	13-NOV-19	14-NOV-19	R4907389
Calcium (Ca)	23200		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Chromium (Cr)	11.3		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Cobalt (Co)	8.95		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Copper (Cu)	15.1		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Iron (Fe)	11200		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Lead (Pb)	15.7		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Lithium (Li)	7.4		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Magnesium (Mg)	8130		20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Manganese (Mn)	3740		100	mg/kg	13-NOV-19	14-NOV-19	R4907389
Molybdenum (Mo)	0.85		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Nickel (Ni)	32.5		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Phosphorus (P)	389		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Potassium (K)	1270		100	mg/kg	13-NOV-19	14-NOV-19	R4907389
Selenium (Se)	0.29		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Silver (Ag)	<0.10		0.10	mg/kg	13-NOV-19	14-NOV-19	R4907389
Sodium (Na)	246		50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Strontium (Sr)	43.2		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Sulfur (S)	<1000		1000	mg/kg	13-NOV-19	14-NOV-19	R4907389
Thallium (Tl)	0.139		0.050	mg/kg	13-NOV-19	14-NOV-19	R4907389
Tin (Sn)	<2.0		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Titanium (Ti)	98.5		1.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Tungsten (W)	<0.50		0.50	mg/kg	13-NOV-19	14-NOV-19	R4907389
Uranium (U)	0.936		0.050	mg/kg	13-NOV-19	14-NOV-19	R4907389
Vanadium (V)	30.1		0.20	mg/kg	13-NOV-19	14-NOV-19	R4907389
Zinc (Zn)	89.5		2.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Zirconium (Zr)	3.4		1.0	mg/kg	13-NOV-19	14-NOV-19	R4907389
Polyaromatic Hydrocarbons (PAHs)							
1-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
2-Methyl Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Acenaphthylene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809

* 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
L2376472-35 F1-01M							
Sampled By: CLIENT on 31-OCT-19							
Matrix: SOIL							
Polyaromatic Hydrocarbons (PAHs)							
Acridine	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Anthracene	<0.010	DLCI	0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)anthracene	<0.050	DLCI	0.050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(a)pyrene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(b&j)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(g,h,i)perylene	0.018		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Benzo(k)fluoranthene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Chrysene	<0.050	DLCI	0.050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Dibenzo(a,h)anthracene	<0.0050		0.0050	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluoranthene	0.037		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Fluorene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Indeno(1,2,3-cd)pyrene	0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Naphthalene	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Phenanthrene	0.016	EMPC	0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Pyrene	0.074		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
Quinoline	<0.010		0.010	mg/kg	07-NOV-19	14-NOV-19	R4906809
B(a)P Total Potency Equivalent	<0.020		0.020	mg/kg	07-NOV-19	14-NOV-19	R4906809
IACR (CCME)	0.19		0.15		07-NOV-19	14-NOV-19	R4906809
Benzo(b+j+k)fluoranthene	<0.014		0.014	mg/kg	07-NOV-19	14-NOV-19	R4906809
Surrogate: Acenaphthene d10	119.0		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Chrysene d12	126.8		60-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Naphthalene d8	106.4		50-130	%	07-NOV-19	14-NOV-19	R4906809
Surrogate: Phenanthrene d10	94.2		60-130	%	07-NOV-19	14-NOV-19	R4906809

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

Reference Information

Qualifiers for Individual Samples Listed:

Lab Sample ID	Client Sample ID	Qualifier	Description
L2376472-1	I2-03	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-10	G1-02	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-14	E2-03	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-18	D2-03	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-2	I4-01	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-22	C1-02	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-26	B2-01	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-30	A4-02	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-31	A8-04	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).
L2376472-6	H2-03	VOCC	Soil jar was submitted as VOC sample container. VOC results may be biased low, and do not meet federal (CCME) or provincial requirements (for BC, AB-Tier1, MB, ON, SK).

Sample Parameter Qualifier Key:

Qualifier	Description
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
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).
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
EMPC	Estimated Maximum Possible Concentration. Parameter detected but didn't meet all criteria for positive identification.
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).

Test Method References:

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

F1-F4-CALC-WP	Soil	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-S

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.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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, Pub #1310, Dec 2001
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.			
F4G-TMB-WP	Soil	CCME Gravimetric Heavy Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-S
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 gravimetric method			
MET-200.2-CCMS-WP	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020B (mod)
Soil/sediment is dried, disaggregated, and sieved (2 mm). Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS. Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H2S) may be excluded if lost during sampling, storage, or digestion.			
MOISTURE-WP	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
Moisture content in solid matrices is determined gravimetrically after drying to constant weight at 105□C.			
PAH,PANH-WP	Soil	Polyaromatic Hydrocarbons (PAHs)	EPA SW 846/8270-GC/MS
Samples are rotary extracted using a 1:1 mixture of acetone and dichloromethane. Extracts are concentrated and solvent exchanged to toluene. The toluene extract is analyzed by GCMS.			
XYLENES-SUM-CALC-WP	Soil	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

** 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**

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: L2376472 Report Date: 26-NOV-19

Client: MWM Environmental
Box 459
Souris MB R0K 2C0

Contact: BRANDI BERTHOLET

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	Soil							
Batch R4898700								
WG3211885-8 DUP		**L2376472-31**						
Benzene		<0.0050	<0.0050	RPD-NA	mg/kg	N/A	50	07-NOV-19
Toluene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	07-NOV-19
Ethyl benzene		<0.015	<0.015	RPD-NA	mg/kg	N/A	50	07-NOV-19
o-Xylene		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	07-NOV-19
m+p-Xylenes		<0.050	<0.050	RPD-NA	mg/kg	N/A	50	07-NOV-19
F1 (C6-C10)		<10	<10	RPD-NA	mg/kg	N/A	50	07-NOV-19
WG3211885-2 LCS								
Benzene			116.0		%		70-130	07-NOV-19
Toluene			111.8		%		70-130	07-NOV-19
Ethyl benzene			106.6		%		70-130	07-NOV-19
o-Xylene			115.8		%		70-130	07-NOV-19
m+p-Xylenes			116.2		%		70-130	07-NOV-19
WG3211885-3 LCS								
F1 (C6-C10)			87.5		%		70-130	06-NOV-19
WG3211885-6 LCS								
Benzene			96.7		%		70-130	07-NOV-19
Toluene			93.3		%		70-130	07-NOV-19
Ethyl benzene			87.7		%		70-130	07-NOV-19
o-Xylene			95.1		%		70-130	07-NOV-19
m+p-Xylenes			99.7		%		70-130	07-NOV-19
WG3211885-7 LCS								
F1 (C6-C10)			84.5		%		70-130	07-NOV-19
WG3211885-1 MB								
Benzene			<0.0050		mg/kg		0.005	07-NOV-19
Toluene			<0.050		mg/kg		0.05	07-NOV-19
Ethyl benzene			<0.015		mg/kg		0.015	07-NOV-19
o-Xylene			<0.050		mg/kg		0.05	07-NOV-19
m+p-Xylenes			<0.050		mg/kg		0.05	07-NOV-19
F1 (C6-C10)			<10		mg/kg		10	07-NOV-19
Surrogate: 4-Bromofluorobenzene (SS)			82.8		%		70-130	07-NOV-19
WG3211885-5 MB								
Benzene			<0.0050		mg/kg		0.005	07-NOV-19
Toluene			<0.050		mg/kg		0.05	07-NOV-19
Ethyl benzene			<0.015		mg/kg		0.015	07-NOV-19
o-Xylene			<0.050		mg/kg		0.05	07-NOV-19

Quality Control Report

Workorder: L2376472 Report Date: 26-NOV-19 Page 2 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	Soil							
Batch R4898700								
WG3211885-5 MB								
m+p-Xylenes			<0.050		mg/kg		0.05	07-NOV-19
F1 (C6-C10)			<10		mg/kg		10	07-NOV-19
Surrogate: 4-Bromofluorobenzene (SS)			78.6		%		70-130	07-NOV-19
F2-F4-TMB-FID-WP	Soil							
Batch R4901116								
WG3211960-4 DUP		**L2376472-6**						
F2 (C10-C16)		284	129	DUP-H	mg/kg	75	40	07-NOV-19
F3 (C16-C34)		479	289	DUP-H	mg/kg	50	40	07-NOV-19
F4 (C34-C50)		<50	<50	RPD-NA	mg/kg	N/A	40	07-NOV-19
WG3212837-4 DUP		**L2376472-26**						
F2 (C10-C16)		122	157		mg/kg	25	40	07-NOV-19
F3 (C16-C34)		136	158		mg/kg	15	40	07-NOV-19
F4 (C34-C50)		<50	<50	RPD-NA	mg/kg	N/A	40	07-NOV-19
WG3211960-3 IRM		**ALS PHC RM3**						
F2 (C10-C16)			96.0		%		70-130	06-NOV-19
F3 (C16-C34)			96.0		%		70-130	06-NOV-19
F4 (C34-C50)			100.4		%		70-130	06-NOV-19
WG3212837-3 IRM		**ALS PHC RM3**						
F2 (C10-C16)			92.2		%		70-130	07-NOV-19
F3 (C16-C34)			88.4		%		70-130	07-NOV-19
F4 (C34-C50)			106.0		%		70-130	07-NOV-19
WG3214233-3 IRM		**ALS PHC RM3**						
F2 (C10-C16)			92.7		%		70-130	09-NOV-19
F3 (C16-C34)			87.8		%		70-130	09-NOV-19
F4 (C34-C50)			95.5		%		70-130	09-NOV-19
WG3211960-2 LCS								
F2 (C10-C16)			104.8		%		70-130	06-NOV-19
F3 (C16-C34)			97.8		%		70-130	06-NOV-19
F4 (C34-C50)			101.6		%		70-130	06-NOV-19
WG3212837-2 LCS								
F2 (C10-C16)			105.1		%		70-130	07-NOV-19
F3 (C16-C34)			94.6		%		70-130	07-NOV-19
F4 (C34-C50)			114.0		%		70-130	07-NOV-19
WG3214233-2 LCS								
F2 (C10-C16)			87.1		%		70-130	08-NOV-19
F3 (C16-C34)			88.5		%		70-130	08-NOV-19

MWM ENVIRONMENTAL

ALS Environmental

Quality Control Report

Workorder: L2376472 Report Date: 26-NOV-19

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-TMB-FID-WP	Soil							
Batch R4901116								
WG3214233-2 LCS								
F4 (C34-C50)			98.1		%		70-130	08-NOV-19
WG3211960-1 MB								
F2 (C10-C16)			<25		mg/kg		25	06-NOV-19
F3 (C16-C34)			<50		mg/kg		50	06-NOV-19
F4 (C34-C50)			<50		mg/kg		50	06-NOV-19
Surrogate: 2-Bromobenzotrifluoride			96.5		%		60-140	06-NOV-19
WG3212837-1 MB								
F2 (C10-C16)			<25		mg/kg		25	07-NOV-19
F3 (C16-C34)			<50		mg/kg		50	07-NOV-19
F4 (C34-C50)			<50		mg/kg		50	07-NOV-19
Surrogate: 2-Bromobenzotrifluoride			94.6		%		60-140	07-NOV-19
WG3214233-1 MB								
F2 (C10-C16)			<25		mg/kg		25	08-NOV-19
F3 (C16-C34)			<50		mg/kg		50	08-NOV-19
F4 (C34-C50)			<50		mg/kg		50	08-NOV-19
Surrogate: 2-Bromobenzotrifluoride			85.7		%		60-140	08-NOV-19
F4G-TMB-WP	Soil							
Batch R4912268								
WG3220371-2 IRM		**ALS PHC RM3**						
F4G-SG			93.9		%		70-130	16-NOV-19
WG3220371-1 MB								
F4G-SG			<500		mg/kg		500	16-NOV-19
Batch R4921870								
WG3225069-10 IRM		**ALS PHC RM3**						
F4G-SG			86.9		%		70-130	22-NOV-19
WG3225069-9 MB								
F4G-SG			<500		mg/kg		500	22-NOV-19
MET-200.2-CCMS-WP	Soil							
Batch R4906529								
WG3216909-4 CRM		**CANMET TILL-1**						
Antimony (Sb)			104.3		%		70-130	12-NOV-19
Arsenic (As)			100.6		%		70-130	12-NOV-19
Barium (Ba)			96.6		%		70-130	12-NOV-19
Beryllium (Be)			104.4		%		70-130	12-NOV-19
Boron (B)			3.8		mg/kg		0-8.2	12-NOV-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WP	Soil							
Batch R4906529								
WG3216909-4 CRM		**CANMET TILL-1**						
Bismuth (Bi)			104.4		%		70-130	12-NOV-19
Cadmium (Cd)			103.3		%		70-130	12-NOV-19
Calcium (Ca)			93.9		%		70-130	12-NOV-19
Chromium (Cr)			94.8		%		70-130	12-NOV-19
Cobalt (Co)			96.1		%		70-130	12-NOV-19
Copper (Cu)			102.1		%		70-130	12-NOV-19
Iron (Fe)			98.6		%		70-130	12-NOV-19
Lead (Pb)			102.9		%		70-130	12-NOV-19
Lithium (Li)			101.6		%		70-130	12-NOV-19
Magnesium (Mg)			107.4		%		70-130	12-NOV-19
Molybdenum (Mo)			102.1		%		70-130	12-NOV-19
Nickel (Ni)			96.1		%		70-130	12-NOV-19
Phosphorus (P)			98.6		%		70-130	12-NOV-19
Potassium (K)			74.7		%		70-130	12-NOV-19
Selenium (Se)			0.30		mg/kg		0.12-0.52	12-NOV-19
Silver (Ag)			0.23		mg/kg		0.12-0.32	12-NOV-19
Sodium (Na)			82.0		%		70-130	12-NOV-19
Strontium (Sr)			93.5		%		70-130	12-NOV-19
Thallium (Tl)			0.134		mg/kg		0.075-0.175	12-NOV-19
Tin (Sn)			1.0		mg/kg		0-3.1	12-NOV-19
Titanium (Ti)			80.6		%		70-130	12-NOV-19
Tungsten (W)			0.19		mg/kg		0-0.66	12-NOV-19
Uranium (U)			102.6		%		70-130	12-NOV-19
Vanadium (V)			95.1		%		70-130	12-NOV-19
Zinc (Zn)			97.6		%		70-130	12-NOV-19
Zirconium (Zr)			0.7		mg/kg		0-1.8	12-NOV-19
WG3216909-2 LCS								
Aluminum (Al)			106.3		%		80-120	12-NOV-19
Antimony (Sb)			108.3		%		80-120	12-NOV-19
Arsenic (As)			105.8		%		80-120	12-NOV-19
Barium (Ba)			103.6		%		80-120	12-NOV-19
Beryllium (Be)			106.0		%		80-120	12-NOV-19
Boron (B)			108.9		%		80-120	12-NOV-19
Bismuth (Bi)			108.0		%		80-120	12-NOV-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WP	Soil							
Batch R4906529								
WG3216909-2 LCS								
Cadmium (Cd)			104.3		%		80-120	12-NOV-19
Calcium (Ca)			106.3		%		80-120	12-NOV-19
Chromium (Cr)			107.0		%		80-120	12-NOV-19
Cobalt (Co)			104.3		%		80-120	12-NOV-19
Copper (Cu)			107.9		%		80-120	12-NOV-19
Iron (Fe)			94.5		%		80-120	12-NOV-19
Lead (Pb)			104.8		%		80-120	12-NOV-19
Lithium (Li)			107.1		%		80-120	12-NOV-19
Magnesium (Mg)			121.4	MES	%		80-120	12-NOV-19
Manganese (Mn)			108.2		%		80-120	12-NOV-19
Molybdenum (Mo)			105.9		%		80-120	12-NOV-19
Nickel (Ni)			102.9		%		80-120	12-NOV-19
Phosphorus (P)			109.1		%		80-120	12-NOV-19
Potassium (K)			105.8		%		80-120	12-NOV-19
Selenium (Se)			106.9		%		80-120	12-NOV-19
Silver (Ag)			103.3		%		80-120	12-NOV-19
Sodium (Na)			109.6		%		80-120	12-NOV-19
Strontium (Sr)			105.7		%		80-120	12-NOV-19
Sulfur (S)			110.0		%		70-130	12-NOV-19
Thallium (Tl)			105.1		%		80-120	12-NOV-19
Tin (Sn)			105.2		%		80-120	12-NOV-19
Titanium (Ti)			101.4		%		80-120	12-NOV-19
Tungsten (W)			106.1		%		70-130	12-NOV-19
Uranium (U)			106.6		%		80-120	12-NOV-19
Vanadium (V)			107.8		%		80-120	12-NOV-19
Zinc (Zn)			107.3		%		80-120	12-NOV-19
Zirconium (Zr)			101.8		%		80-120	12-NOV-19
WG3216909-1 MB								
Aluminum (Al)			<50		mg/kg		50	12-NOV-19
Antimony (Sb)			<0.10		mg/kg		0.1	12-NOV-19
Arsenic (As)			<0.10		mg/kg		0.1	12-NOV-19
Barium (Ba)			<0.50		mg/kg		0.5	12-NOV-19
Beryllium (Be)			<0.10		mg/kg		0.1	12-NOV-19
Boron (B)			<5.0		mg/kg		5	12-NOV-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WP	Soil							
Batch R4906529								
WG3216909-1 MB								
Bismuth (Bi)			<0.20		mg/kg		0.2	12-NOV-19
Cadmium (Cd)			<0.020		mg/kg		0.02	12-NOV-19
Calcium (Ca)			<50		mg/kg		50	12-NOV-19
Chromium (Cr)			<0.50		mg/kg		0.5	12-NOV-19
Cobalt (Co)			<0.10		mg/kg		0.1	12-NOV-19
Copper (Cu)			<0.50		mg/kg		0.5	12-NOV-19
Iron (Fe)			<50		mg/kg		50	12-NOV-19
Lead (Pb)			<0.50		mg/kg		0.5	12-NOV-19
Lithium (Li)			<2.0		mg/kg		2	12-NOV-19
Magnesium (Mg)			<20		mg/kg		20	12-NOV-19
Manganese (Mn)			<1.0		mg/kg		1	12-NOV-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	12-NOV-19
Nickel (Ni)			<0.50		mg/kg		0.5	12-NOV-19
Phosphorus (P)			<50		mg/kg		50	12-NOV-19
Potassium (K)			<100		mg/kg		100	12-NOV-19
Selenium (Se)			0.36	B	mg/kg		0.2	12-NOV-19
Silver (Ag)			<0.10		mg/kg		0.1	12-NOV-19
Sodium (Na)			<50		mg/kg		50	12-NOV-19
Strontium (Sr)			<0.50		mg/kg		0.5	12-NOV-19
Sulfur (S)			<1000		mg/kg		1000	12-NOV-19
Thallium (Tl)			<0.050		mg/kg		0.05	12-NOV-19
Tin (Sn)			<2.0		mg/kg		2	12-NOV-19
Titanium (Ti)			<1.0		mg/kg		1	12-NOV-19
Tungsten (W)			<0.50		mg/kg		0.5	12-NOV-19
Uranium (U)			<0.050		mg/kg		0.05	12-NOV-19
Vanadium (V)			<0.20		mg/kg		0.2	12-NOV-19
Zinc (Zn)			<2.0		mg/kg		2	12-NOV-19
Zirconium (Zr)			<1.0		mg/kg		1	12-NOV-19
Batch R4907389								
WG3217613-4 CRM		**CANMET TILL-1**						
Aluminum (Al)			105.3		%		70-130	14-NOV-19
Antimony (Sb)			102.3		%		70-130	14-NOV-19
Arsenic (As)			101.6		%		70-130	14-NOV-19
Barium (Ba)			100.8		%		70-130	14-NOV-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WP	Soil							
Batch R4907389								
WG3217613-4 CRM		**CANMET TILL-1**						
Beryllium (Be)			100.0		%		70-130	14-NOV-19
Boron (B)			6.3		mg/kg		0-8.2	14-NOV-19
Bismuth (Bi)			106.6		%		70-130	14-NOV-19
Cadmium (Cd)			103.6		%		70-130	14-NOV-19
Calcium (Ca)			94.5		%		70-130	14-NOV-19
Chromium (Cr)			100.9		%		70-130	14-NOV-19
Cobalt (Co)			100.3		%		70-130	14-NOV-19
Copper (Cu)			105.7		%		70-130	14-NOV-19
Iron (Fe)			99.4		%		70-130	14-NOV-19
Lead (Pb)			103.1		%		70-130	14-NOV-19
Lithium (Li)			102.6		%		70-130	14-NOV-19
Magnesium (Mg)			105.2		%		70-130	14-NOV-19
Manganese (Mn)			106.6		%		70-130	14-NOV-19
Molybdenum (Mo)			99.4		%		70-130	14-NOV-19
Nickel (Ni)			100.8		%		70-130	14-NOV-19
Phosphorus (P)			100.2		%		70-130	14-NOV-19
Potassium (K)			89.4		%		70-130	14-NOV-19
Selenium (Se)			0.29		mg/kg		0.12-0.52	14-NOV-19
Silver (Ag)			0.25		mg/kg		0.12-0.32	14-NOV-19
Sodium (Na)			97.0		%		70-130	14-NOV-19
Strontium (Sr)			97.9		%		70-130	14-NOV-19
Thallium (Tl)			0.126		mg/kg		0.075-0.175	14-NOV-19
Tin (Sn)			1.0		mg/kg		0-3.1	14-NOV-19
Titanium (Ti)			90.5		%		70-130	14-NOV-19
Tungsten (W)			0.15		mg/kg		0-0.66	14-NOV-19
Uranium (U)			108.3		%		70-130	14-NOV-19
Vanadium (V)			99.7		%		70-130	14-NOV-19
Zinc (Zn)			101.5		%		70-130	14-NOV-19
Zirconium (Zr)			0.8		mg/kg		0-1.8	14-NOV-19
WG3217613-2 LCS								
Aluminum (Al)			102.4		%		80-120	14-NOV-19
Antimony (Sb)			103.4		%		80-120	14-NOV-19
Arsenic (As)			102.1		%		80-120	14-NOV-19
Barium (Ba)			102.4		%		80-120	14-NOV-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WP	Soil							
Batch R4907389								
WG3217613-2 LCS								
Beryllium (Be)			102.3		%		80-120	14-NOV-19
Boron (B)			87.9		%		80-120	14-NOV-19
Bismuth (Bi)			101.2		%		80-120	14-NOV-19
Cadmium (Cd)			102.7		%		80-120	14-NOV-19
Calcium (Ca)			101.2		%		80-120	14-NOV-19
Chromium (Cr)			102.4		%		80-120	14-NOV-19
Cobalt (Co)			101.5		%		80-120	14-NOV-19
Copper (Cu)			101.3		%		80-120	14-NOV-19
Iron (Fe)			91.1		%		80-120	14-NOV-19
Lead (Pb)			104.7		%		80-120	14-NOV-19
Lithium (Li)			103.1		%		80-120	14-NOV-19
Magnesium (Mg)			111.9		%		80-120	14-NOV-19
Manganese (Mn)			101.4		%		80-120	14-NOV-19
Molybdenum (Mo)			104.4		%		80-120	14-NOV-19
Nickel (Ni)			101.2		%		80-120	14-NOV-19
Phosphorus (P)			105.9		%		80-120	14-NOV-19
Potassium (K)			98.3		%		80-120	14-NOV-19
Selenium (Se)			100.9		%		80-120	14-NOV-19
Silver (Ag)			103.2		%		80-120	14-NOV-19
Sodium (Na)			101.5		%		80-120	14-NOV-19
Strontium (Sr)			105.3		%		80-120	14-NOV-19
Sulfur (S)			104.5		%		70-130	14-NOV-19
Thallium (Tl)			98.9		%		80-120	14-NOV-19
Tin (Sn)			103.5		%		80-120	14-NOV-19
Titanium (Ti)			98.9		%		80-120	14-NOV-19
Tungsten (W)			104.8		%		70-130	14-NOV-19
Uranium (U)			108.5		%		80-120	14-NOV-19
Vanadium (V)			102.6		%		80-120	14-NOV-19
Zinc (Zn)			100.7		%		80-120	14-NOV-19
Zirconium (Zr)			102.4		%		80-120	14-NOV-19
WG3217613-1 MB								
Aluminum (Al)			<50		mg/kg		50	14-NOV-19
Antimony (Sb)			<0.10		mg/kg		0.1	14-NOV-19
Arsenic (As)			<0.10		mg/kg		0.1	14-NOV-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WP	Soil							
Batch R4907389								
WG3217613-1 MB								
Barium (Ba)			<0.50		mg/kg		0.5	14-NOV-19
Beryllium (Be)			<0.10		mg/kg		0.1	14-NOV-19
Boron (B)			<5.0		mg/kg		5	14-NOV-19
Bismuth (Bi)			<0.20		mg/kg		0.2	14-NOV-19
Cadmium (Cd)			<0.020		mg/kg		0.02	14-NOV-19
Calcium (Ca)			<50		mg/kg		50	14-NOV-19
Chromium (Cr)			<0.50		mg/kg		0.5	14-NOV-19
Cobalt (Co)			<0.10		mg/kg		0.1	14-NOV-19
Copper (Cu)			<0.50		mg/kg		0.5	14-NOV-19
Iron (Fe)			<50		mg/kg		50	14-NOV-19
Lead (Pb)			<0.50		mg/kg		0.5	14-NOV-19
Lithium (Li)			<2.0		mg/kg		2	14-NOV-19
Magnesium (Mg)			<20		mg/kg		20	14-NOV-19
Manganese (Mn)			<1.0		mg/kg		1	14-NOV-19
Molybdenum (Mo)			<0.10		mg/kg		0.1	14-NOV-19
Nickel (Ni)			<0.50		mg/kg		0.5	14-NOV-19
Phosphorus (P)			<50		mg/kg		50	14-NOV-19
Potassium (K)			<100		mg/kg		100	14-NOV-19
Selenium (Se)			<0.20		mg/kg		0.2	14-NOV-19
Silver (Ag)			<0.10		mg/kg		0.1	14-NOV-19
Sodium (Na)			<50		mg/kg		50	14-NOV-19
Strontium (Sr)			<0.50		mg/kg		0.5	14-NOV-19
Sulfur (S)			<1000		mg/kg		1000	14-NOV-19
Thallium (Tl)			<0.050		mg/kg		0.05	14-NOV-19
Tin (Sn)			<2.0		mg/kg		2	14-NOV-19
Titanium (Ti)			<1.0		mg/kg		1	14-NOV-19
Tungsten (W)			<0.50		mg/kg		0.5	14-NOV-19
Uranium (U)			<0.050		mg/kg		0.05	14-NOV-19
Vanadium (V)			<0.20		mg/kg		0.2	14-NOV-19
Zinc (Zn)			<2.0		mg/kg		2	14-NOV-19
Zirconium (Zr)			<1.0		mg/kg		1	14-NOV-19
MOISTURE-WP	Soil							

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MOISTURE-WP	Soil							
Batch R4902864								
WG3213309-3 DUP		L2376472-1						
Moisture		6.87	6.92		%	0.8	20	07-NOV-19
WG3213309-6 DUP		L2376472-22						
Moisture		15.7	16.4		%	4.7	20	07-NOV-19
WG3213309-2 LCS								
Moisture			100.5		%		90-110	07-NOV-19
WG3213309-5 LCS								
Moisture			100.3		%		90-110	07-NOV-19
WG3213309-1 MB								
Moisture			<0.10		%		0.1	07-NOV-19
WG3213309-4 MB								
Moisture			<0.10		%		0.1	07-NOV-19
PAH,PANH-WP	Soil							
Batch R4906809								
WG3216483-3 DUP		L2376472-26						
1-Methyl Naphthalene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
2-Methyl Naphthalene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Acenaphthene		<0.0050	<0.0050	RPD-NA	mg/kg	N/A	50	14-NOV-19
Acenaphthylene		<0.0050	<0.0050	RPD-NA	mg/kg	N/A	50	14-NOV-19
Acridine		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Anthracene		<0.0040	<0.0040	RPD-NA	mg/kg	N/A	50	14-NOV-19
Benzo(a)anthracene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Benzo(a)pyrene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Benzo(b&j)fluoranthene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Benzo(g,h,i)perylene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Benzo(k)fluoranthene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Chrysene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Dibenzo(a,h)anthracene		<0.0050	<0.0050	RPD-NA	mg/kg	N/A	50	14-NOV-19
Fluoranthene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Fluorene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Indeno(1,2,3-cd)pyrene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Naphthalene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Phenanthrene		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
Pyrene		0.015	0.014		mg/kg	4.2	50	14-NOV-19
Quinoline		<0.010	<0.010	RPD-NA	mg/kg	N/A	50	14-NOV-19
WG3216483-4 IRM		ALS PAH RM2						

Quality Control Report

Workorder: L2376472 Report Date: 26-NOV-19

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH,PANH-WP	Soil							
Batch R4906809								
WG3216483-4 IRM		**ALS PAH RM2**						
1-Methyl Naphthalene			102.4		%		65-130	14-NOV-19
2-Methyl Naphthalene			110.2		%		65-130	14-NOV-19
Acenaphthene			125.0		%		65-130	14-NOV-19
Acenaphthylene			78.9		%		65-130	14-NOV-19
Anthracene			93.9		%		65-130	14-NOV-19
Benzo(a)anthracene			85.7		%		65-130	14-NOV-19
Benzo(a)pyrene			87.5		%		65-130	14-NOV-19
Benzo(b&j)fluoranthene			90.9		%		65-130	14-NOV-19
Benzo(g,h,i)perylene			84.6		%		65-130	14-NOV-19
Benzo(k)fluoranthene			97.3		%		65-130	14-NOV-19
Chrysene			106.0		%		65-130	14-NOV-19
Dibenzo(a,h)anthracene			92.3		%		65-130	14-NOV-19
Fluoranthene			99.8		%		65-130	14-NOV-19
Fluorene			101.7		%		65-130	14-NOV-19
Indeno(1,2,3-cd)pyrene			74.5		%		65-130	14-NOV-19
Naphthalene			123.8		%		65-130	14-NOV-19
Phenanthrene			105.8		%		65-130	14-NOV-19
Pyrene			100.0		%		65-130	14-NOV-19
WG3216483-2 LCS								
1-Methyl Naphthalene			121.4		%		60-130	14-NOV-19
2-Methyl Naphthalene			119.8		%		60-130	14-NOV-19
Acenaphthene			123.0		%		60-130	14-NOV-19
Acenaphthylene			114.0		%		60-130	14-NOV-19
Acridine			108.6		%		60-130	14-NOV-19
Anthracene			106.8		%		60-130	14-NOV-19
Benzo(a)anthracene			108.5		%		60-130	14-NOV-19
Benzo(a)pyrene			107.6		%		60-130	14-NOV-19
Benzo(b&j)fluoranthene			116.8		%		60-130	14-NOV-19
Benzo(g,h,i)perylene			109.7		%		60-130	14-NOV-19
Benzo(k)fluoranthene			91.9		%		60-130	14-NOV-19
Chrysene			107.9		%		60-130	14-NOV-19
Dibenzo(a,h)anthracene			122.3		%		60-130	14-NOV-19
Fluoranthene			102.7		%		60-130	14-NOV-19
Fluorene			112.4		%		60-130	14-NOV-19

Quality Control Report

Workorder: L2376472 Report Date: 26-NOV-19

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH,PANH-WP	Soil							
Batch R4906809								
WG3216483-2 LCS								
Indeno(1,2,3-cd)pyrene			110.7		%		60-130	14-NOV-19
Naphthalene			114.3		%		50-130	14-NOV-19
Phenanthrene			118.9		%		60-130	14-NOV-19
Pyrene			120.4		%		60-130	14-NOV-19
Quinoline			117.9		%		60-130	14-NOV-19
WG3216483-1 MB								
1-Methyl Naphthalene			<0.010		mg/kg		0.01	14-NOV-19
2-Methyl Naphthalene			<0.010		mg/kg		0.01	14-NOV-19
Acenaphthene			<0.0050		mg/kg		0.005	14-NOV-19
Acenaphthylene			<0.0050		mg/kg		0.005	14-NOV-19
Acridine			<0.010		mg/kg		0.01	14-NOV-19
Anthracene			<0.0040		mg/kg		0.004	14-NOV-19
Benzo(a)anthracene			<0.010		mg/kg		0.01	14-NOV-19
Benzo(a)pyrene			<0.010		mg/kg		0.01	14-NOV-19
Benzo(b&j)fluoranthene			<0.010		mg/kg		0.01	14-NOV-19
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	14-NOV-19
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	14-NOV-19
Chrysene			<0.010		mg/kg		0.01	14-NOV-19
Dibenzo(a,h)anthracene			<0.0050		mg/kg		0.005	14-NOV-19
Fluoranthene			<0.010		mg/kg		0.01	14-NOV-19
Fluorene			<0.010		mg/kg		0.01	14-NOV-19
Indeno(1,2,3-cd)pyrene			<0.010		mg/kg		0.01	14-NOV-19
Naphthalene			<0.010		mg/kg		0.01	14-NOV-19
Phenanthrene			<0.010		mg/kg		0.01	14-NOV-19
Pyrene			<0.010		mg/kg		0.01	14-NOV-19
Quinoline			<0.010		mg/kg		0.01	14-NOV-19
Surrogate: Acenaphthene d10			100.8		%		60-130	14-NOV-19
Surrogate: Chrysene d12			107.6		%		60-130	14-NOV-19
Surrogate: Naphthalene d8			86.1		%		50-130	14-NOV-19
Surrogate: Phenanthrene d10			106.5		%		60-130	14-NOV-19

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
B	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
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).
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L2376472 Report Date: 26-NOV-19

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Hydrocarbons							
CCME Gravimetric Heavy Hydrocarbons							
	14	30-OCT-19 16:07	16-NOV-19 10:45	14	17	days	EHT
	15	30-OCT-19 16:12	22-NOV-19 07:30	14	23	days	EHT
	18	31-OCT-19 14:20	16-NOV-19 10:45	14	16	days	EHT
	19	31-OCT-19 14:23	16-NOV-19 10:45	14	16	days	EHT
	23	31-OCT-19 14:38	16-NOV-19 10:45	14	16	days	EHT
	30	31-OCT-19 15:11	16-NOV-19 10:45	14	16	days	EHT
	31	31-OCT-19 15:16	16-NOV-19 10:45	14	16	days	EHT
	32	31-OCT-19 15:23	16-NOV-19 10:45	14	16	days	EHT

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2376472 were received on 04-NOV-19 11:15.

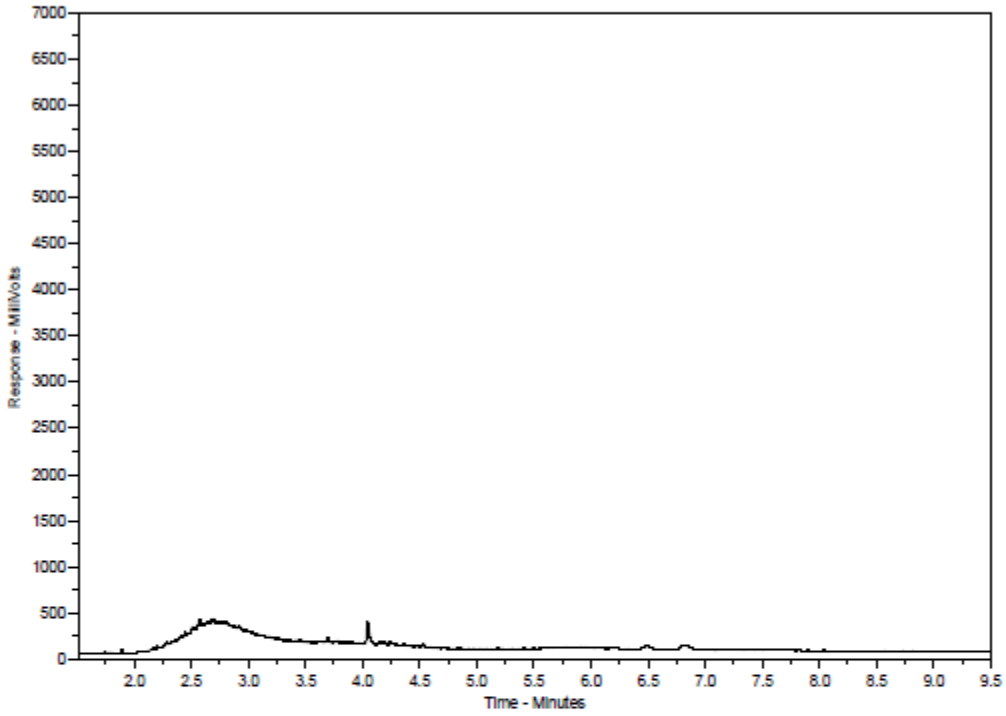
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

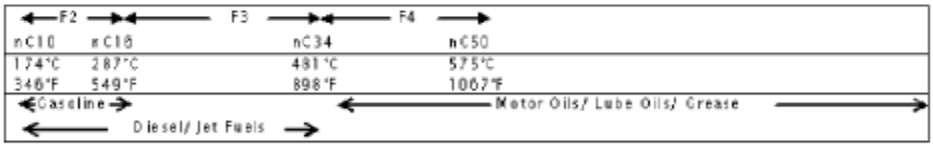
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2376472-1
Client Sample ID: I2-03





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.

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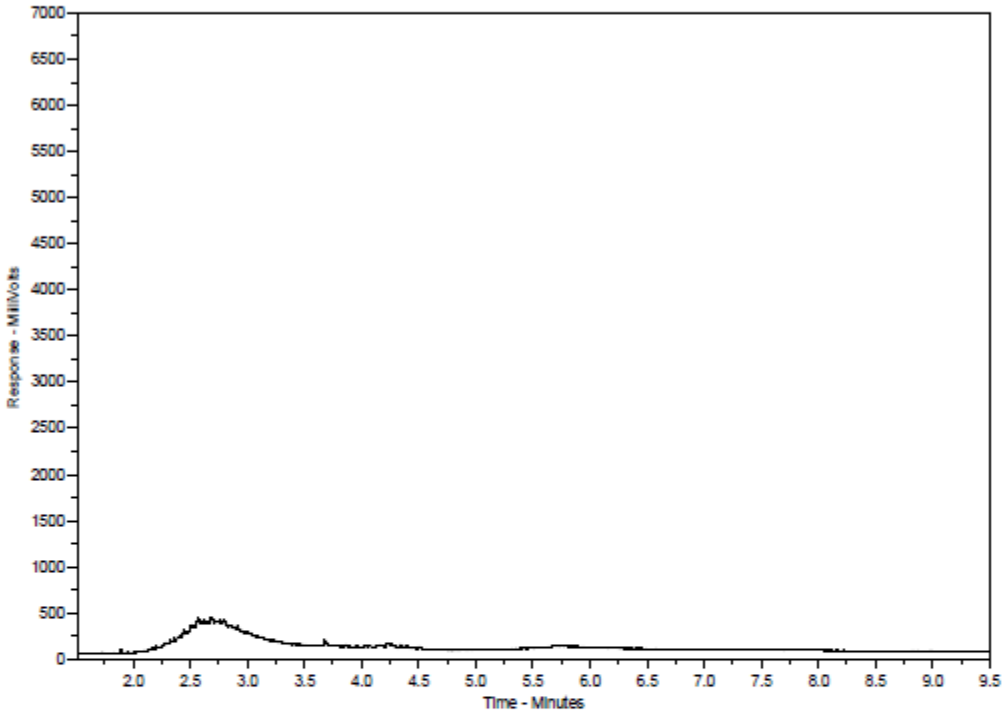
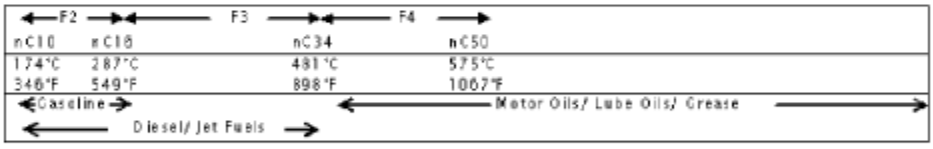
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-2
Client Sample ID: I4-01





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.

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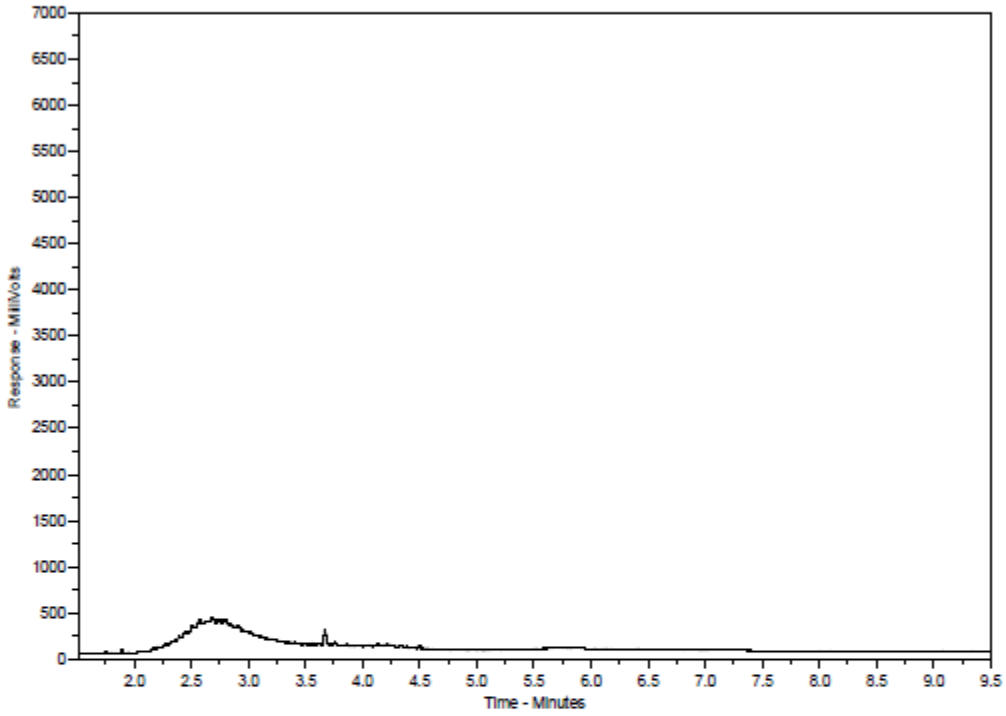
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-3
Client Sample ID: I3-04M



F2		F3	F4
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F

Gasoline
Diesel/ Jet Fuels
Motor Oils/ Lube Oils/ Grease

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.

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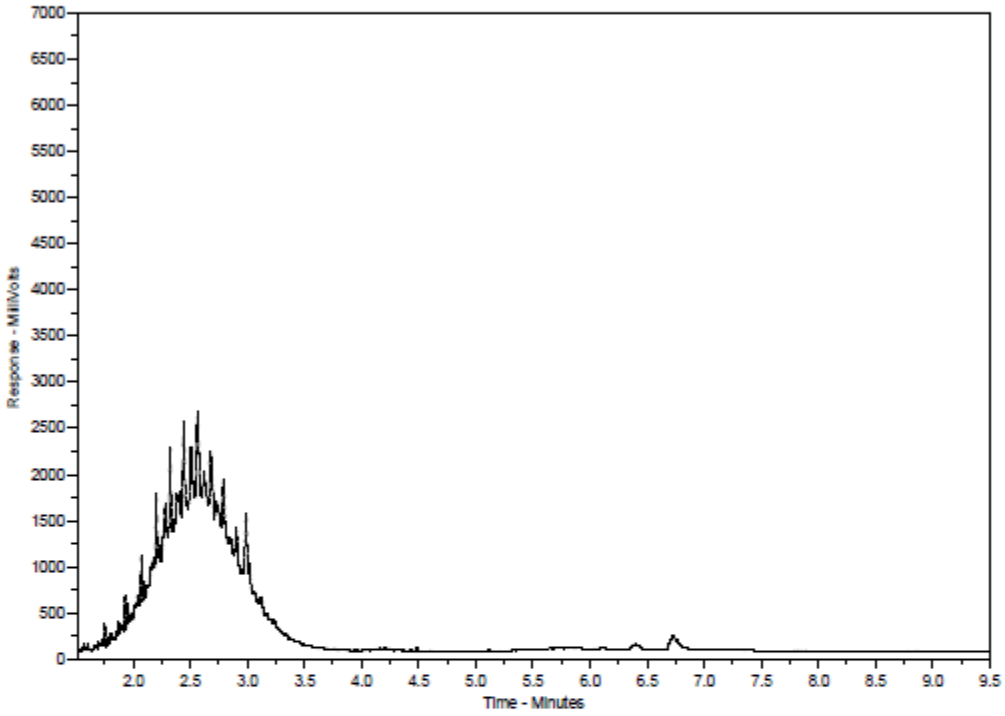
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-6
Client Sample ID: H2-03



← 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.

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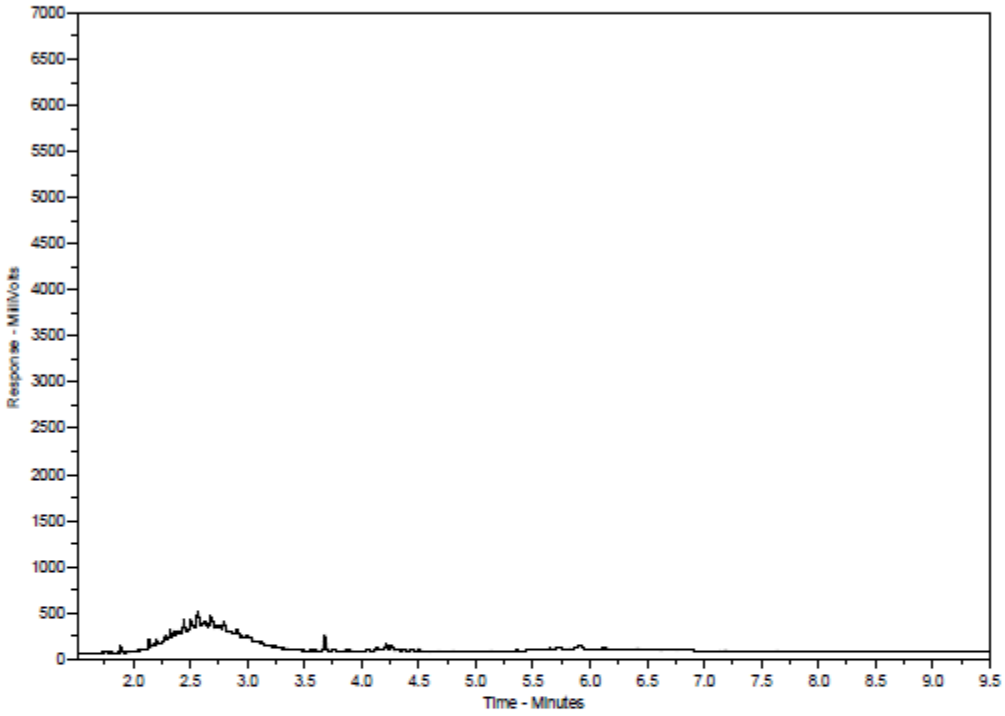
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-7
Client Sample ID: H1-02M



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.

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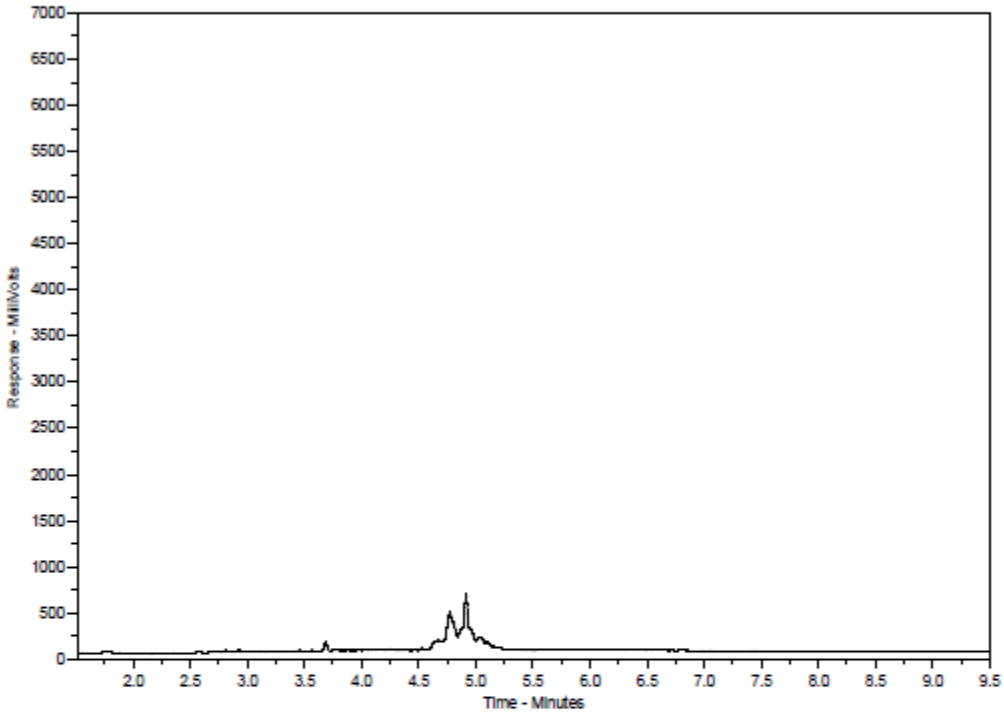
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-10
Client Sample ID: G1-02



← 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.

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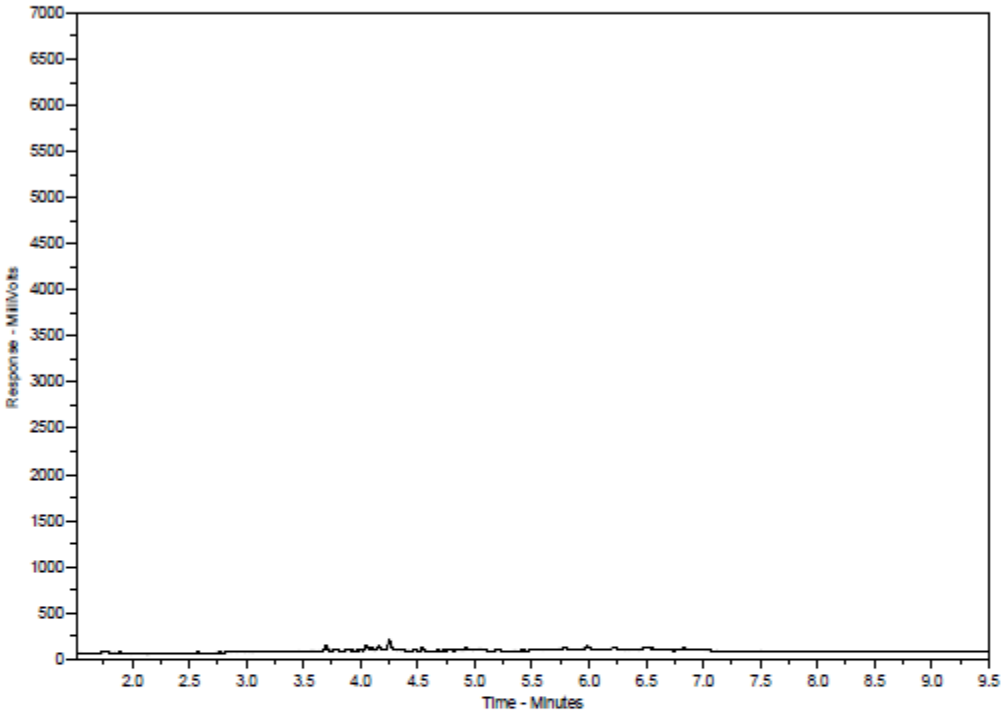
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-11
Client Sample ID: G1-01M



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.

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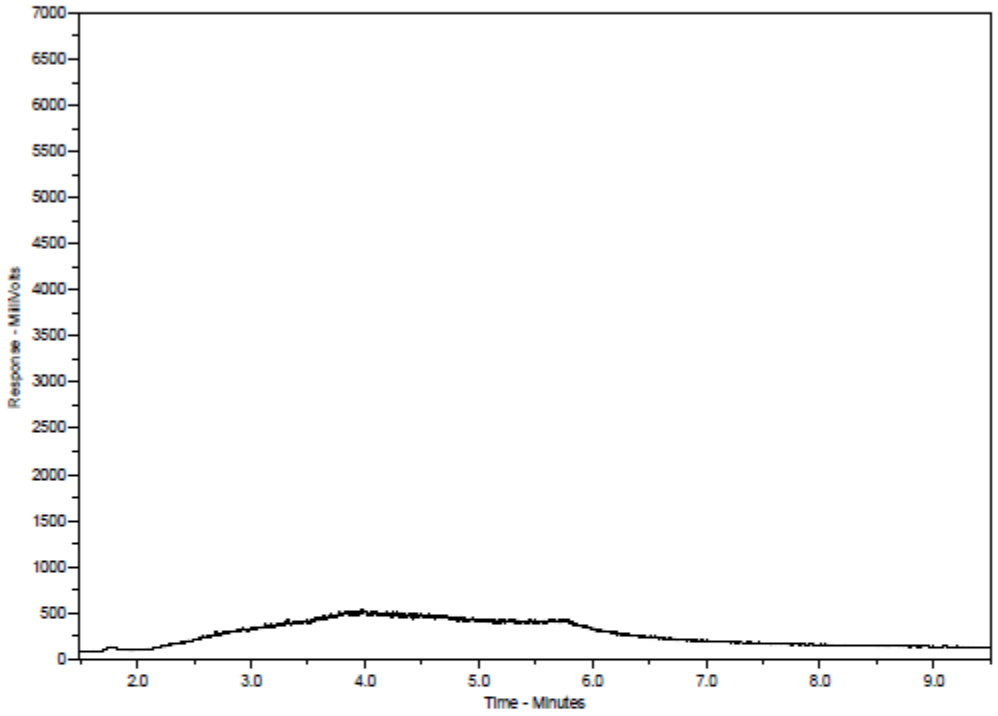
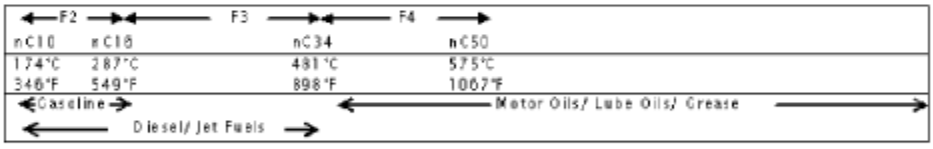
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-14
Client Sample ID: E2-03





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.

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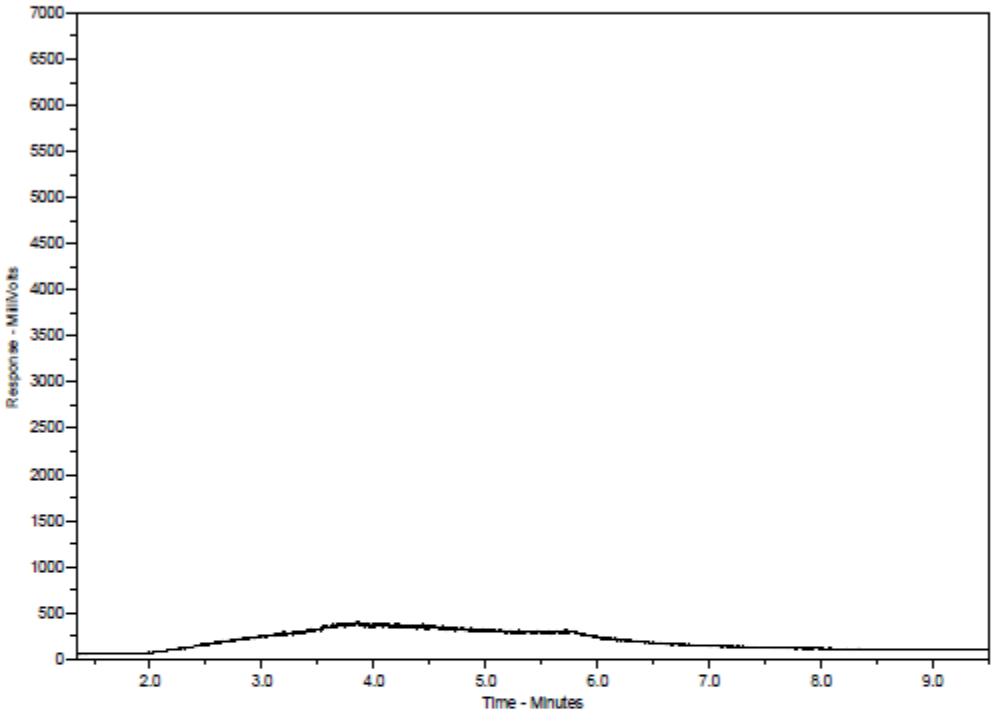
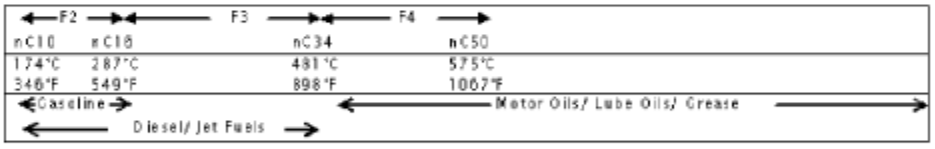
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-15
Client Sample ID: E1-02M





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.

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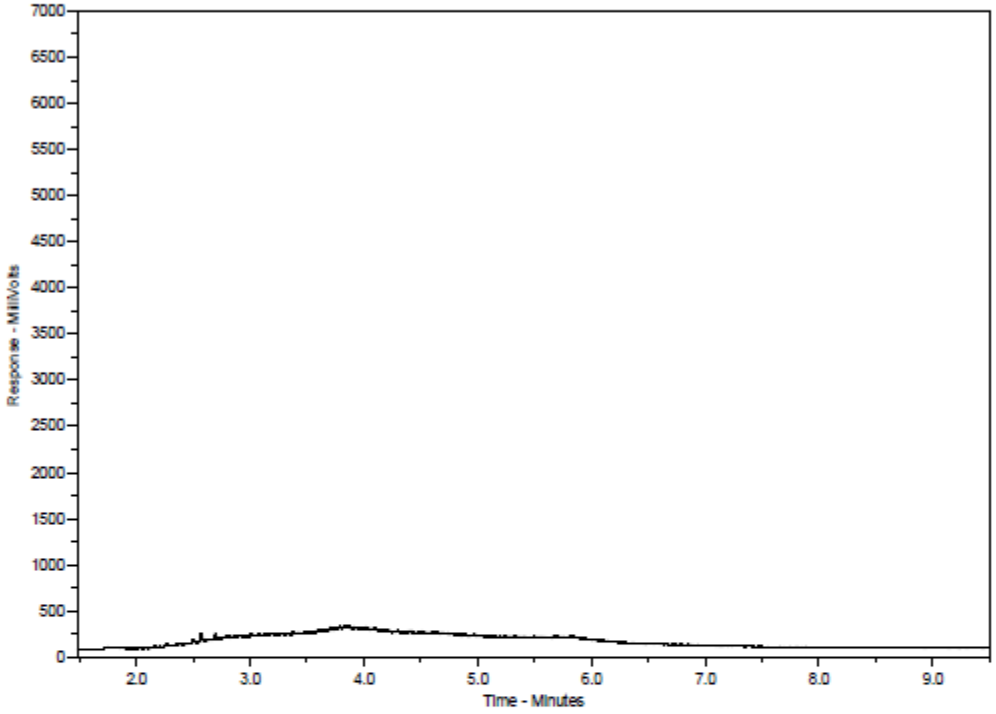
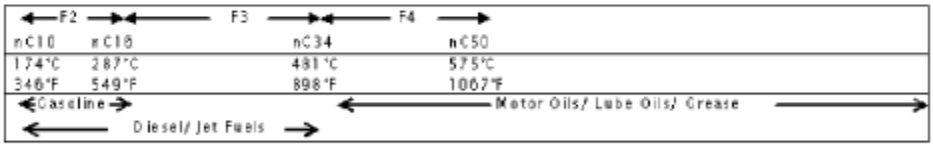
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-18
Client Sample ID: D2-03





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.

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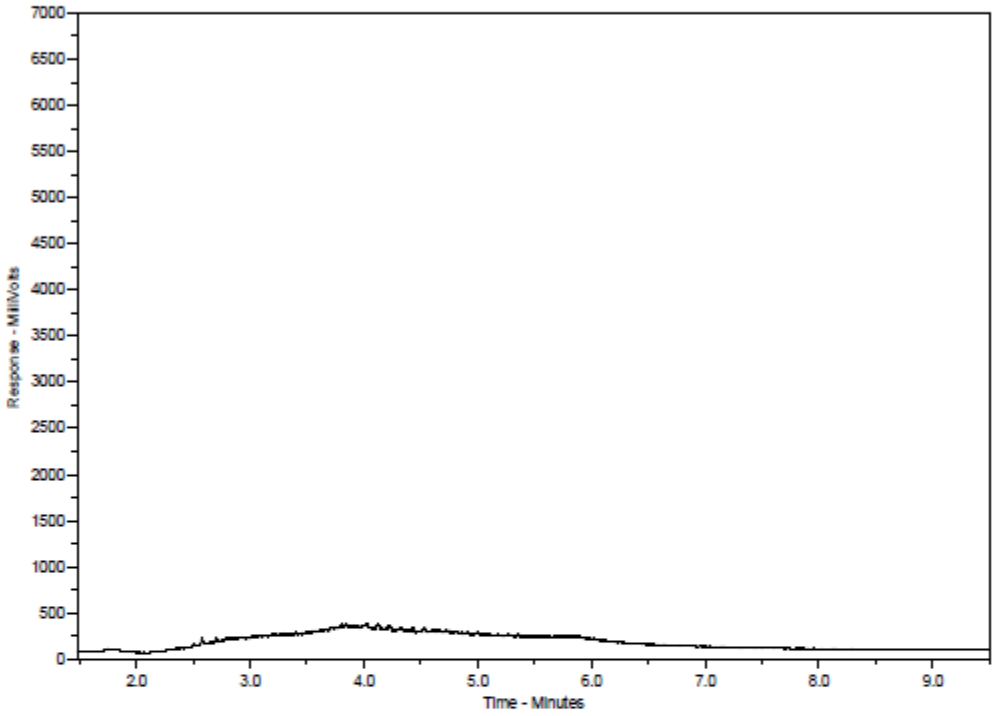
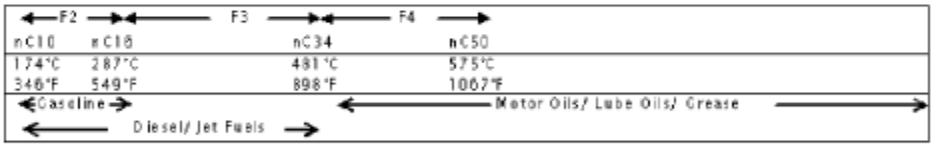
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-19
Client Sample ID: D1-02M





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.

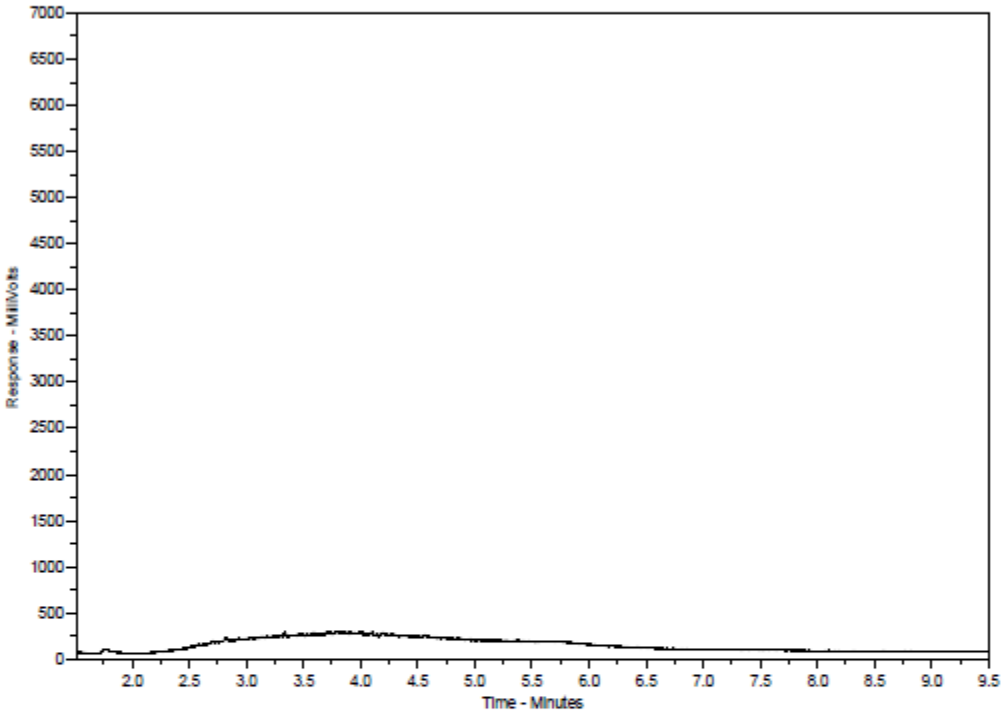
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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.

Printed on 11/15/2019 3:08:15 PM

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-22
Client Sample ID: C1-02



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.

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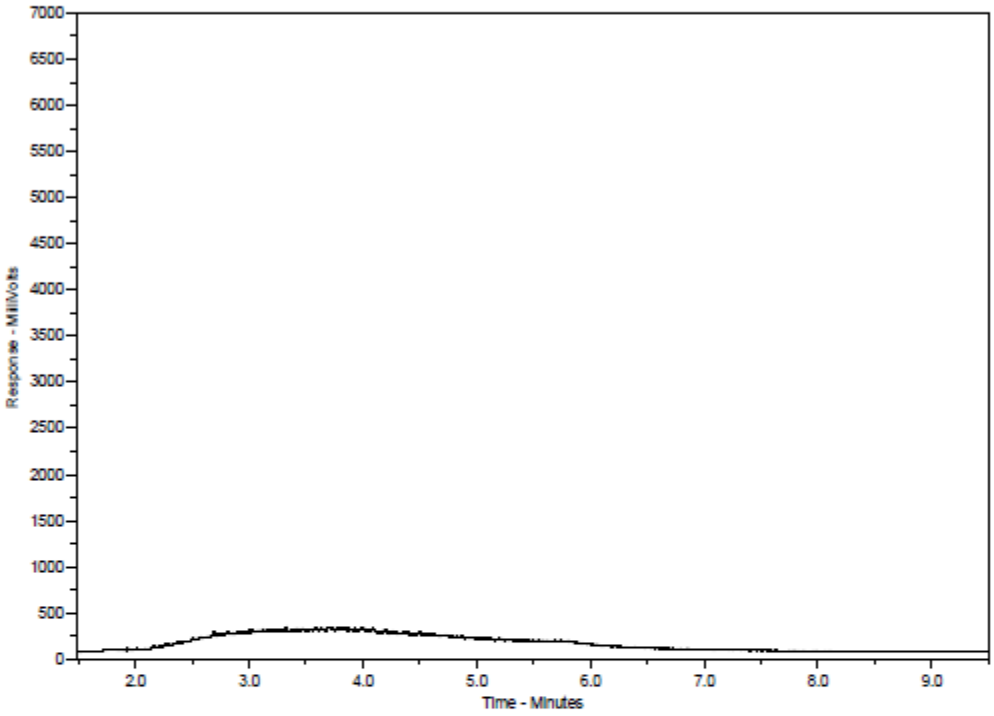
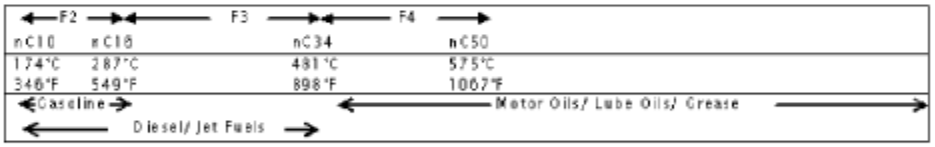
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-23
Client Sample ID: C1-03M





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.

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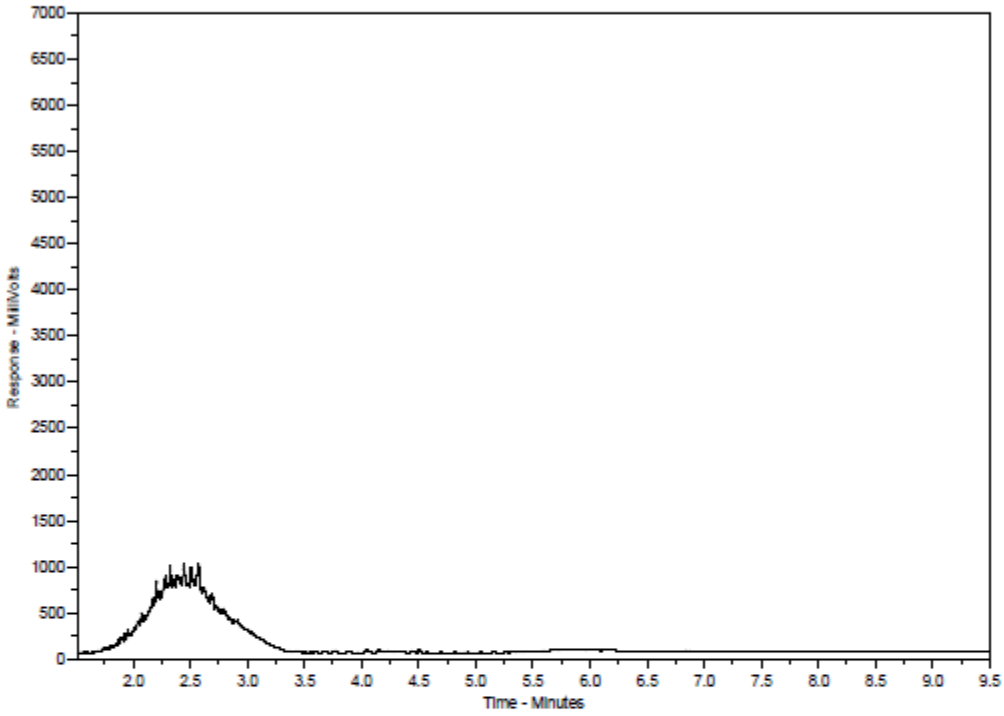
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-26
Client Sample ID: B2-01



← 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.

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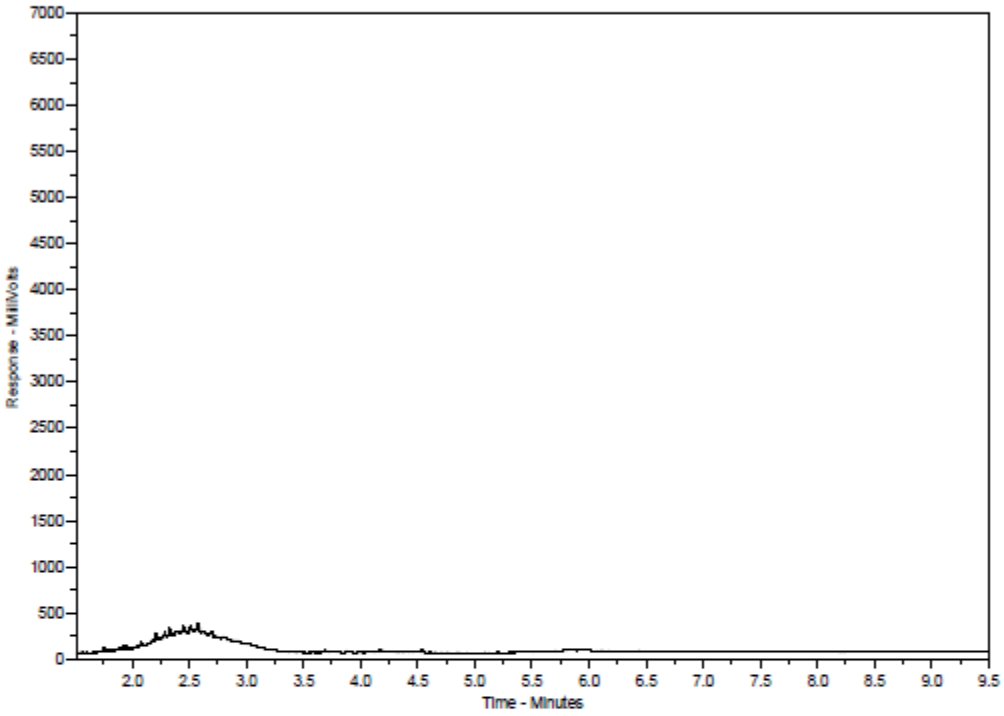
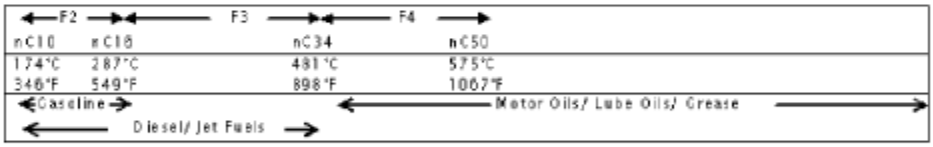
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-27
Client Sample ID: B2-03M





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.

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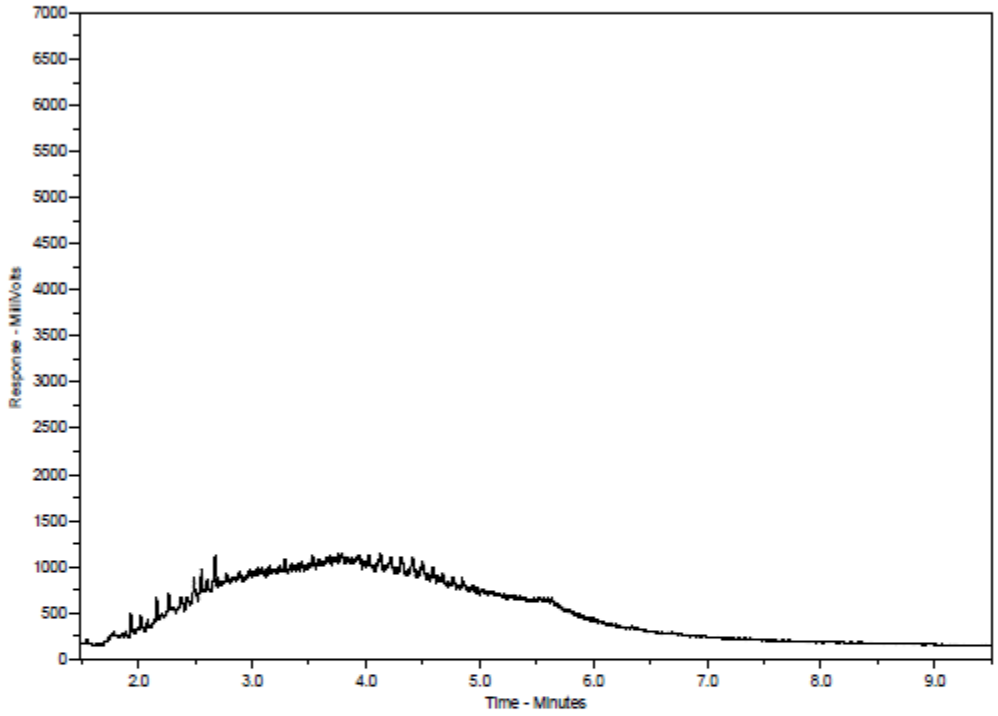
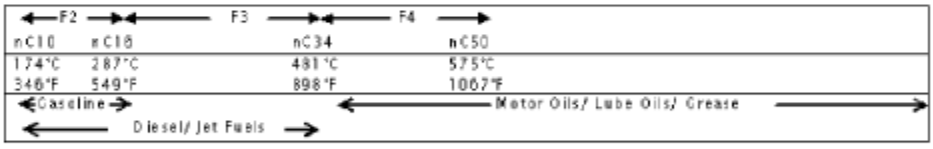
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-30
Client Sample ID: A4-02





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.

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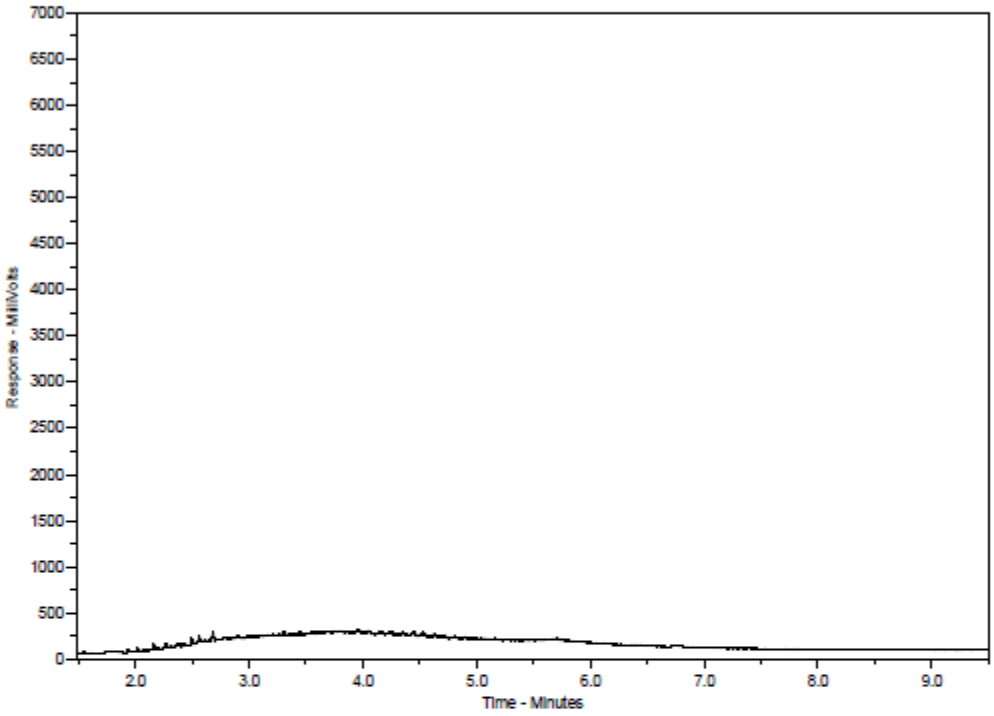
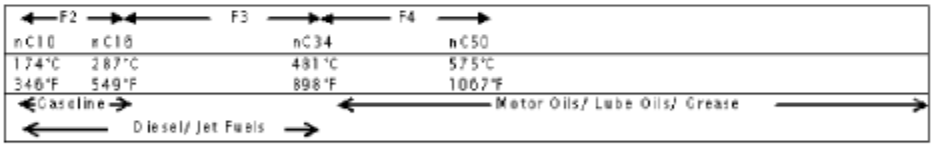
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-31
Client Sample ID: A8-04





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.

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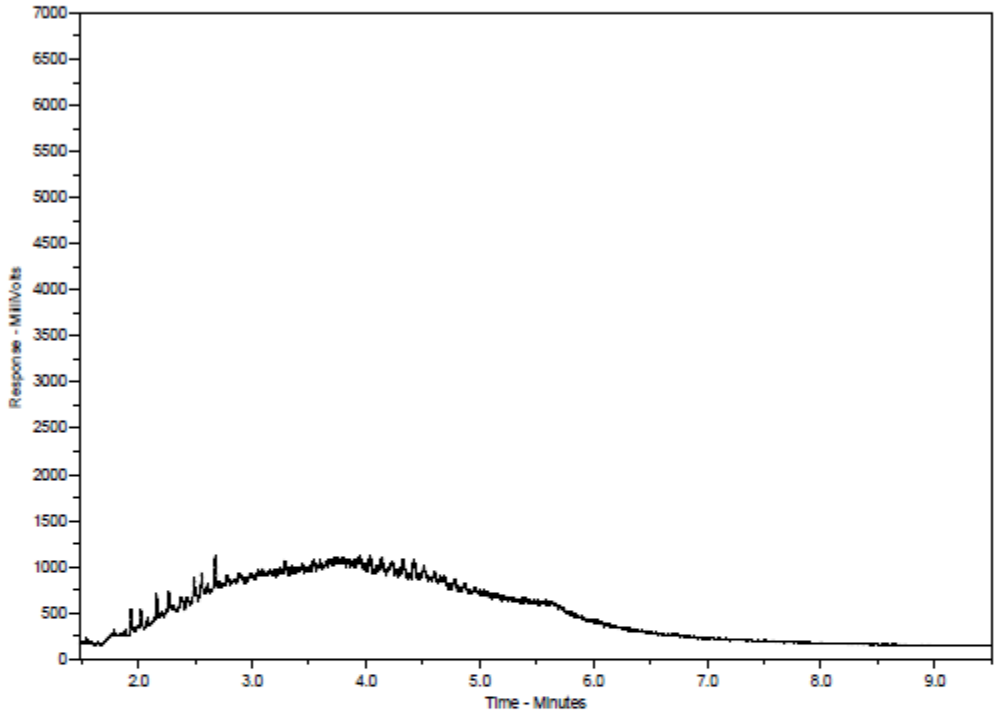
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-32
Client Sample ID: A5-02M



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.

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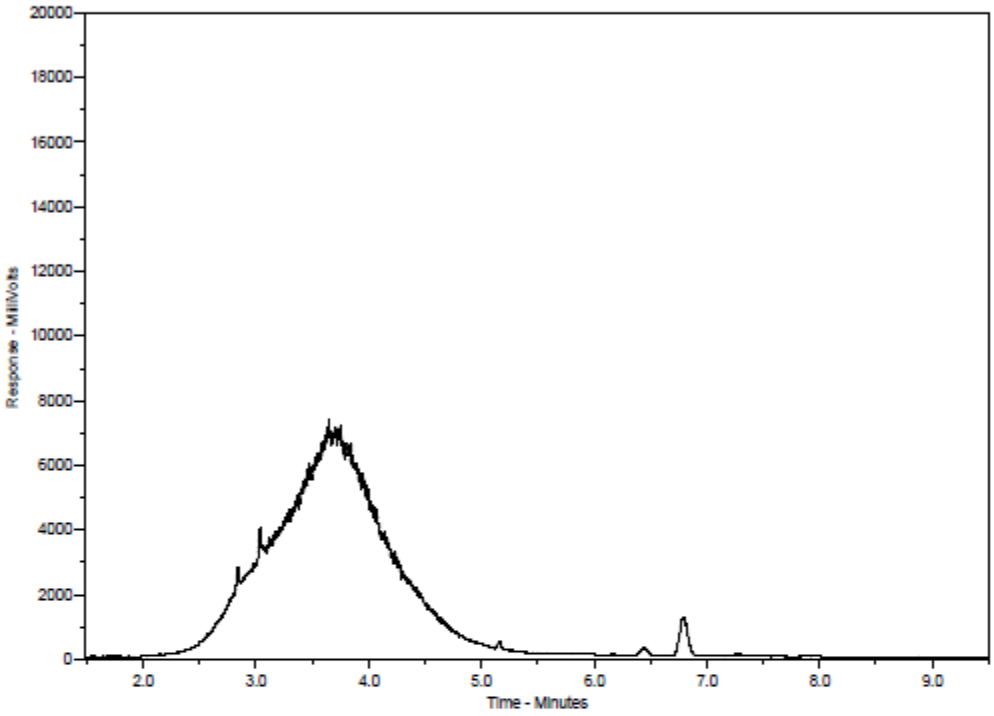
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2376472-35
Client Sample ID: F1-01M



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.

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MWM ENVIRONMENTAL

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

Canada Toll Free: 1 800 668 9878

L2376472-COFC

COC Number: 17 - 781724

Page 1 of 3

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Turnaround Time (TAT) Required - Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	MWM Environmental	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brandi Berthelet	Quality Control (QC) Report with Report: YES NO	PRIORITY (Business Days): 4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%]
Phone:	204-741-0389	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:	Box 459	Email 1 or Fax: brandi@mwmenviro.ca	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Souris MB	Email 2: admin@mwmenviro.ca	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	R0K 2C0	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	
Company:		Email 1 or Fax: brandi@mwmenviro.ca	
Contact:		Email 2: admin@mwmenviro.ca	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q69981	AFE/Cost Center:	PO#:
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:	MWM-028	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	NUMBER OF CONTAINERS (Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below)	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
1	I 2-03	Oct 30/19	14:45	Soil			
2	I 4-01	30/10/19	14:31	Soil			
3	I 3-04 m	30/10/19	14:37	Soil			
4	I 3-04 mA	30/10/19	14:39	Soil			
5	I 3-04 mB	30/10/19	14:40	Soil			
6	H 2-03	30/10/19	15:03	Soil			
7	H 1-02 m	30/10/19	14:52	Soil			
8	H 1-02 mA	30/10/19	14:58	Soil			
9	H 1-02 mB	30/10/19	15:00	Soil			
10	G 1-02	30/10/19	16:02	Soil			
11	G 1-01 m	30/10/19	15:55	Soil			
12	G 1-01 mA	30/10/19	15:58	Soil			

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: 8.6 | 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:	Date:	Time:
	Oct 31/19	5pm		NOV 04 2019	1115		NOV 04 2019	1115

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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

MWM ENVIRONMENTAL

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2376472-COFC

COC Number: 17 - 781725

Page 2 of 3

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Contact your AM to confirm all E&P TATs (surcharges may apply)
Company:	MWM Environmental	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brandi Berthelet	Quality Control (QC) Report with Report: YES NO	PRIORITY (Surcharges Apply): 4 day [P4-20%] 3 day [P3-25%] 2 day [P2-50%]
Phone:	204-741-9389	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:	Box 459	Email 1 or Fax: brandi@mwmenviro.ca	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Souris MB	Email 2: admin@mwmenviro.ca	
Postal Code:	R0K 2C0	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: brandi@mwmenviro.ca	
Company:		Email 2: admin@mwmenviro.ca	
Contact:			

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q69981	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:	MWM-028	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	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
13	G1-01mB	30/10/19	15:59	Soil			
14	E2-03	30/10/19	16:07	Soil			
15	E1-02m	30/10/19	16:12	Soil			
16	E1-02mA	30/10/19	16:15	Soil			
17	E1-02mB	30/10/19	16:17	Soil			
18	D2-03	31/10/19	14:20	Soil			
19	D1-02m	31/10/19	14:23	Soil			
20	D1-02mA	31/10/19	14:25	Soil			
21	D1-02mB	31/10/19	14:26	Soil			
22	C1-02	31/10/19	14:35	Soil			
23	C1-03m	31/10/19	14:38	Soil			
24	C1-03mA	31/10/19	14:40	Soil			

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			

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:
	Oct 31/19	17:00		NOV 04 2019			NOV 04 2019	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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

MWM ENVIRONMENTAL

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2376472-COFC

COC Number: 17 - 746789
Page 3 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:	MWM Environmental	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brandi Porthole	Quality Control (QC) Report with Report YES NO	PRIORITY (Business Days): 4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%]
Phone:	204-741-0289	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:	Box 459	Email 1 or Fax: brandi@mwmenviro.ca	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Souris MB	Email 2: admin@mwmenviro.ca	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	R0K 2C0	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: brandi@mwmenviro.ca	NUMBER OF CONTAINERS
Contact:		Email 2: admin@mwmenviro.ca	SAMPLES ON HOLD
Project Information		Oil and Gas Required Fields (client use)	SUSPECTED HAZARD (see Special Instructions)
ALS Account # / Quote #:	Q 69981	AFE/Cost Center: PO#	
Job #:		Major/Minor Code: Routing Code:	
PO / AFE:	MWM-028	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
	C1-03 mB	31/10/19	14:43	Soil
	B2-01	31/10/19	14:52	Soil
	B2-03m	31/10/19	14:55	Soil
	B2-03mA	31/10/19	14:59	Soil
	B2-03mB	31/10/19	15:02	Soil
	A4-02	31/10/19	15:11	Soil
	A8-04	31/10/19	15:16	Soil
	A5-02m	31/10/19	15:23	Soil
	A5-02mA	31/10/19	15:25	Soil
	A5-02mB	31/10/19	15:27	Soil
	F1-01m	31/10/19		Soil
	F1-01mA	31/10/19		Soil
	F1-01mB	31/10/19		Soil

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)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
	Oct 31/19	17:00		NOV 04 2019			NOV 04 2019	

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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

Appendix C – Groundwater Report

December 18, 2019

MWM Environmental: Monitoring Wells

SW 35-08-21 W1 (Licence #3181)

RM of Glenwood

Monitoring Well Sampling:

Annual monitoring well sampling was completed by the Operation's Manager for each well located around the landfill on SW 35-08-21 W1 as required in licence number #3181. This sampling is required to be done during the last half of summer.

Sampling Procedure:

Wells are sampled using a bailer. Each well contains its' own dedicated bailer which is tied up and stored within each monitoring well. Each bailer was replaced with a brand new one at the time of well purging. Before the sample is drawn, each well is purged in order to remove potential stagnant ground water. The wells are then given time to recharge. Some wells may recharge immediately, and others may take up to 1 or 2 days (some take weeks). Prior to collecting a sample, the bailer is rinsed with distilled water, and then samples are taken as per instructions. The well is capped, and security cover put back on. The samples are stored in a cooler, refrigerated and submitted to ALS laboratories as soon as possible (received within 72 hours). Water levels and well depths (measured from top of well casing down) are measured in each well prior to purging.

Date of purging: September 25th, 2019

Date of sampling: November 21st, 22nd, 27th, 2019

Date samples received at the lab: Nov 26th, 27th 2019

Status and condition of monitoring wells:

Well #	Well Location	Well Depth (In.)	Well Condition	Observed Water Quality	Purge Water Depth (In.)
GN1A	Southeast	376	Good	Clear	274
GN1B	Southeast	740	Good	Clear	309
MW2	Southeast	269	Good	Clear	171
MW3A	Northeast	643	Good	Clear	475
MW3B	Northeast	305	Good	Clear	233
MW4A	Northwest	615	Bent/Broken	N/A	N/A
MW4B	Northwest	302	Good	Clear	192
MW5A	Southwest	637	Good	Clear	532
MW5B	Southwest	330	Good	Clear	247

Observed trend line issues:

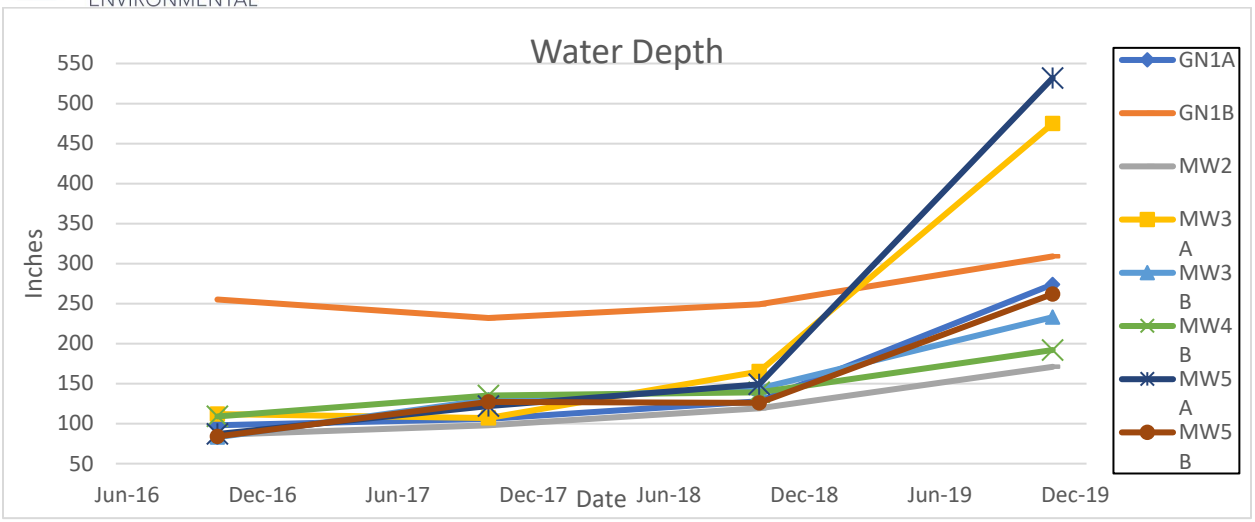
- Please have a look at the trend lines for a selection of the data. Quick observation would indicate normal annual fluctuation.
- Note elevated Ammonia, pH, and TKN in GN1A
- Note elevated phosphorous in MW3A

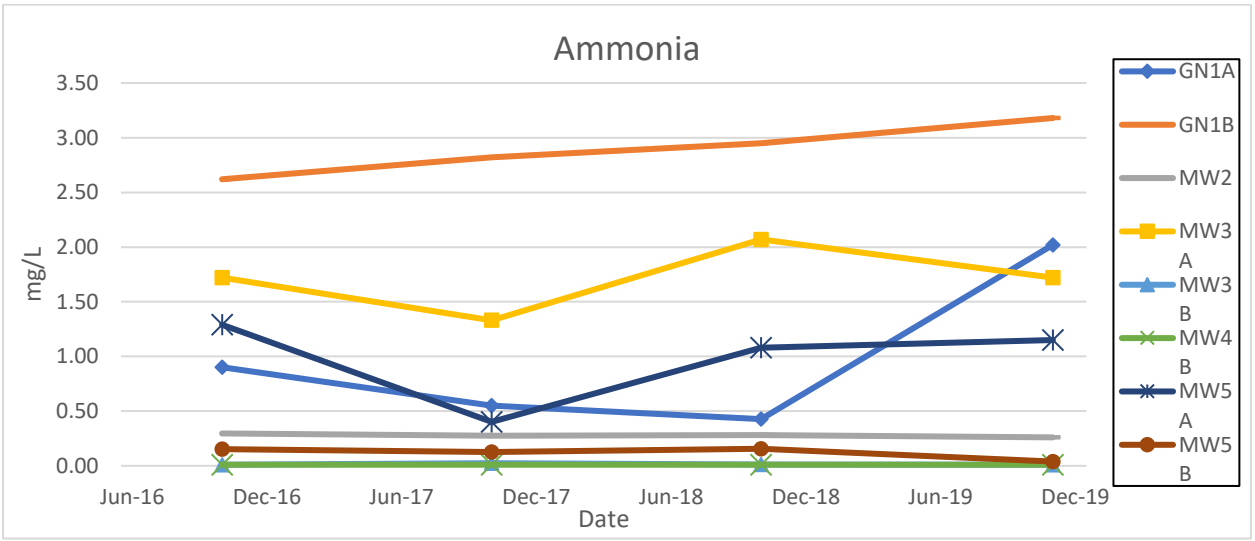
Conclusions and Comments:

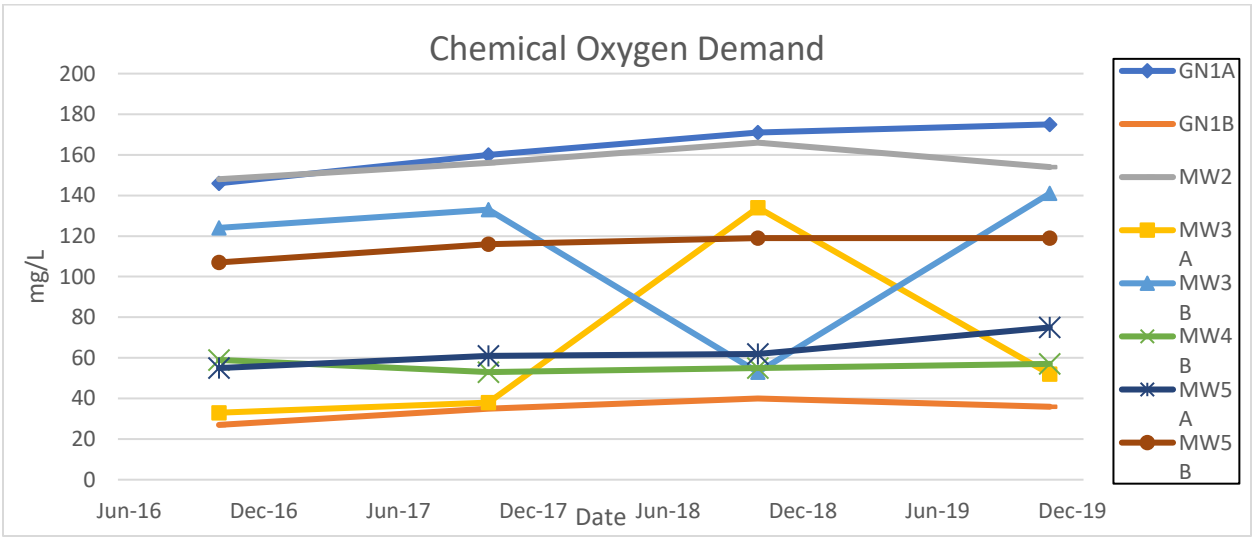
- Due to the significant depth of a few of the wells, they may have only been purged to within a few feet of the bottom.
- There is the possibility that some of the wells may not have achieved an 80% recharge although this should not represent a significant difference in the lab analysis.
- **Sample Parameter Qualifier Keys Noted:**
    - Samples 1, 2, 4 & 5 exceeded ALS recommended hold time prior to sample receipt with regards to testing for pH, Nitrate and Nitrite by IC, as well as Biochemical Oxygen Demand.

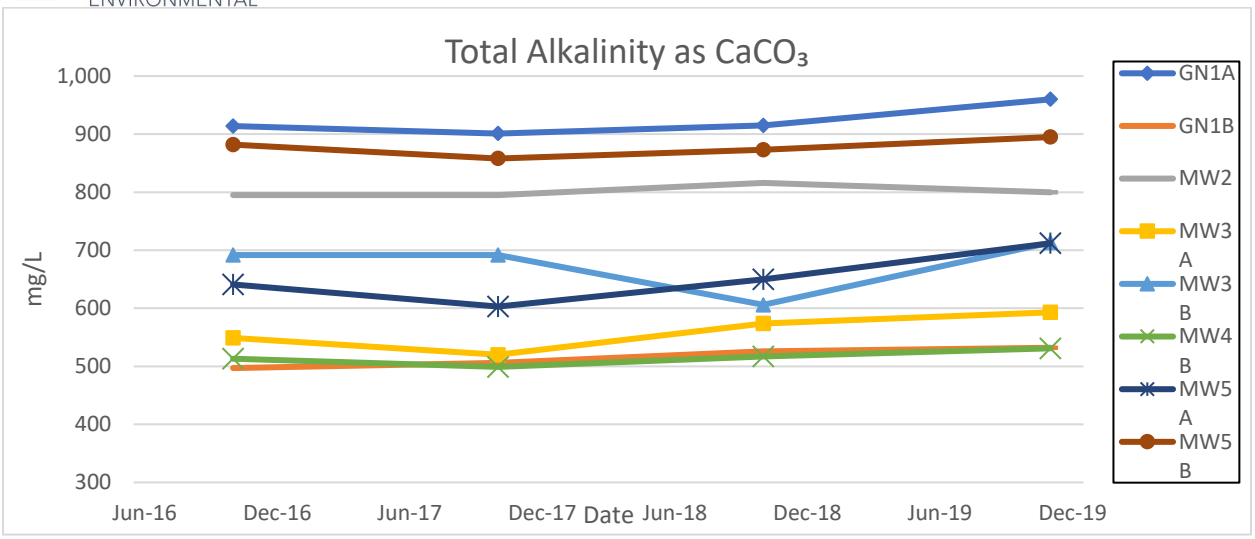
Attachments:

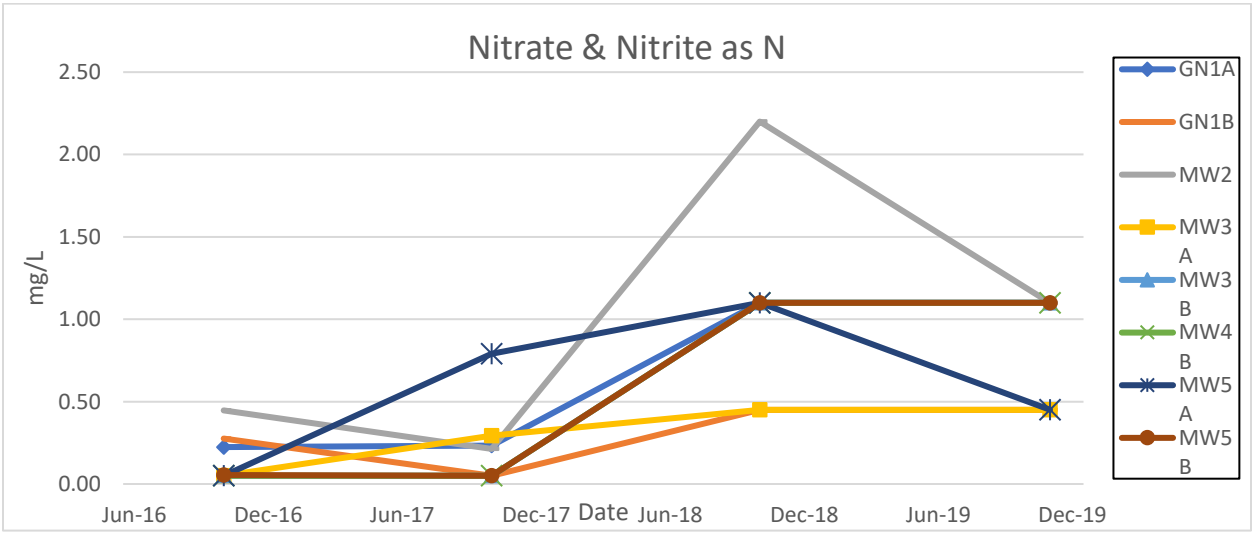
- Site plan with monitoring well locations and 2019 water depths.
- Annual data with trend lines displayed on graphs for a selection of parameters.
- 2019 lab analysis for each of the wells
- Municipal Waste Management Ltd. 2016 Licence

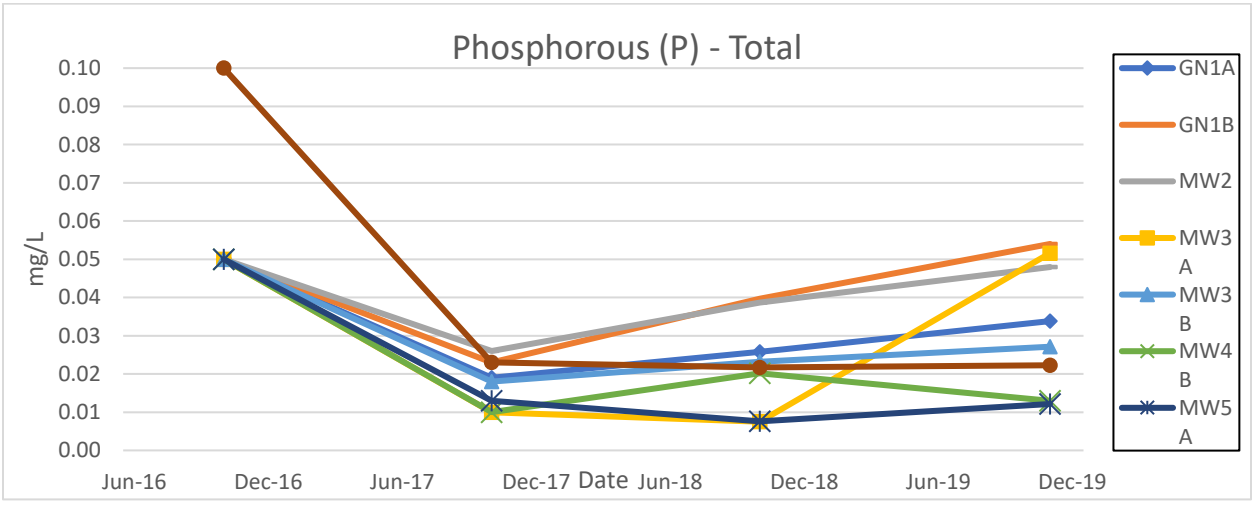

Water Depth
Inches
550
500
450
400
350
300
250
200
150
100
50
Jun-16
Dec-16
Jun-17
Dec-17
Jun-18
Dec-18
Jun-19
Dec-19
Date
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B

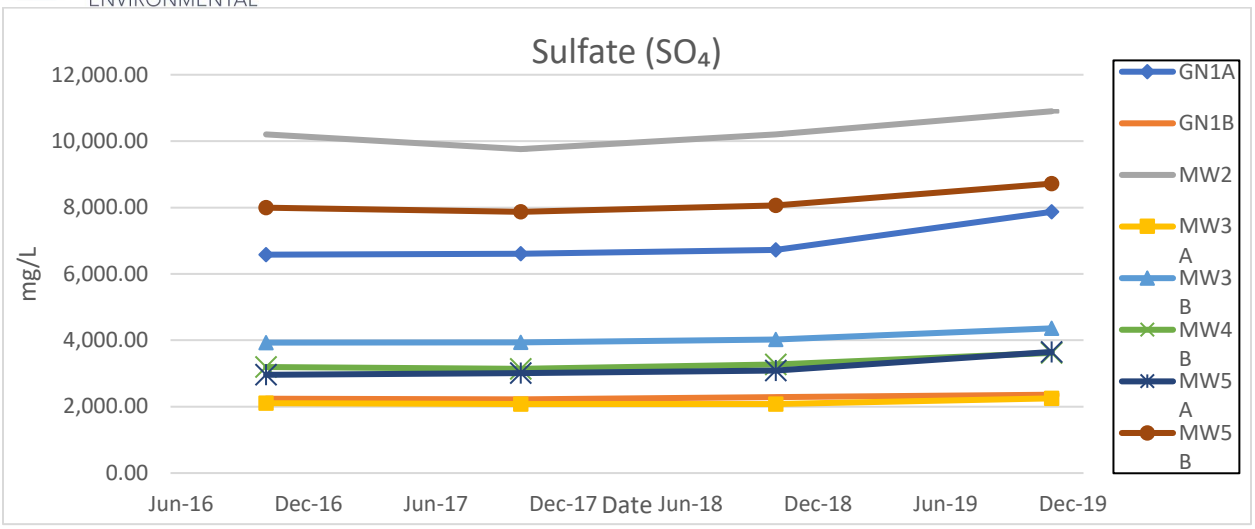

Ammonia
mg/L
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Jun-16
Dec-16
Jun-17
Dec-17
Jun-18
Dec-18
Jun-19
Dec-19
Date
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B

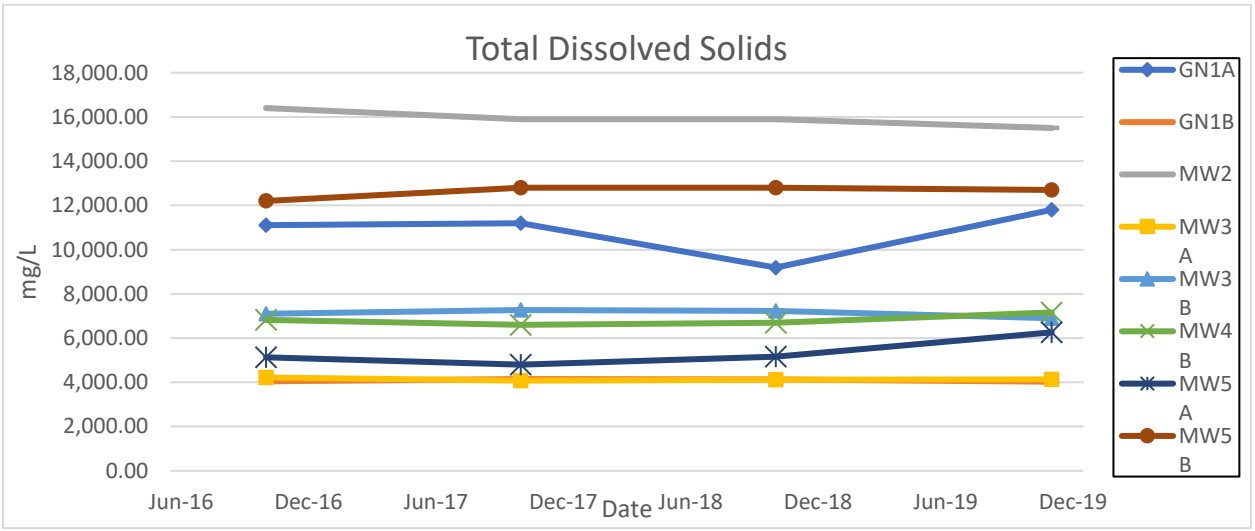

Chemical Oxygen Demand
mg/L
200
180
160
140
120
100
80
60
40
20
0
Jun-16
Dec-16
Jun-17
Dec-17
Jun-18
Dec-18
Jun-19
Dec-19
Date
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B

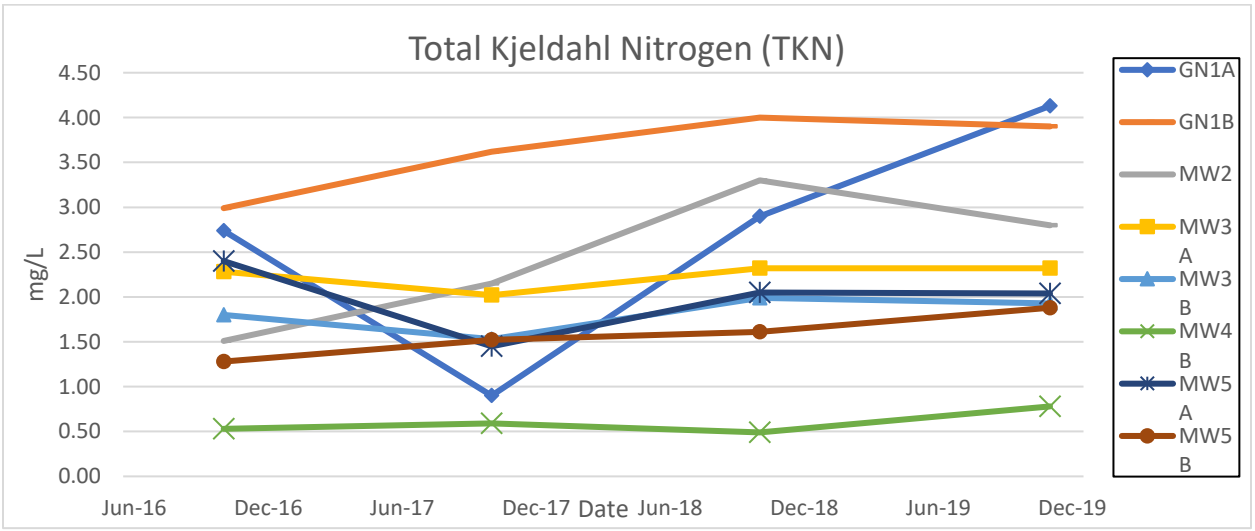

Total Alkalinity as $CaCO_3$
1,000
900
800
700
600
500
400
300
mg/L
Jun-16
Dec-16
Jun-17
Dec-17
Date
Jun-18
Dec-18
Jun-19
Dec-19
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B

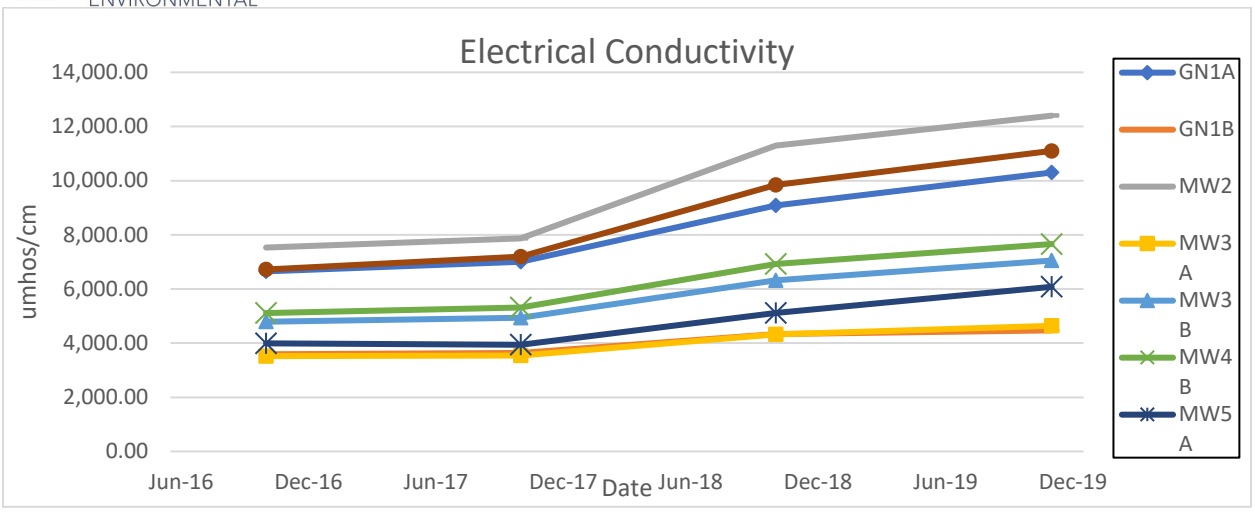

Nitrate & Nitrite as N
2.50
2.00
1.50
1.00
0.50
0.00
mg/L
Jun-16
Dec-16
Jun-17
Dec-17
Date
Jun-18
Dec-18
Jun-19
Dec-19
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B

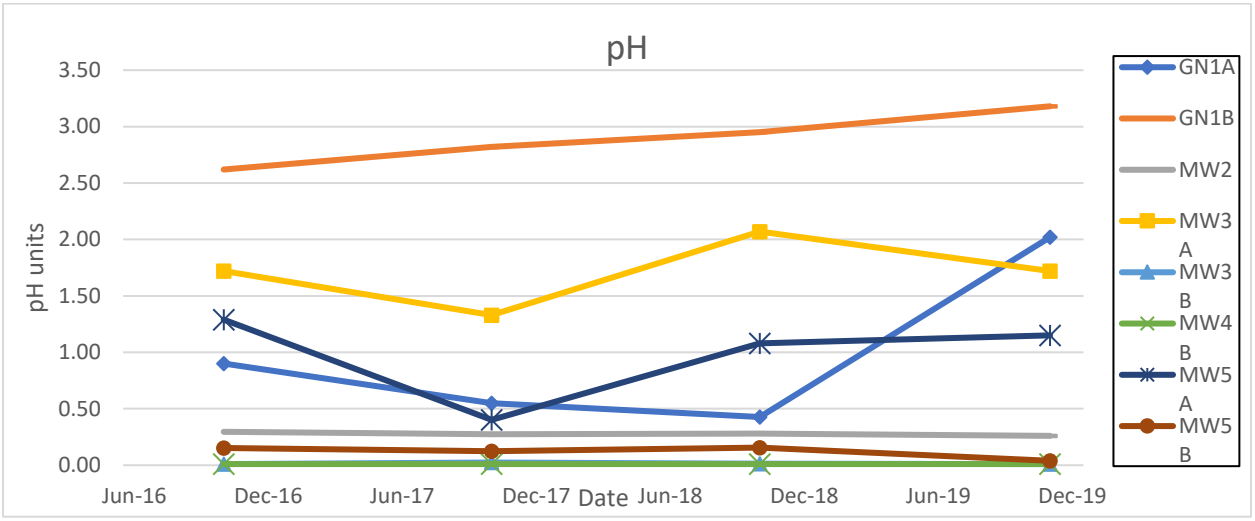

Phosphorous (P) - Total
0.10
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
mg/L
Jun-16
Dec-16
Jun-17
Dec-17
Date
Jun-18
Dec-18
Jun-19
Dec-19
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A


Sulfate (SO_4)
12,000.00
10,000.00
8,000.00
6,000.00
4,000.00
2,000.00
0.00
mg/L
Jun-16
Dec-16
Jun-17
Dec-17
Date
Jun-18
Dec-18
Jun-19
Dec-19
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B


Total Dissolved Solids
18,000.00
16,000.00
14,000.00
12,000.00
10,000.00
8,000.00
6,000.00
4,000.00
2,000.00
0.00
mg/L
Jun-16
Dec-16
Jun-17
Dec-17
Date
Jun-18
Dec-18
Jun-19
Dec-19
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B


Total Kjeldahl Nitrogen (TKN)
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
mg/L
Jun-16
Dec-16
Jun-17
Dec-17
Date
Jun-18
Dec-18
Jun-19
Dec-19
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B


Electrical Conductivity
14,000.00
12,000.00
10,000.00
8,000.00
6,000.00
4,000.00
2,000.00
0.00
umhos/cm
Jun-16
Dec-16
Jun-17
Dec-17
Jun-18
Dec-18
Jun-19
Dec-19
Date
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A


pH
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
pH units
Jun-16
Dec-16
Jun-17
Dec-17
Jun-18
Dec-18
Jun-19
Dec-19
Date
GN1A
GN1B
MW2
MW3A
MW3B
MW4B
MW5A
MW5B

Location plan of monitoring wells for MWM

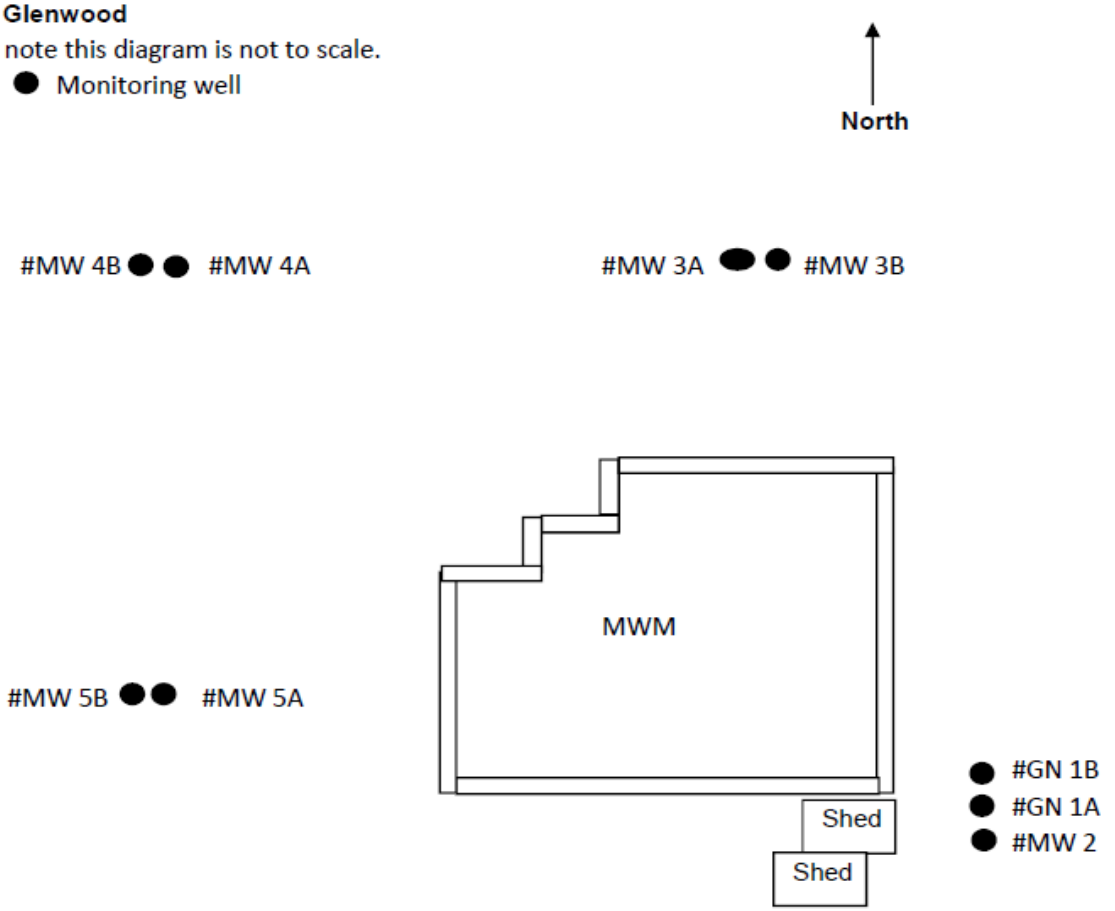
SW 35-8-21w

Landfill Storage Licence #3181

RM of Glenwood

Please note this diagram is not to scale.

● Monitoring well



Well #	Well Depth (In)	Well Height (In)	Water Depth @ time of purge (In)	Water Depth @ time of sampling (In)	Water Table (In)	Comments
GN1A	376	24	274	214	250	
GN1B	740	24	309	246	285	
MW2	269	20	171	153	151	
MW3A	643	29	475	498	446	
MW3B	305	26	233	247	207	
MW4A	615	n/a	n/a	n/a	n/a	Bent/Broken
MW4B	302	22	192	244	170	
MW5A	637	29	532	539	503	
MW5B	330	29	247	262	218	

Date of purging: September 25th, 2019

Date of sampling: November 21st, 22nd, 27th, 2019

MWM Environmental
ATTN: BRANDI BERTHOLET
Box 459
Souris MB R0K 2C0

Date Received: 28-NOV-19
Report Date: 11-DEC-19 14:47 (MT)
Version: FINAL

Client Phone: 204-483-3986

Certificate of Analysis

Lab Work Order #: L2388973
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2388973-1 MW4B							
Sampled By: CLIENT on 27-NOV-19 @ 10:45							
Matrix: WATER							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	<1.0	DLM	1.0	mg/L		28-NOV-19	R4929090
Nitrate+Nitrite							
Nitrate and Nitrite as N	<1.1		1.1	mg/L		30-NOV-19	
Nitrite in Water by IC							
Nitrite (as N)	<0.50	DLM	0.50	mg/L		28-NOV-19	R4929090
BTEX							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		04-DEC-19	R4933846
Toluene	<0.0010		0.0010	mg/L		04-DEC-19	R4933846
Ethyl benzene	<0.00050		0.00050	mg/L		04-DEC-19	R4933846
o-Xylene	<0.00050		0.00050	mg/L		04-DEC-19	R4933846
m+p-Xylenes	<0.00040		0.00040	mg/L		04-DEC-19	R4933846
F1 (C6-C10)	<0.10		0.10	mg/L		04-DEC-19	R4933846
Surrogate: 4-Bromofluorobenzene (SS)	95.0		70-130	%		04-DEC-19	R4933846
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		06-DEC-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		06-DEC-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		03-DEC-19	R4934147
Biochemical Oxygen Demand	<2.0		2.0	mg/L		28-NOV-19	R4932715
Chemical Oxygen Demand	57		20	mg/L		29-NOV-19	R4929501
Chloride (Cl)	990		25	mg/L		28-NOV-19	R4929090
Dissolved Organic Carbon	17.6		0.50	mg/L		02-DEC-19	R4931146
Phosphorus (P)-Total	0.0130		0.0030	mg/L		29-NOV-19	R4928488
Sulfate (SO4)	3620		15	mg/L		28-NOV-19	R4929090
Total Dissolved Solids	7160		20	mg/L		02-DEC-19	R4935531
Total Kjeldahl Nitrogen	0.78		0.20	mg/L	29-NOV-19	02-DEC-19	R4930338
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0382		0.0030	mg/L	04-DEC-19	04-DEC-19	R4936273
Antimony (Sb)-Total	0.00030		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Arsenic (As)-Total	0.00091		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Barium (Ba)-Total	0.00819		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Boron (B)-Total	0.105		0.010	mg/L	04-DEC-19	04-DEC-19	R4936273
Cadmium (Cd)-Total	0.000969		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Calcium (Ca)-Total	591		0.50	mg/L	04-DEC-19	04-DEC-19	R4936273
Cesium (Cs)-Total	<0.000010		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Chromium (Cr)-Total	0.00039		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Cobalt (Co)-Total	0.00071		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Copper (Cu)-Total	0.0109		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Iron (Fe)-Total	0.069		0.010	mg/L	04-DEC-19	04-DEC-19	R4936273
Lead (Pb)-Total	0.00217		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Lithium (Li)-Total	2.75		0.010	mg/L	04-DEC-19	04-DEC-19	R4936273
Magnesium (Mg)-Total	634		0.050	mg/L	04-DEC-19	04-DEC-19	R4936273
Manganese (Mn)-Total	0.272		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Molybdenum (Mo)-Total	0.00241		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Nickel (Ni)-Total	0.0355		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Potassium (K)-Total	26.0		0.050	mg/L	04-DEC-19	04-DEC-19	R4936273

* 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
L2388973-1 MW4B							
Sampled By: CLIENT on 27-NOV-19 @ 10:45							
Matrix: WATER							
Total Metals in Water by CRC ICPMS							
Phosphorus (P)-Total	<0.030		0.030	mg/L	04-DEC-19	04-DEC-19	R4936273
Rubidium (Rb)-Total	0.00171		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Selenium (Se)-Total	0.000699		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Silicon (Si)-Total	14.8		0.10	mg/L	04-DEC-19	04-DEC-19	R4936273
Silver (Ag)-Total	0.000028		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Sodium (Na)-Total	916		0.50	mg/L	04-DEC-19	04-DEC-19	R4936273
Strontium (Sr)-Total	5.52		0.0020	mg/L	04-DEC-19	04-DEC-19	R4936273
Sulfur (S)-Total	1250		5.0	mg/L	04-DEC-19	04-DEC-19	R4936273
Tellurium (Te)-Total	0.00047		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Thallium (Tl)-Total	0.000119		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Thorium (Th)-Total	<0.00010		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Tin (Sn)-Total	0.00061		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Titanium (Ti)-Total	0.00208		0.00030	mg/L	04-DEC-19	04-DEC-19	R4936273
Tungsten (W)-Total	<0.00010		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Uranium (U)-Total	0.134		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Vanadium (V)-Total	0.00117		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Zinc (Zn)-Total	0.0105		0.0030	mg/L	04-DEC-19	04-DEC-19	R4936273
Zirconium (Zr)-Total	0.00035		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					03-DEC-19	R4933007
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	03-DEC-19	03-DEC-19	R4933220
Antimony (Sb)-Dissolved	0.00024		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Arsenic (As)-Dissolved	0.00089		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Barium (Ba)-Dissolved	0.00791		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Boron (B)-Dissolved	0.069		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cadmium (Cd)-Dissolved	0.000862		0.0000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Calcium (Ca)-Dissolved	544		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Chromium (Cr)-Dissolved	0.00018		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cobalt (Co)-Dissolved	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Copper (Cu)-Dissolved	0.00924		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Lead (Pb)-Dissolved	0.000873		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Lithium (Li)-Dissolved	2.47		0.010	mg/L	03-DEC-19	06-DEC-19	R4939729
Magnesium (Mg)-Dissolved	541		0.050	mg/L	03-DEC-19	06-DEC-19	R4939729
Manganese (Mn)-Dissolved	0.161		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Molybdenum (Mo)-Dissolved	0.00236		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Nickel (Ni)-Dissolved	0.0312		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	03-DEC-19	03-DEC-19	R4933220
Potassium (K)-Dissolved	28.6		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Rubidium (Rb)-Dissolved	0.00183		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Selenium (Se)-Dissolved	0.000862		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silicon (Si)-Dissolved	11.2		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silver (Ag)-Dissolved	0.000019		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Sodium (Na)-Dissolved	853		0.50	mg/L	03-DEC-19	06-DEC-19	R4939729
Strontium (Sr)-Dissolved	5.01		0.0010	mg/L	03-DEC-19	06-DEC-19	R4939729
Sulfur (S)-Dissolved	1150		5.0	mg/L	03-DEC-19	06-DEC-19	R4939729
Tellurium (Te)-Dissolved	0.00039		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Thallium (Tl)-Dissolved	0.000118		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220

* 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
L2388973-1 MW4B							
Sampled By: CLIENT on 27-NOV-19 @ 10:45							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Tin (Sn)-Dissolved	0.00031		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	03-DEC-19	03-DEC-19	R4933220
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Uranium (U)-Dissolved	0.118		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Vanadium (V)-Dissolved	0.00081		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Zinc (Zn)-Dissolved	0.0087		0.0010	mg/L	03-DEC-19	03-DEC-19	R4933220
Zirconium (Zr)-Dissolved	0.00027		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Mercury Dissolved							
Dissolved Mercury Filtration Location	FIELD					06-DEC-19	R4940614
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L	10-DEC-19	10-DEC-19	R4940666
pH, Conductivity and Total Alkalinity							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	648		1.2	mg/L		29-NOV-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		29-NOV-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		29-NOV-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	531		1.0	mg/L		28-NOV-19	R4928689
Conductivity							
Conductivity	7660		1.0	umhos/cm		28-NOV-19	R4928689
pH							
pH	7.50		0.10	pH units		28-NOV-19	R4928689
L2388973-2 MW5B							
Sampled By: CLIENT on 27-NOV-19 @ 10:45							
Matrix: WATER							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	<1.0	DLM	1.0	mg/L		28-NOV-19	R4929090
Nitrate+Nitrite							
Nitrate and Nitrite as N	<1.1		1.1	mg/L		30-NOV-19	
Nitrite in Water by IC							
Nitrite (as N)	<0.50	DLM	0.50	mg/L		28-NOV-19	R4929090
BTEX							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		04-DEC-19	R4933846
Toluene	<0.0010		0.0010	mg/L		04-DEC-19	R4933846
Ethyl benzene	<0.00050		0.00050	mg/L		04-DEC-19	R4933846
o-Xylene	<0.00050		0.00050	mg/L		04-DEC-19	R4933846
m+p-Xylenes	<0.00040		0.00040	mg/L		04-DEC-19	R4933846
F1 (C6-C10)	<0.10		0.10	mg/L		04-DEC-19	R4933846
Surrogate: 4-Bromofluorobenzene (SS)	83.0		70-130	%		04-DEC-19	R4933846
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		06-DEC-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		06-DEC-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.039		0.010	mg/L		05-DEC-19	R4936589
Biochemical Oxygen Demand	<2.0		2.0	mg/L		28-NOV-19	R4932715
Chemical Oxygen Demand	119		20	mg/L		29-NOV-19	R4929501

* 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
L2388973-2 MW5B							
Sampled By: CLIENT on 27-NOV-19 @ 10:45							
Matrix: WATER							
Chloride (Cl)	36		25	mg/L		28-NOV-19	R4929090
Dissolved Organic Carbon	35.8		0.50	mg/L		02-DEC-19	R4931146
Phosphorus (P)-Total	0.0223		0.0030	mg/L		29-NOV-19	R4928488
Sulfate (SO4)	8720		15	mg/L		28-NOV-19	R4929090
Total Dissolved Solids	12700		80	mg/L		02-DEC-19	R4935531
Total Kjeldahl Nitrogen	1.88		0.20	mg/L	29-NOV-19	02-DEC-19	R4930338
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0544		0.0030	mg/L	04-DEC-19	04-DEC-19	R4936273
Antimony (Sb)-Total	0.00075		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Arsenic (As)-Total	0.00171		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Barium (Ba)-Total	0.00876		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Boron (B)-Total	0.147		0.010	mg/L	04-DEC-19	04-DEC-19	R4936273
Cadmium (Cd)-Total	0.000650		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Calcium (Ca)-Total	418		0.050	mg/L	04-DEC-19	04-DEC-19	R4936273
Cesium (Cs)-Total	0.000010		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Chromium (Cr)-Total	0.00038		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Cobalt (Co)-Total	0.00293		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Copper (Cu)-Total	0.0105		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Iron (Fe)-Total	0.055		0.010	mg/L	04-DEC-19	04-DEC-19	R4936273
Lead (Pb)-Total	0.00387		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Lithium (Li)-Total	4.44		0.010	mg/L	04-DEC-19	04-DEC-19	R4936273
Magnesium (Mg)-Total	1730		0.050	mg/L	04-DEC-19	04-DEC-19	R4936273
Manganese (Mn)-Total	4.56		0.0010	mg/L	04-DEC-19	04-DEC-19	R4936273
Molybdenum (Mo)-Total	0.00386		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Nickel (Ni)-Total	0.0736		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Potassium (K)-Total	33.9		0.050	mg/L	04-DEC-19	04-DEC-19	R4936273
Phosphorus (P)-Total	<0.030		0.030	mg/L	04-DEC-19	04-DEC-19	R4936273
Rubidium (Rb)-Total	0.00151		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Selenium (Se)-Total	0.00324		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Silicon (Si)-Total	15.5		0.10	mg/L	04-DEC-19	04-DEC-19	R4936273
Silver (Ag)-Total	0.000044		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Sodium (Na)-Total	1430		0.50	mg/L	04-DEC-19	04-DEC-19	R4936273
Strontium (Sr)-Total	8.66		0.0020	mg/L	04-DEC-19	04-DEC-19	R4936273
Sulfur (S)-Total	3170		5.0	mg/L	04-DEC-19	04-DEC-19	R4936273
Tellurium (Te)-Total	0.00054		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Thallium (Tl)-Total	0.000095		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Thorium (Th)-Total	0.00011		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Tin (Sn)-Total	0.00032		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Titanium (Ti)-Total	0.00218		0.00030	mg/L	04-DEC-19	04-DEC-19	R4936273
Tungsten (W)-Total	<0.00010		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Uranium (U)-Total	0.235		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Vanadium (V)-Total	0.00159		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Zinc (Zn)-Total	0.0235		0.0030	mg/L	04-DEC-19	04-DEC-19	R4936273
Zirconium (Zr)-Total	0.00175		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					03-DEC-19	R4933007
Aluminum (Al)-Dissolved	0.0018		0.0010	mg/L	03-DEC-19	03-DEC-19	R4933220
Antimony (Sb)-Dissolved	0.00066		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Arsenic (As)-Dissolved	0.00192		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Barium (Ba)-Dissolved	0.00773		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220

* 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
L2388973-2 MW5B							
Sampled By: CLIENT on 27-NOV-19 @ 10:45							
Matrix: WATER							
Dissolved Metals in Water by CRC ICPMS							
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Boron (B)-Dissolved	0.138		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cadmium (Cd)-Dissolved	0.000611		0.0000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Calcium (Ca)-Dissolved	431		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Chromium (Cr)-Dissolved	0.00018		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cobalt (Co)-Dissolved	0.00263		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Copper (Cu)-Dissolved	0.00931		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Lead (Pb)-Dissolved	0.00199		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Lithium (Li)-Dissolved	3.88		0.010	mg/L	03-DEC-19	06-DEC-19	R4939729
Magnesium (Mg)-Dissolved	1440		0.050	mg/L	03-DEC-19	06-DEC-19	R4939729
Manganese (Mn)-Dissolved	3.71		0.0010	mg/L	03-DEC-19	06-DEC-19	R4939729
Molybdenum (Mo)-Dissolved	0.00371		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Nickel (Ni)-Dissolved	0.0689		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	03-DEC-19	03-DEC-19	R4933220
Potassium (K)-Dissolved	38.5		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Rubidium (Rb)-Dissolved	0.00159		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Selenium (Se)-Dissolved	0.00425		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silicon (Si)-Dissolved	11.5		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silver (Ag)-Dissolved	0.000039		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Sodium (Na)-Dissolved	1300		0.50	mg/L	03-DEC-19	06-DEC-19	R4939729
Strontium (Sr)-Dissolved	7.30		0.0010	mg/L	03-DEC-19	06-DEC-19	R4939729
Sulfur (S)-Dissolved	2900		5.0	mg/L	03-DEC-19	06-DEC-19	R4939729
Tellurium (Te)-Dissolved	0.00045		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Thallium (Tl)-Dissolved	0.000097		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Tin (Sn)-Dissolved	0.00019		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Titanium (Ti)-Dissolved	0.00045		0.00030	mg/L	03-DEC-19	03-DEC-19	R4933220
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Uranium (U)-Dissolved	0.206		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Vanadium (V)-Dissolved	0.00127		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Zinc (Zn)-Dissolved	0.0218		0.0010	mg/L	03-DEC-19	03-DEC-19	R4933220
Zirconium (Zr)-Dissolved	0.00171		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Mercury Dissolved							
Dissolved Mercury Filtration Location	FIELD					06-DEC-19	R4940614
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L	10-DEC-19	10-DEC-19	R4940666
pH, Conductivity and Total Alkalinity							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	1090		1.2	mg/L		29-NOV-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		29-NOV-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		29-NOV-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	895		1.0	mg/L		28-NOV-19	R4928689
Conductivity							
Conductivity	11100		1.0	umhos/cm		28-NOV-19	R4928689
pH							
pH	7.88		0.10	pH units		28-NOV-19	R4928689

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
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**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B

Samples are diluted and seeded and then incubated in airtight bottles at 20□C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

C-DOC-HTC-WP	Water	Dissolved Organic Carbon by Combustion	APHA 5310 B-WP

Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

COD-WP	Water	Chemical Oxygen Demand	APHA 5220 D

This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colorimetric method.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

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.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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.			
HG-D-CVAA-WP	Water	Mercury Dissolved	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.			
MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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.			
MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod.)
Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.			
N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)
Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.			
NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F
Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.			
NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L
This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E
A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaporated to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.			
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT
Total xylenes represents the sum of o-xylene and m&p-xylene.			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

** 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:

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.

MWM ENVIRONMENTAL

ALS Environmental

Quality Control Report

Workorder: L2388973 Report Date: 11-DEC-19 Page 1 of 10

Client: MWM Environmental
Box 459
Souris MB R0K 2C0

Contact: BRANDI BERTHOLET

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	Water							
Batch R4928689								
WG3231568-14 LCS								
Alkalinity, Total (as CaCO3)			108.3		%		85-115	28-NOV-19
WG3231568-11 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	28-NOV-19
BOD-WP	Water							
Batch R4932715								
WG3230318-7 LCS								
Biochemical Oxygen Demand			104.5		%		85-115	28-NOV-19
WG3230318-6 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	28-NOV-19
BTEXS+F1-HSMS-WP	Water							
Batch R4933846								
WG3234980-4 DUP		**L2388973-1**						
Benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	04-DEC-19
Toluene		<0.0010	<0.0010	RPD-NA	mg/L	N/A	30	04-DEC-19
Ethyl benzene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	04-DEC-19
o-Xylene		<0.00050	<0.00050	RPD-NA	mg/L	N/A	30	04-DEC-19
m+p-Xylenes		<0.00040	<0.00040	RPD-NA	mg/L	N/A	30	04-DEC-19
F1 (C6-C10)		<0.10	<0.10	RPD-NA	mg/L	N/A	30	04-DEC-19
WG3234980-2 LCS								
Benzene			99.3		%		70-130	04-DEC-19
Toluene			99.0		%		70-130	04-DEC-19
Ethyl benzene			97.0		%		70-130	04-DEC-19
o-Xylene			97.0		%		70-130	04-DEC-19
m+p-Xylenes			106.5		%		70-130	04-DEC-19
WG3234980-3 LCS								
F1 (C6-C10)			119.0		%		70-130	04-DEC-19
WG3234980-1 MB								
Benzene			<0.00050		mg/L		0.0005	04-DEC-19
Toluene			<0.0010		mg/L		0.001	04-DEC-19
Ethyl benzene			<0.00050		mg/L		0.0005	04-DEC-19
o-Xylene			<0.00050		mg/L		0.0005	04-DEC-19
m+p-Xylenes			<0.00040		mg/L		0.0004	04-DEC-19
F1 (C6-C10)			<0.10		mg/L		0.1	04-DEC-19
Surrogate: 4-Bromofluorobenzene (SS)			89.0		%		70-130	04-DEC-19
WG3234980-5 MS		**L2388973-2**						
Benzene			95.0		%		50-150	04-DEC-19

Quality Control Report

Workorder: L2388973 Report Date: 11-DEC-19 Page 2 of 10

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	Water							
Batch R4933846								
WG3234980-5 MS		**L2388973-2**						
Toluene			94.2		%		50-150	04-DEC-19
Ethyl benzene			87.1		%		50-150	04-DEC-19
o-Xylene			91.6		%		50-150	04-DEC-19
m+p-Xylenes			105.9		%		50-150	04-DEC-19
C-DOC-HTC-WP	Water							
Batch R4931146								
WG3233899-2 LCS								
Dissolved Organic Carbon			99.0		%		80-120	02-DEC-19
WG3233899-1 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	02-DEC-19
CL-IC-N-WP	Water							
Batch R4929090								
WG3230938-6 LCS								
Chloride (Cl)			97.2		%		90-110	28-NOV-19
WG3230938-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	28-NOV-19
COD-WP	Water							
Batch R4929501								
WG3231609-6 LCS								
Chemical Oxygen Demand			103.1		%		85-115	29-NOV-19
WG3231609-5 MB								
Chemical Oxygen Demand			<20		mg/L		20	29-NOV-19
EC-WP	Water							
Batch R4928689								
WG3231568-13 LCS								
Conductivity			99.2		%		90-110	28-NOV-19
WG3231568-11 MB								
Conductivity			<1.0		umhos/cm		1	28-NOV-19
HG-D-CVAA-WP	Water							
Batch R4940666								
WG3240068-2 LCS								
Mercury (Hg)-Dissolved			98.0		%		80-120	10-DEC-19
WG3240068-1 MB								
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	10-DEC-19
MET-D-CCMS-WP	Water							

ALS Environmental

Quality Control Report

Workorder: L2388973 Report Date: 11-DEC-19 Page 3 of 10

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	Water							
Batch R4933220								
WG3234831-2 LCS								
Aluminum (Al)-Dissolved			103.8		%		80-120	03-DEC-19
Antimony (Sb)-Dissolved			98.4		%		80-120	03-DEC-19
Arsenic (As)-Dissolved			101.2		%		80-120	03-DEC-19
Barium (Ba)-Dissolved			106.3		%		80-120	03-DEC-19
Beryllium (Be)-Dissolved			88.6		%		80-120	03-DEC-19
Bismuth (Bi)-Dissolved			86.9		%		80-120	03-DEC-19
Boron (B)-Dissolved			85.3		%		80-120	03-DEC-19
Cadmium (Cd)-Dissolved			100.1		%		80-120	03-DEC-19
Calcium (Ca)-Dissolved			102.2		%		80-120	03-DEC-19
Cesium (Cs)-Dissolved			110.0		%		80-120	03-DEC-19
Chromium (Cr)-Dissolved			98.4		%		80-120	03-DEC-19
Cobalt (Co)-Dissolved			98.0		%		80-120	03-DEC-19
Copper (Cu)-Dissolved			96.6		%		80-120	03-DEC-19
Iron (Fe)-Dissolved			85.2		%		80-120	03-DEC-19
Lead (Pb)-Dissolved			86.9		%		80-120	03-DEC-19
Manganese (Mn)-Dissolved			102.1		%		80-120	03-DEC-19
Molybdenum (Mo)-Dissolved			97.5		%		80-120	03-DEC-19
Nickel (Ni)-Dissolved			94.2		%		80-120	03-DEC-19
Phosphorus (P)-Dissolved			106.1		%		80-120	03-DEC-19
Potassium (K)-Dissolved			98.1		%		80-120	03-DEC-19
Rubidium (Rb)-Dissolved			106.2		%		80-120	03-DEC-19
Selenium (Se)-Dissolved			97.5		%		80-120	03-DEC-19
Silicon (Si)-Dissolved			87.2		%		80-120	03-DEC-19
Silver (Ag)-Dissolved			96.3		%		80-120	03-DEC-19
Tellurium (Te)-Dissolved			97.8		%		80-120	03-DEC-19
Thallium (Tl)-Dissolved			88.2		%		80-120	03-DEC-19
Thorium (Th)-Dissolved			85.9		%		80-120	03-DEC-19
Tin (Sn)-Dissolved			99.5		%		80-120	03-DEC-19
Titanium (Ti)-Dissolved			96.0		%		80-120	03-DEC-19
Tungsten (W)-Dissolved			101.4		%		80-120	03-DEC-19
Uranium (U)-Dissolved			97.7		%		80-120	03-DEC-19
Vanadium (V)-Dissolved			99.5		%		80-120	03-DEC-19
Zinc (Zn)-Dissolved			98.2		%		80-120	03-DEC-19
Zirconium (Zr)-Dissolved			96.1		%		80-120	03-DEC-19

Quality Control Report

Workorder: L2388973 Report Date: 11-DEC-19 Page 4 of 10

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	Water							
Batch R4933220								
WG3234831-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	03-DEC-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	03-DEC-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	03-DEC-19
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	03-DEC-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	03-DEC-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	03-DEC-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	03-DEC-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	03-DEC-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	03-DEC-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	03-DEC-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	03-DEC-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	03-DEC-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	03-DEC-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	03-DEC-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	03-DEC-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	03-DEC-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	03-DEC-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	03-DEC-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	03-DEC-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	03-DEC-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	03-DEC-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	03-DEC-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	03-DEC-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	03-DEC-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	03-DEC-19

Quality Control Report

Workorder: L2388973 Report Date: 11-DEC-19 Page 5 of 10

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4936273								
WG3234910-2 LCS								
Aluminum (Al)-Total			102.3		%		80-120	04-DEC-19
Antimony (Sb)-Total			106.8		%		80-120	04-DEC-19
Arsenic (As)-Total			101.3		%		80-120	04-DEC-19
Barium (Ba)-Total			100.0		%		80-120	04-DEC-19
Beryllium (Be)-Total			103.1		%		80-120	04-DEC-19
Bismuth (Bi)-Total			105.2		%		80-120	04-DEC-19
Boron (B)-Total			101.7		%		80-120	04-DEC-19
Cadmium (Cd)-Total			101.3		%		80-120	04-DEC-19
Calcium (Ca)-Total			101.5		%		80-120	04-DEC-19
Cesium (Cs)-Total			101.2		%		80-120	04-DEC-19
Chromium (Cr)-Total			102.1		%		80-120	04-DEC-19
Cobalt (Co)-Total			101.2		%		80-120	04-DEC-19
Copper (Cu)-Total			103.1		%		80-120	04-DEC-19
Iron (Fe)-Total			87.6		%		80-120	04-DEC-19
Lead (Pb)-Total			102.7		%		80-120	04-DEC-19
Lithium (Li)-Total			103.0		%		80-120	04-DEC-19
Magnesium (Mg)-Total			118.5		%		80-120	04-DEC-19
Manganese (Mn)-Total			102.1		%		80-120	04-DEC-19
Molybdenum (Mo)-Total			102.3		%		80-120	04-DEC-19
Nickel (Ni)-Total			101.6		%		80-120	04-DEC-19
Potassium (K)-Total			92.1		%		80-120	04-DEC-19
Phosphorus (P)-Total			103.8		%		80-120	04-DEC-19
Rubidium (Rb)-Total			98.2		%		80-120	04-DEC-19
Selenium (Se)-Total			100.9		%		80-120	04-DEC-19
Silicon (Si)-Total			102.6		%		80-120	04-DEC-19
Silver (Ag)-Total			101.8		%		80-120	04-DEC-19
Sodium (Na)-Total			103.4		%		80-120	04-DEC-19
Strontium (Sr)-Total			103.0		%		80-120	04-DEC-19
Sulfur (S)-Total			97.9		%		80-120	04-DEC-19
Tellurium (Te)-Total			108.9		%		80-120	04-DEC-19
Thallium (Tl)-Total			103.1		%		80-120	04-DEC-19
Thorium (Th)-Total			96.5		%		80-120	04-DEC-19
Tin (Sn)-Total			100.4		%		80-120	04-DEC-19
Titanium (Ti)-Total			100.1		%		80-120	04-DEC-19

ALS Environmental

Quality Control Report

Workorder: L2388973 Report Date: 11-DEC-19 Page 6 of 10

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4936273								
WG3234910-2 LCS								
Tungsten (W)-Total			102.8		%		80-120	04-DEC-19
Uranium (U)-Total			106.2		%		80-120	04-DEC-19
Vanadium (V)-Total			102.5		%		80-120	04-DEC-19
Zinc (Zn)-Total			99.7		%		80-120	04-DEC-19
Zirconium (Zr)-Total			93.5		%		80-120	04-DEC-19
WG3234910-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	04-DEC-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	04-DEC-19
Boron (B)-Total			<0.010		mg/L		0.01	04-DEC-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	04-DEC-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	04-DEC-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	04-DEC-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	04-DEC-19
Iron (Fe)-Total			<0.010		mg/L		0.01	04-DEC-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	04-DEC-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	04-DEC-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	04-DEC-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	04-DEC-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	04-DEC-19
Potassium (K)-Total			<0.050		mg/L		0.05	04-DEC-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	04-DEC-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	04-DEC-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	04-DEC-19
Silicon (Si)-Total			<0.10		mg/L		0.1	04-DEC-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	04-DEC-19
Sodium (Na)-Total			<0.050		mg/L		0.05	04-DEC-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	04-DEC-19

ALS Environmental

Quality Control Report

Workorder: L2388973 Report Date: 11-DEC-19 Page 7 of 10

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4936273								
WG3234910-1 MB								
Sulfur (S)-Total			<0.50		mg/L		0.5	04-DEC-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	04-DEC-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	04-DEC-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	04-DEC-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	04-DEC-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	04-DEC-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	04-DEC-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	04-DEC-19
N-TOTKJ-WP	Water							
Batch R4930338								
WG3231433-14 LCS								
Total Kjeldahl Nitrogen			100.7		%		75-125	02-DEC-19
WG3231433-13 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	02-DEC-19
NH3-COL-WP	Water							
Batch R4934147								
WG3235151-14 LCS								
Ammonia, Total (as N)			104.9		%		85-115	03-DEC-19
WG3235151-13 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	03-DEC-19
Batch R4936589								
WG3236969-2 LCS								
Ammonia, Total (as N)			100.9		%		85-115	05-DEC-19
WG3236969-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	05-DEC-19
NO2-IC-N-WP	Water							
Batch R4929090								
WG3230938-6 LCS								
Nitrite (as N)			98.6		%		90-110	28-NOV-19
WG3230938-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	28-NOV-19
NO3-IC-N-WP	Water							

ALS Environmental

Quality Control Report

Workorder: L2388973 Report Date: 11-DEC-19 Page 8 of 10

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO3-IC-N-WP	Water							
Batch R4929090								
WG3230938-6 LCS								
Nitrate (as N)			98.7		%		90-110	28-NOV-19
WG3230938-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	28-NOV-19
P-T-COL-WP	Water							
Batch R4928488								
WG3231340-6 LCS								
Phosphorus (P)-Total			98.9		%		80-120	29-NOV-19
WG3231340-5 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	29-NOV-19
PH-WP	Water							
Batch R4928689								
WG3231568-12 LCS								
pH			7.38		pH units		7.3-7.5	28-NOV-19
SO4-IC-N-WP	Water							
Batch R4929090								
WG3230938-6 LCS								
Sulfate (SO4)			100.9		%		90-110	28-NOV-19
WG3230938-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	28-NOV-19
TDS-WP	Water							
Batch R4935531								
WG3233346-2 LCS								
Total Dissolved Solids			98.7		%		85-115	02-DEC-19
WG3233346-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	02-DEC-19

Quality Control Report

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.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	27-NOV-19 10:45	28-NOV-19 12:00	0.25	25	hours	EHTR-FM
	2	27-NOV-19 10:45	28-NOV-19 12:00	0.25	25	hours	EHTR-FM

Legend & Qualifier Definitions:

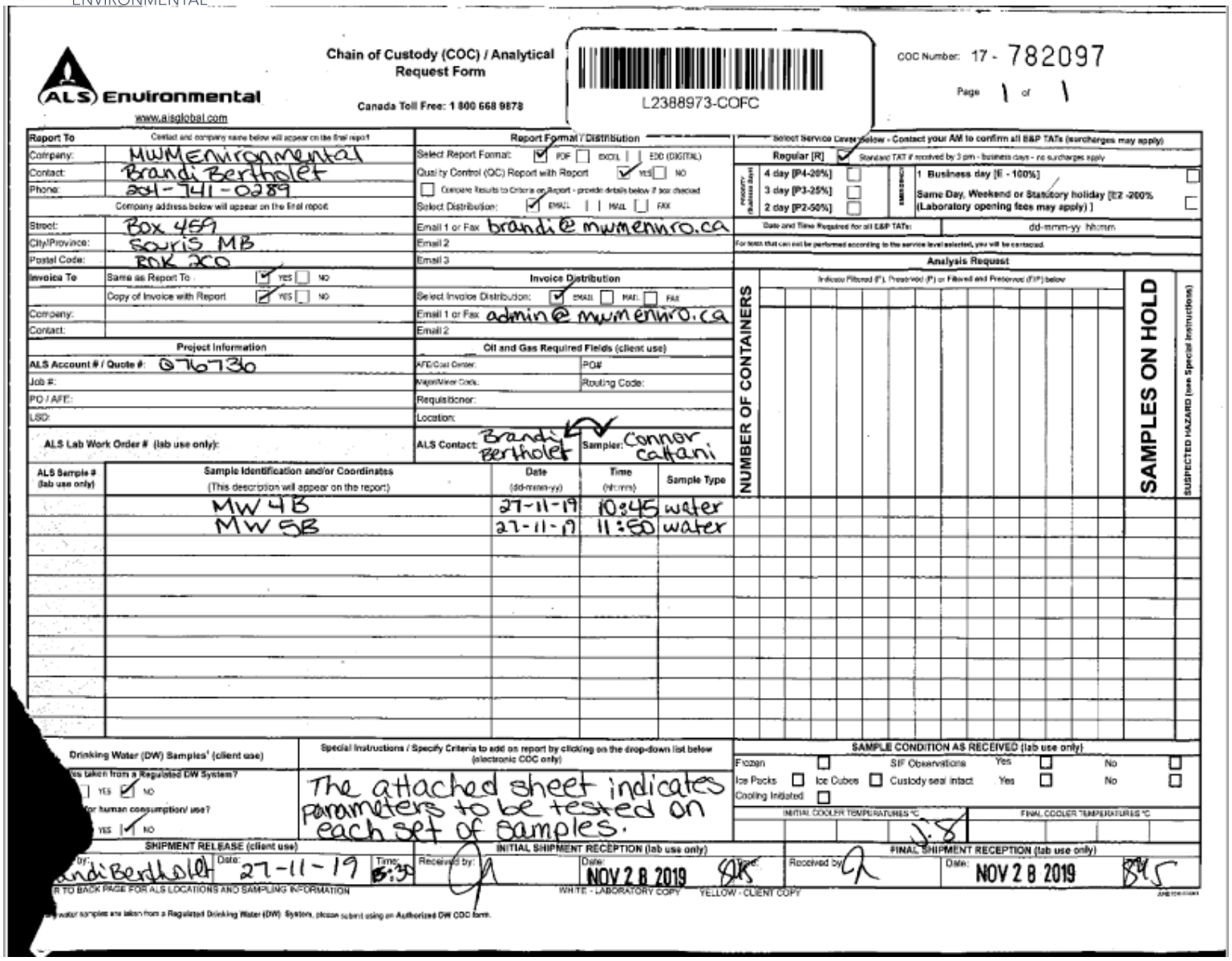
EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2388973 were received on 28-NOV-19 08:45.

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.



ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

L2388973-COFC

COC Number: 17 - 782097

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:	MWMEnvironmental	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brandi Bertholet	Quality Control (QC) Report with Report YES NO	4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%] / 1 Business day [E - 100%] / Same Day, Weekend or Statutory holiday [E2 -200%] (Laboratory opening fees may apply)]
Phone:	204-741-0289	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:	Box 459	Email 1 or Fax: brandi@mwmenviro.ca	Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm
City/Province:	Souris MB	Email 2	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	R0K 2C0	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	
Company:		Email 1 or Fax: admin@mwmenviro.ca	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q76730	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		ALS Contact: Brandi Bertholet	Sampler: Connor Caffani

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 (Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below)	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW 4B	27-11-19	10:45	water			
	MW 5B	27-11-19	11:50	water			

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)
...es taken from a Regulated DW System? YES NO	The attached sheet indicates parameters to be tested on each set of samples.	Frozen / SIF Observations Yes No / Ice Packs / Ice Cubes / Custody seal intact Yes No / Cooling Initiated
...for human consumption/ use? YES NO		INITIAL COOLER TEMPERATURES °C: 1.8 / FINAL COOLER TEMPERATURES °C

SHIPMENT RELEASE (client use)	INITIAL SHIPMENT RECEPTION (lab use only)	FINAL SHIPMENT RECEPTION (lab use only)
...by: Brandi Bertholet Date: 27-11-19 Time: 5:35	Received by: Date: NOV 28 2019 Time: 8:45	Received by: Date: NOV 28 2019 8:45

...R TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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

MWM Environmental
ATTN: BRANDI BERTHOLET
Box 459
Souris MB R0K 2C0

Date Received: 26-NOV-19
Report Date: 10-DEC-19 14:32 (MT)
Version: FINAL

Client Phone: 204-483-3986

Certificate of Analysis

Lab Work Order #: L2387437
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2387437-1 GN1A							
Sampled By: CLIENT on 21-NOV-19 @ 13:40							
Matrix: Water							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	<1.0	DLM	1.0	mg/L		27-NOV-19	R4926807
Nitrate+Nitrite							
Nitrate and Nitrite as N	<1.1		1.1	mg/L		29-NOV-19	
Nitrite in Water by IC							
Nitrite (as N)	<0.50	DLM	0.50	mg/L		27-NOV-19	R4926807
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
Toluene	<0.0010		0.0010	mg/L		27-NOV-19	R4929936
Ethyl benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
o-Xylene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
m+p-Xylenes	<0.00040		0.00040	mg/L		27-NOV-19	R4929936
F1 (C6-C10)	<0.10		0.10	mg/L		27-NOV-19	R4929936
Surrogate: 4-Bromofluorobenzene (SS)	84.0		70-130	%		27-NOV-19	R4929936
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	28-NOV-19	30-NOV-19	R4929054
F3 (C16-C34)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
F4 (C34-C50)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
Surrogate: 2-Bromobenzotrifluoride	99.2		60-140	%	28-NOV-19	30-NOV-19	R4929054
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		04-DEC-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		04-DEC-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		04-DEC-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	2.02		0.10	mg/L		03-DEC-19	R4934147
Biochemical Oxygen Demand	<2.0		2.0	mg/L		27-NOV-19	R4930316
Chemical Oxygen Demand	175		20	mg/L		26-NOV-19	R4925988
Chloride (Cl)	158		25	mg/L		27-NOV-19	R4926807
Dissolved Organic Carbon	60.4		0.50	mg/L		26-NOV-19	R4926439
Phosphorus (P)-Total	0.0338		0.0030	mg/L		28-NOV-19	R4927765
Sulfate (SO4)	7870		15	mg/L		27-NOV-19	R4926807
Total Dissolved Solids	11800	HTD	80	mg/L		28-NOV-19	R4929933
Total Kjeldahl Nitrogen	4.13		0.20	mg/L	27-NOV-19	28-NOV-19	R4927893
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0411		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Antimony (Sb)-Total	0.00040		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Arsenic (As)-Total	0.00274		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Barium (Ba)-Total	0.00717		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Boron (B)-Total	0.273		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cadmium (Cd)-Total	0.0000297		0.0000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Calcium (Ca)-Total	532		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Cesium (Cs)-Total	0.000027		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Chromium (Cr)-Total	0.00117		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cobalt (Co)-Total	0.0248		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Copper (Cu)-Total	0.00176		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Iron (Fe)-Total	0.329		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Lead (Pb)-Total	0.00205		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220

* 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
L2387437-1 GN1A							
Sampled By: CLIENT on 21-NOV-19 @ 13:40							
Matrix: Water							
Total Metals in Water by CRC ICPMS							
Lithium (Li)-Total	2.10		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Magnesium (Mg)-Total	1420		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Manganese (Mn)-Total	5.93		0.0010	mg/L	03-DEC-19	03-DEC-19	R4933220
Molybdenum (Mo)-Total	0.00407		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Nickel (Ni)-Total	0.0497		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Potassium (K)-Total	32.8		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Phosphorus (P)-Total	0.048		0.030	mg/L	03-DEC-19	03-DEC-19	R4933220
Rubidium (Rb)-Total	0.00396		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Selenium (Se)-Total	0.00126		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silicon (Si)-Total	11.7		0.10	mg/L	03-DEC-19	03-DEC-19	R4933220
Silver (Ag)-Total	0.000046		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Sodium (Na)-Total	1110		0.50	mg/L	03-DEC-19	03-DEC-19	R4933220
Strontium (Sr)-Total	8.29		0.0020	mg/L	03-DEC-19	03-DEC-19	R4933220
Sulfur (S)-Total	2310		5.0	mg/L	03-DEC-19	03-DEC-19	R4933220
Tellurium (Te)-Total	0.00114		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Thallium (Tl)-Total	0.000043		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Tin (Sn)-Total	0.00287		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Titanium (Ti)-Total	0.00191		0.00030	mg/L	03-DEC-19	03-DEC-19	R4933220
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Uranium (U)-Total	0.275		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Vanadium (V)-Total	0.00072		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Zinc (Zn)-Total	0.0187		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Zirconium (Zr)-Total	0.00338		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					02-DEC-19	R4930087
Aluminum (Al)-Dissolved	0.0019		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Antimony (Sb)-Dissolved	0.00014		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Arsenic (As)-Dissolved	0.00235		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Barium (Ba)-Dissolved	0.00636		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Boron (B)-Dissolved	0.283		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cadmium (Cd)-Dissolved	0.0000098		0.0000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Calcium (Ca)-Dissolved	551		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Cesium (Cs)-Dissolved	0.000015		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Chromium (Cr)-Dissolved	0.00074		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cobalt (Co)-Dissolved	0.0251		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Copper (Cu)-Dissolved	0.00106		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Iron (Fe)-Dissolved	0.148		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Lead (Pb)-Dissolved	0.000125		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Lithium (Li)-Dissolved	2.29		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Magnesium (Mg)-Dissolved	1580		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Manganese (Mn)-Dissolved	6.70		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Molybdenum (Mo)-Dissolved	0.00385		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Nickel (Ni)-Dissolved	0.0518		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	02-DEC-19	02-DEC-19	R4930341
Potassium (K)-Dissolved	29.4		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Rubidium (Rb)-Dissolved	0.00358		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Selenium (Se)-Dissolved	0.00102		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Silicon (Si)-Dissolved	15.1		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341

* 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
L2387437-1 GN1A							
Sampled By: CLIENT on 21-NOV-19 @ 13:40							
Matrix: Water							
Dissolved Metals in Water by CRC ICPMS							
Silver (Ag)-Dissolved	0.000049		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sodium (Na)-Dissolved	1230		0.50	mg/L	02-DEC-19	02-DEC-19	R4930341
Strontium (Sr)-Dissolved	8.40		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sulfur (S)-Dissolved	2740		5.0	mg/L	02-DEC-19	02-DEC-19	R4930341
Tellurium (Te)-Dissolved	0.00029		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Thallium (Tl)-Dissolved	0.000037		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Tin (Sn)-Dissolved	0.00172		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Titanium (Ti)-Dissolved	0.00039		0.00030	mg/L	02-DEC-19	02-DEC-19	R4930341
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Uranium (U)-Dissolved	0.278		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Zinc (Zn)-Dissolved	0.0136		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Zirconium (Zr)-Dissolved	0.00309		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Mercury Dissolved							
Dissolved Mercury Filtration Location	FIELD					02-DEC-19	R4934767
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4935634
pH, Conductivity and Total Alkalinity							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	1170		1.2	mg/L		28-NOV-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		28-NOV-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		28-NOV-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	960		1.0	mg/L		27-NOV-19	R4927641
Conductivity							
Conductivity	10300		1.0	uMhos/cm		27-NOV-19	R4927641
pH							
pH	7.46		0.10	pH units		27-NOV-19	R4927641
L2387437-2 GN1B							
Sampled By: CLIENT on 22-NOV-19 @ 10:50							
Matrix: Water							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLM	0.40	mg/L		27-NOV-19	R4926807
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.45		0.45	mg/L		29-NOV-19	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		27-NOV-19	R4926807
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
Toluene	<0.0010		0.0010	mg/L		27-NOV-19	R4929936
Ethyl benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
o-Xylene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
m+p-Xylenes	<0.00040		0.00040	mg/L		27-NOV-19	R4929936
F1 (C6-C10)	<0.10		0.10	mg/L		27-NOV-19	R4929936
Surrogate: 4-Bromofluorobenzene (SS)	86.0		70-130	%		27-NOV-19	R4929936
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	28-NOV-19	30-NOV-19	R4929054
F3 (C16-C34)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054

* 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
L2387437-2 GN1B							
Sampled By: CLIENT on 22-NOV-19 @ 10:50							
Matrix: Water							
CCME PHC F2-F4 in Water							
F4 (C34-C50)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
Surrogate: 2-Bromobenzotrifluoride	96.4		60-140	%	28-NOV-19	30-NOV-19	R4929054
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		04-DEC-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		04-DEC-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		04-DEC-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	3.18		0.10	mg/L		03-DEC-19	R4934147
Biochemical Oxygen Demand	<2.0		2.0	mg/L		27-NOV-19	R4930316
Chemical Oxygen Demand	36		20	mg/L		26-NOV-19	R4925988
Chloride (Cl)	136		10	mg/L		27-NOV-19	R4926807
Dissolved Organic Carbon	10.8		0.50	mg/L		26-NOV-19	R4926439
Phosphorus (P)-Total	0.0540		0.0030	mg/L		28-NOV-19	R4927765
Sulfate (SO4)	2360		6.0	mg/L		27-NOV-19	R4926807
Total Dissolved Solids	4030		20	mg/L		27-NOV-19	R4927784
Total Kjeldahl Nitrogen	3.90		0.20	mg/L	27-NOV-19	28-NOV-19	R4927893
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0108		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Antimony (Sb)-Total	0.00035		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Arsenic (As)-Total	0.0354		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Barium (Ba)-Total	0.00859		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Boron (B)-Total	1.62		0.10	mg/L	03-DEC-19	03-DEC-19	R4933220
Cadmium (Cd)-Total	0.0000162		0.0000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Calcium (Ca)-Total	484		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Cesium (Cs)-Total	0.000025		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Chromium (Cr)-Total	0.00042		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cobalt (Co)-Total	0.00219		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Copper (Cu)-Total	0.00132		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Iron (Fe)-Total	5.76		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Lead (Pb)-Total	0.00454		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Lithium (Li)-Total	0.764		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Magnesium (Mg)-Total	175		0.0050	mg/L	03-DEC-19	03-DEC-19	R4933220
Manganese (Mn)-Total	0.778		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Molybdenum (Mo)-Total	0.0118		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Nickel (Ni)-Total	0.00688		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Potassium (K)-Total	27.6		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Phosphorus (P)-Total	0.056		0.030	mg/L	03-DEC-19	03-DEC-19	R4933220
Rubidium (Rb)-Total	0.00773		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Selenium (Se)-Total	0.000127		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silicon (Si)-Total	9.7		1.0	mg/L	03-DEC-19	06-DEC-19	R4939729
Silver (Ag)-Total	0.000016		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Sodium (Na)-Total	556		0.50	mg/L	03-DEC-19	03-DEC-19	R4933220
Strontium (Sr)-Total	3.92		0.0020	mg/L	03-DEC-19	03-DEC-19	R4933220
Sulfur (S)-Total	693		5.0	mg/L	03-DEC-19	03-DEC-19	R4933220
Tellurium (Te)-Total	0.00046		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Tin (Sn)-Total	0.00317		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220

* 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
L2387437-2 GN1B							
Sampled By: CLIENT on 22-NOV-19 @ 10:50							
Matrix: Water							
Total Metals in Water by CRC ICPMS							
Titanium (Ti)-Total	0.00066		0.00030	mg/L	03-DEC-19	03-DEC-19	R4933220
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Uranium (U)-Total	0.0227		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Vanadium (V)-Total	<0.00050		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Zinc (Zn)-Total	0.0148		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Zirconium (Zr)-Total	0.00041		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					02-DEC-19	R4930087
Aluminum (Al)-Dissolved	0.0011		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Antimony (Sb)-Dissolved	0.00023		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Arsenic (As)-Dissolved	0.0306		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Barium (Ba)-Dissolved	0.00616		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Boron (B)-Dissolved	1.58		0.10	mg/L	02-DEC-19	02-DEC-19	R4930341
Cadmium (Cd)-Dissolved	0.0000182		0.0000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Calcium (Ca)-Dissolved	532		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Cesium (Cs)-Dissolved	0.000018		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Chromium (Cr)-Dissolved	0.00028		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cobalt (Co)-Dissolved	0.00226		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Copper (Cu)-Dissolved	0.00107		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Iron (Fe)-Dissolved	5.53		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Lead (Pb)-Dissolved	0.00109		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Lithium (Li)-Dissolved	0.803		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Magnesium (Mg)-Dissolved	204		0.0050	mg/L	02-DEC-19	02-DEC-19	R4930341
Manganese (Mn)-Dissolved	0.844		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Molybdenum (Mo)-Dissolved	0.0116		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Nickel (Ni)-Dissolved	0.00728		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Phosphorus (P)-Dissolved	0.034		0.030	mg/L	02-DEC-19	02-DEC-19	R4930341
Potassium (K)-Dissolved	27.6		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Rubidium (Rb)-Dissolved	0.00778		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Selenium (Se)-Dissolved	0.000083		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Silicon (Si)-Dissolved	9.09		0.50	mg/L	02-DEC-19	06-DEC-19	R4939729
Silver (Ag)-Dissolved	0.000022		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sodium (Na)-Dissolved	648		0.50	mg/L	02-DEC-19	02-DEC-19	R4930341
Strontium (Sr)-Dissolved	3.93		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sulfur (S)-Dissolved	832		5.0	mg/L	02-DEC-19	02-DEC-19	R4930341
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Tin (Sn)-Dissolved	0.00228		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	02-DEC-19	02-DEC-19	R4930341
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Uranium (U)-Dissolved	0.0195		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Zinc (Zn)-Dissolved	0.0142		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Zirconium (Zr)-Dissolved	0.00035		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Mercury Dissolved							
Dissolved Mercury Filtration Location	FIELD					02-DEC-19	R4934767
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4935634
pH, Conductivity and Total Alkalinity							
Alkalinity, Bicarbonate							

* 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
L2387437-2 GN1B							
Sampled By: CLIENT on 22-NOV-19 @ 10:50							
Matrix: Water							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	649		1.2	mg/L		28-NOV-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		28-NOV-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		28-NOV-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	532		1.0	mg/L		27-NOV-19	R4927641
Conductivity							
Conductivity	4470		1.0	umhos/cm		27-NOV-19	R4927641
pH							
pH	7.56		0.10	pH units		27-NOV-19	R4927641
L2387437-4 MW3A							
Sampled By: CLIENT on 22-NOV-19 @ 13:25							
Matrix: Water							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLM	0.40	mg/L		27-NOV-19	R4926807
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.45		0.45	mg/L		29-NOV-19	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		27-NOV-19	R4926807
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
Toluene	<0.0010		0.0010	mg/L		27-NOV-19	R4929936
Ethyl benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
o-Xylene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
m+p-Xylenes	<0.00040		0.00040	mg/L		27-NOV-19	R4929936
F1 (C6-C10)	<0.10		0.10	mg/L		27-NOV-19	R4929936
Surrogate: 4-Bromofluorobenzene (SS)	86.0		70-130	%		27-NOV-19	R4929936
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	28-NOV-19	30-NOV-19	R4929054
F3 (C16-C34)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
F4 (C34-C50)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
Surrogate: 2-Bromobenzotrifluoride	98.4		60-140	%	28-NOV-19	30-NOV-19	R4929054
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		04-DEC-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		04-DEC-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		04-DEC-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	1.72		0.10	mg/L		03-DEC-19	R4934147
Biochemical Oxygen Demand	<2.0		2.0	mg/L		27-NOV-19	R4930316
Chemical Oxygen Demand	52		20	mg/L		26-NOV-19	R4925988
Chloride (Cl)	265		10	mg/L		27-NOV-19	R4926807
Dissolved Organic Carbon	11.6		0.50	mg/L		26-NOV-19	R4926439
Phosphorus (P)-Total	0.0516		0.0030	mg/L		28-NOV-19	R4927765
Sulfate (SO4)	2250		6.0	mg/L		27-NOV-19	R4926807
Total Dissolved Solids	4130		20	mg/L		27-NOV-19	R4927764
Total Kjeldahl Nitrogen	2.32		0.20	mg/L	27-NOV-19	28-NOV-19	R4927893
Total Metals in Water by CRC ICPMS							

* 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
L2387437-4 MW3A							
Sampled By: CLIENT on 22-NOV-19 @ 13:25							
Matrix: Water							
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0193		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Antimony (Sb)-Total	0.00025		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Arsenic (As)-Total	0.00151		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Barium (Ba)-Total	0.0103		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Boron (B)-Total	0.77		0.10	mg/L	03-DEC-19	03-DEC-19	R4933220
Cadmium (Cd)-Total	<0.000050	DLM	0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Calcium (Ca)-Total	534		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Cesium (Cs)-Total	0.000012		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Chromium (Cr)-Total	0.00046		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cobalt (Co)-Total	0.00164		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Copper (Cu)-Total	0.00111		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Iron (Fe)-Total	5.22		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Lead (Pb)-Total	0.00632		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Lithium (Li)-Total	0.869		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Magnesium (Mg)-Total	238		0.0050	mg/L	03-DEC-19	03-DEC-19	R4933220
Manganese (Mn)-Total	4.40		0.0010	mg/L	03-DEC-19	03-DEC-19	R4933220
Molybdenum (Mo)-Total	0.000639		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Nickel (Ni)-Total	0.00376		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Potassium (K)-Total	24.7		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Phosphorus (P)-Total	0.063		0.030	mg/L	03-DEC-19	03-DEC-19	R4933220
Rubidium (Rb)-Total	0.00645		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Selenium (Se)-Total	0.000185		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silicon (Si)-Total	13.0		1.0	mg/L	03-DEC-19	06-DEC-19	R4939729
Silver (Ag)-Total	0.000014		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Sodium (Na)-Total	467		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Strontium (Sr)-Total	3.57		0.0020	mg/L	03-DEC-19	03-DEC-19	R4933220
Sulfur (S)-Total	653		5.0	mg/L	03-DEC-19	03-DEC-19	R4933220
Tellurium (Te)-Total	0.00045		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Thallium (Tl)-Total	<0.000010		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Tin (Sn)-Total	0.00063		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Titanium (Ti)-Total	0.00151		0.00030	mg/L	03-DEC-19	03-DEC-19	R4933220
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Uranium (U)-Total	0.0312		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Vanadium (V)-Total	0.00060		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Zinc (Zn)-Total	0.0034		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Zirconium (Zr)-Total	0.00062		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					02-DEC-19	R4930087
Aluminum (Al)-Dissolved	0.0014		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Antimony (Sb)-Dissolved	0.00014		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Arsenic (As)-Dissolved	0.00137		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Barium (Ba)-Dissolved	0.0100		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Boron (B)-Dissolved	0.73		0.10	mg/L	02-DEC-19	02-DEC-19	R4930341
Cadmium (Cd)-Dissolved	0.0000184		0.0000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Calcium (Ca)-Dissolved	580		0.50	mg/L	02-DEC-19	02-DEC-19	R4930341
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341

* 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
L2387437-4 MW3A							
Sampled By: CLIENT on 22-NOV-19 @ 13:25							
Matrix: Water							
Dissolved Metals in Water by CRC ICPMS							
Chromium (Cr)-Dissolved	0.00032		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cobalt (Co)-Dissolved	0.00179		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Copper (Cu)-Dissolved	0.00035		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Iron (Fe)-Dissolved	5.29		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Lead (Pb)-Dissolved	0.000966		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Lithium (Li)-Dissolved	0.953		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Magnesium (Mg)-Dissolved	283		0.0050	mg/L	02-DEC-19	02-DEC-19	R4930341
Manganese (Mn)-Dissolved	5.10		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Molybdenum (Mo)-Dissolved	0.000666		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Nickel (Ni)-Dissolved	0.00391		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Phosphorus (P)-Dissolved	0.047		0.030	mg/L	02-DEC-19	02-DEC-19	R4930341
Potassium (K)-Dissolved	26.1		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Rubidium (Rb)-Dissolved	0.00660		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Selenium (Se)-Dissolved	0.000165		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Silicon (Si)-Dissolved	12.2		0.50	mg/L	02-DEC-19	06-DEC-19	R4939729
Silver (Ag)-Dissolved	0.000027		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sodium (Na)-Dissolved	538		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Strontium (Sr)-Dissolved	3.65		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sulfur (S)-Dissolved	810		5.0	mg/L	02-DEC-19	02-DEC-19	R4930341
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Thallium (Tl)-Dissolved	<0.000010		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Tin (Sn)-Dissolved	0.00023		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Titanium (Ti)-Dissolved	0.00037		0.00030	mg/L	02-DEC-19	02-DEC-19	R4930341
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Uranium (U)-Dissolved	0.0267		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Zinc (Zn)-Dissolved	0.0035		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Zirconium (Zr)-Dissolved	0.00052		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Mercury Dissolved							
Dissolved Mercury Filtration Location	FIELD					02-DEC-19	R4934767
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4935634
pH, Conductivity and Total Alkalinity							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	724		1.2	mg/L		28-NOV-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		28-NOV-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		28-NOV-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	593		1.0	mg/L		27-NOV-19	R4927641
Conductivity							
Conductivity	4640		1.0	umhos/cm		27-NOV-19	R4927641
pH							
pH	7.37		0.10	pH units		27-NOV-19	R4927641
L2387437-5 MW3B							
Sampled By: CLIENT on 22-NOV-19 @ 12:12							
Matrix: Water							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	<1.0	DLM	1.0	mg/L		27-NOV-19	R4926807

* 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
L2387437-5 MW3B							
Sampled By: CLIENT on 22-NOV-19 @ 12:12							
Matrix: Water							
Nitrate+Nitrite							
Nitrate and Nitrite as N	<1.1		1.1	mg/L		29-NOV-19	
Nitrite in Water by IC							
Nitrite (as N)	<0.50	DLM	0.50	mg/L		27-NOV-19	R4926807
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
Toluene	<0.0010		0.0010	mg/L		27-NOV-19	R4929936
Ethyl benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
o-Xylene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
m+p-Xylenes	<0.00040		0.00040	mg/L		27-NOV-19	R4929936
F1 (C6-C10)	<0.10		0.10	mg/L		27-NOV-19	R4929936
Surrogate: 4-Bromofluorobenzene (SS)	81.0		70-130	%		27-NOV-19	R4929936
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	28-NOV-19	30-NOV-19	R4929054
F3 (C16-C34)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
F4 (C34-C50)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
Surrogate: 2-Bromobenzotrifluoride	92.6		60-140	%	28-NOV-19	30-NOV-19	R4929054
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		04-DEC-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		04-DEC-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		04-DEC-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	<0.010		0.010	mg/L		03-DEC-19	R4934147
Biochemical Oxygen Demand	<2.0		2.0	mg/L		27-NOV-19	R4930316
Chemical Oxygen Demand	141		20	mg/L		26-NOV-19	R4925988
Chloride (Cl)	290		25	mg/L		27-NOV-19	R4926807
Dissolved Organic Carbon	48.9		0.50	mg/L		26-NOV-19	R4926439
Phosphorus (P)-Total	0.0271		0.0030	mg/L		28-NOV-19	R4927765
Sulfate (SO4)	4360		15	mg/L		27-NOV-19	R4926807
Total Dissolved Solids	6900		20	mg/L		27-NOV-19	R4927784
Total Kjeldahl Nitrogen	1.93		0.20	mg/L	27-NOV-19	28-NOV-19	R4927893
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.286		0.0030	mg/L	04-DEC-19	04-DEC-19	R4936273
Antimony (Sb)-Total	0.00042		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Arsenic (As)-Total	0.00142		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Barium (Ba)-Total	0.0119		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Boron (B)-Total	<0.10	DLM	0.10	mg/L	04-DEC-19	04-DEC-19	R4936273
Cadmium (Cd)-Total	0.000203		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Calcium (Ca)-Total	494		0.050	mg/L	04-DEC-19	04-DEC-19	R4936273
Cesium (Cs)-Total	0.000036		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Chromium (Cr)-Total	0.00051		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Cobalt (Co)-Total	0.00022		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Copper (Cu)-Total	0.0117		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Iron (Fe)-Total	0.238		0.010	mg/L	04-DEC-19	04-DEC-19	R4936273
Lead (Pb)-Total	0.00590		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Lithium (Li)-Total	3.28		0.010	mg/L	04-DEC-19	04-DEC-19	R4936273
Magnesium (Mg)-Total	798		0.050	mg/L	04-DEC-19	04-DEC-19	R4936273
Manganese (Mn)-Total	0.148		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273

* 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
L2387437-5 MW3B							
Sampled By: CLIENT on 22-NOV-19 @ 12:12							
Matrix: Water							
Total Metals in Water by CRC ICPMS							
Molybdenum (Mo)-Total	0.00119		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Nickel (Ni)-Total	0.0214		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Potassium (K)-Total	22.5		0.050	mg/L	04-DEC-19	04-DEC-19	R4936273
Phosphorus (P)-Total	<0.030		0.030	mg/L	04-DEC-19	04-DEC-19	R4936273
Rubidium (Rb)-Total	0.00172		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Selenium (Se)-Total	0.00239		0.000050	mg/L	04-DEC-19	04-DEC-19	R4936273
Silicon (Si)-Total	16.1		0.10	mg/L	04-DEC-19	04-DEC-19	R4936273
Silver (Ag)-Total	0.000048		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Sodium (Na)-Total	706		0.50	mg/L	04-DEC-19	04-DEC-19	R4936273
Strontium (Sr)-Total	5.41		0.0020	mg/L	04-DEC-19	04-DEC-19	R4936273
Sulfur (S)-Total	1440		5.0	mg/L	04-DEC-19	04-DEC-19	R4936273
Tellurium (Te)-Total	0.00030		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Thallium (Tl)-Total	0.000039		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Thorium (Th)-Total	0.00044		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Tin (Sn)-Total	0.00057		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Titanium (Ti)-Total	0.00689		0.00030	mg/L	04-DEC-19	04-DEC-19	R4936273
Tungsten (W)-Total	<0.00010		0.00010	mg/L	04-DEC-19	04-DEC-19	R4936273
Uranium (U)-Total	0.165		0.000010	mg/L	04-DEC-19	04-DEC-19	R4936273
Vanadium (V)-Total	0.00073		0.00050	mg/L	04-DEC-19	04-DEC-19	R4936273
Zinc (Zn)-Total	0.0078		0.0030	mg/L	04-DEC-19	04-DEC-19	R4936273
Zirconium (Zr)-Total	0.00099		0.00020	mg/L	04-DEC-19	04-DEC-19	R4936273
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					02-DEC-19	R4930087
Aluminum (Al)-Dissolved	<0.0010		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Antimony (Sb)-Dissolved	0.00020		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Arsenic (As)-Dissolved	0.00135		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Barium (Ba)-Dissolved	0.00846		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Boron (B)-Dissolved	0.131		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cadmium (Cd)-Dissolved	0.000206		0.0000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Calcium (Ca)-Dissolved	519		0.50	mg/L	02-DEC-19	02-DEC-19	R4930341
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Chromium (Cr)-Dissolved	0.00029		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cobalt (Co)-Dissolved	0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Copper (Cu)-Dissolved	0.0114		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Lead (Pb)-Dissolved	0.00173		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Lithium (Li)-Dissolved	2.62		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Magnesium (Mg)-Dissolved	792		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Manganese (Mn)-Dissolved	0.0815		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Molybdenum (Mo)-Dissolved	0.00128		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Nickel (Ni)-Dissolved	0.0222		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	02-DEC-19	02-DEC-19	R4930341
Potassium (K)-Dissolved	25.7		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Rubidium (Rb)-Dissolved	0.00132		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Selenium (Se)-Dissolved	0.00309		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Silicon (Si)-Dissolved	19.6		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Silver (Ag)-Dissolved	0.000032		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sodium (Na)-Dissolved	713		0.50	mg/L	02-DEC-19	02-DEC-19	R4930341
Strontium (Sr)-Dissolved	5.63		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341

* 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
L2387437-5 MW3B							
Sampled By: CLIENT on 22-NOV-19 @ 12:12							
Matrix: Water							
Dissolved Metals in Water by CRC ICPMS							
Sulfur (S)-Dissolved	1510		5.0	mg/L	02-DEC-19	02-DEC-19	R4930341
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Thallium (Tl)-Dissolved	0.000031		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Tin (Sn)-Dissolved	0.00017		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	02-DEC-19	02-DEC-19	R4930341
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Uranium (U)-Dissolved	0.166		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Zinc (Zn)-Dissolved	0.0061		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Zirconium (Zr)-Dissolved	0.00060		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Mercury Dissolved							
Dissolved Mercury Filtration Location	FIELD					02-DEC-19	R4934767
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4935634
pH, Conductivity and Total Alkalinity							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	869		1.2	mg/L		28-NOV-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		28-NOV-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		28-NOV-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	713		1.0	mg/L		27-NOV-19	R4927641
Conductivity							
Conductivity	7050		1.0	umhos/cm		27-NOV-19	R4927641
pH							
pH	7.52		0.10	pH units		27-NOV-19	R4927641

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
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**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.

ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L

ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION

The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.

ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B

The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B

Samples are diluted and seeded and then incubated in airtight bottles at 20□C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.

BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A

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.

C-DOC-HTC-WP	Water	Dissolved Organic Carbon by Combustion	APHA 5310 B-WP

Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.

CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

COD-WP	Water	Chemical Oxygen Demand	APHA 5220 D

This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colorimetric method.

EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510

Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc

EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L

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,

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

HG-D-CVAA-WP	Water	Mercury Dissolved	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.

MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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.

MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod.)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

PH-WP	Water	pH	APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E

A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaporated to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
XYLENES-SUM-CALC-WP	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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:

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.

MWM ENVIRONMENTAL

ALS Environmental

Quality Control Report

Workorder: L2387437 Report Date: 10-DEC-19

Client: MWM Environmental
Box 459
Souris MB R0K 2C0

Contact: BRANDI BERTHOLET

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	Water							
Batch R4927641								
WG3230521-4 LCS								
Alkalinity, Total (as CaCO3)			104.1		%		85-115	27-NOV-19
WG3230521-9 LCS								
Alkalinity, Total (as CaCO3)			104.6		%		85-115	27-NOV-19
WG3230521-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	27-NOV-19
WG3230521-6 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	27-NOV-19
BOD-WP	Water							
Batch R4930316								
WG3228792-2 LCS								
Biochemical Oxygen Demand			99.4		%		85-115	27-NOV-19
WG3228792-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	27-NOV-19
BTEXS+F1-HSMS-WP	Water							
Batch R4929936								
WG3229963-2 LCS								
Benzene			87.7		%		70-130	27-NOV-19
Toluene			92.4		%		70-130	27-NOV-19
Ethyl benzene			87.7		%		70-130	27-NOV-19
o-Xylene			90.9		%		70-130	27-NOV-19
m+p-Xylenes			101.4		%		70-130	27-NOV-19
WG3229963-3 LCS								
F1 (C6-C10)			96.0		%		70-130	27-NOV-19
WG3229963-1 MB								
Benzene			<0.00050		mg/L		0.0005	27-NOV-19
Toluene			<0.0010		mg/L		0.001	27-NOV-19
Ethyl benzene			<0.00050		mg/L		0.0005	27-NOV-19
o-Xylene			<0.00050		mg/L		0.0005	27-NOV-19
m+p-Xylenes			<0.00040		mg/L		0.0004	27-NOV-19
F1 (C6-C10)			<0.10		mg/L		0.1	27-NOV-19
Surrogate: 4-Bromofluorobenzene (SS)			92.0		%		70-130	27-NOV-19
C-DOC-HTC-WP	Water							
Batch R4926439								
WG3229389-6 LCS								
Dissolved Organic Carbon			100.7		%		80-120	26-NOV-19
WG3229389-5 MB								

Quality Control Report

Workorder: L2387437 Report Date: 10-DEC-19 Page 2 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-DOC-HTC-WP	Water							
Batch R4926439								
WG3229389-5 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	26-NOV-19
CL-IC-N-WP	Water							
Batch R4926807								
WG3228643-6 LCS								
Chloride (Cl)			101.2		%		90-110	27-NOV-19
WG3228643-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	27-NOV-19
COD-WP	Water							
Batch R4925988								
WG3229254-7 DUP		L2387437-2						
Chemical Oxygen Demand		36	36		mg/L	0.3	20	26-NOV-19
WG3229254-2 LCS								
Chemical Oxygen Demand			101.7		%		85-115	26-NOV-19
WG3229254-6 LCS								
Chemical Oxygen Demand			101.5		%		85-115	26-NOV-19
WG3229254-1 MB								
Chemical Oxygen Demand			<20		mg/L		20	26-NOV-19
WG3229254-5 MB								
Chemical Oxygen Demand			<20		mg/L		20	26-NOV-19
WG3229254-8 MS		L2387437-2						
Chemical Oxygen Demand			102.0		%		75-125	26-NOV-19
EC-WP	Water							
Batch R4927641								
WG3230521-3 LCS								
Conductivity			98.4		%		90-110	27-NOV-19
WG3230521-8 LCS								
Conductivity			98.5		%		90-110	27-NOV-19
WG3230521-1 MB								
Conductivity			<1.0		umhos/cm		1	27-NOV-19
WG3230521-6 MB								
Conductivity			<1.0		umhos/cm		1	27-NOV-19
F2-F4-FID-WP	Water							
Batch R4929054								
WG3230328-2 LCS								
F2 (C10-C16)			104.8		%		70-130	29-NOV-19

Quality Control Report

Workorder: L2387437 Report Date: 10-DEC-19 Page 3 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
F2-F4-FID-WP	Water							
Batch R4929054								
WG3230328-2 LCS								
F3 (C16-C34)			96.5		%		70-130	29-NOV-19
F4 (C34-C50)			99.3		%		70-130	29-NOV-19
WG3230328-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	29-NOV-19
F3 (C16-C34)			<0.25		mg/L		0.25	29-NOV-19
F4 (C34-C50)			<0.25		mg/L		0.25	29-NOV-19
Surrogate: 2-Bromobenzotrifluoride			98.7		%		60-140	29-NOV-19
HG-D-CVAA-WP	Water							
Batch R4935634								
WG3235354-2 LCS								
Mercury (Hg)-Dissolved			103.0		%		80-120	04-DEC-19
WG3235354-1 MB								
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	04-DEC-19
MET-D-CCMS-WP	Water							
Batch R4930341								
WG3233319-2 LCS								
Aluminum (Al)-Dissolved			97.4		%		80-120	02-DEC-19
Antimony (Sb)-Dissolved			102.5		%		80-120	02-DEC-19
Arsenic (As)-Dissolved			106.4		%		80-120	02-DEC-19
Barium (Ba)-Dissolved			105.4		%		80-120	02-DEC-19
Beryllium (Be)-Dissolved			106.0		%		80-120	02-DEC-19
Bismuth (Bi)-Dissolved			103.4		%		80-120	02-DEC-19
Boron (B)-Dissolved			90.1		%		80-120	02-DEC-19
Cadmium (Cd)-Dissolved			106.4		%		80-120	02-DEC-19
Calcium (Ca)-Dissolved			103.9		%		80-120	02-DEC-19
Cesium (Cs)-Dissolved			101.6		%		80-120	02-DEC-19
Chromium (Cr)-Dissolved			105.8		%		80-120	02-DEC-19
Cobalt (Co)-Dissolved			105.2		%		80-120	02-DEC-19
Copper (Cu)-Dissolved			106.2		%		80-120	02-DEC-19
Iron (Fe)-Dissolved			92.0		%		80-120	02-DEC-19
Lead (Pb)-Dissolved			104.6		%		80-120	02-DEC-19
Lithium (Li)-Dissolved			101.2		%		80-120	02-DEC-19
Magnesium (Mg)-Dissolved			117.6		%		80-120	02-DEC-19
Manganese (Mn)-Dissolved			105.8		%		80-120	02-DEC-19
Molybdenum (Mo)-Dissolved			104.2		%		80-120	02-DEC-19

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Workorder: L2387437 Report Date: 10-DEC-19 Page 4 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	Water							
Batch R4930341								
WG3233319-2 LCS								
Nickel (Ni)-Dissolved			103.1		%		80-120	02-DEC-19
Phosphorus (P)-Dissolved			104.6		%		80-120	02-DEC-19
Potassium (K)-Dissolved			95.7		%		80-120	02-DEC-19
Rubidium (Rb)-Dissolved			106.5		%		80-120	02-DEC-19
Selenium (Se)-Dissolved			104.9		%		80-120	02-DEC-19
Silicon (Si)-Dissolved			81.1		%		80-120	02-DEC-19
Silver (Ag)-Dissolved			103.1		%		80-120	02-DEC-19
Sodium (Na)-Dissolved			101.7		%		80-120	02-DEC-19
Strontium (Sr)-Dissolved			101.0		%		80-120	02-DEC-19
Sulfur (S)-Dissolved			80.1		%		80-120	02-DEC-19
Tellurium (Te)-Dissolved			104.0		%		80-120	02-DEC-19
Thallium (Tl)-Dissolved			104.6		%		80-120	02-DEC-19
Thorium (Th)-Dissolved			95.4		%		80-120	02-DEC-19
Tin (Sn)-Dissolved			102.4		%		80-120	02-DEC-19
Titanium (Ti)-Dissolved			101.0		%		80-120	02-DEC-19
Tungsten (W)-Dissolved			103.9		%		80-120	02-DEC-19
Uranium (U)-Dissolved			107.3		%		80-120	02-DEC-19
Vanadium (V)-Dissolved			105.7		%		80-120	02-DEC-19
Zinc (Zn)-Dissolved			105.8		%		80-120	02-DEC-19
Zirconium (Zr)-Dissolved			98.5		%		80-120	02-DEC-19
WG3233319-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	02-DEC-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	02-DEC-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	02-DEC-19
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	02-DEC-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	02-DEC-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	02-DEC-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	02-DEC-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	Water							
Batch R4930341								
WG3233319-1 MB								
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	02-DEC-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	02-DEC-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	02-DEC-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	02-DEC-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	02-DEC-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	02-DEC-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	02-DEC-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	02-DEC-19
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	02-DEC-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	02-DEC-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	02-DEC-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	02-DEC-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	02-DEC-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	02-DEC-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	02-DEC-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	02-DEC-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	02-DEC-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	02-DEC-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	02-DEC-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	02-DEC-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	02-DEC-19
MET-T-CCMS-WP	Water							
Batch R4933220								
WG3233720-2 LCS								
Aluminum (Al)-Total			101.6		%		80-120	03-DEC-19
Antimony (Sb)-Total			100.8		%		80-120	03-DEC-19
Arsenic (As)-Total			101.1		%		80-120	03-DEC-19
Barium (Ba)-Total			103.9		%		80-120	03-DEC-19
Beryllium (Be)-Total			102.5		%		80-120	03-DEC-19

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4933220								
WG3233720-2 LCS								
Bismuth (Bi)-Total			101.9		%		80-120	03-DEC-19
Boron (B)-Total			97.5		%		80-120	03-DEC-19
Cadmium (Cd)-Total			103.5		%		80-120	03-DEC-19
Calcium (Ca)-Total			104.0		%		80-120	03-DEC-19
Cesium (Cs)-Total			108.4		%		80-120	03-DEC-19
Chromium (Cr)-Total			102.0		%		80-120	03-DEC-19
Cobalt (Co)-Total			101.1		%		80-120	03-DEC-19
Copper (Cu)-Total			101.1		%		80-120	03-DEC-19
Iron (Fe)-Total			92.5		%		80-120	03-DEC-19
Lead (Pb)-Total			103.1		%		80-120	03-DEC-19
Lithium (Li)-Total			101.6		%		80-120	03-DEC-19
Magnesium (Mg)-Total			114.4		%		80-120	03-DEC-19
Manganese (Mn)-Total			101.2		%		80-120	03-DEC-19
Molybdenum (Mo)-Total			99.3		%		80-120	03-DEC-19
Nickel (Ni)-Total			98.6		%		80-120	03-DEC-19
Potassium (K)-Total			99.1		%		80-120	03-DEC-19
Phosphorus (P)-Total			101.4		%		80-120	03-DEC-19
Rubidium (Rb)-Total			100.8		%		80-120	03-DEC-19
Selenium (Se)-Total			104.1		%		80-120	03-DEC-19
Silicon (Si)-Total			91.6		%		80-120	03-DEC-19
Silver (Ag)-Total			100.7		%		80-120	03-DEC-19
Sodium (Na)-Total			103.7		%		80-120	03-DEC-19
Strontium (Sr)-Total			108.7		%		80-120	03-DEC-19
Sulfur (S)-Total			91.4		%		80-120	03-DEC-19
Tellurium (Te)-Total			93.9		%		80-120	03-DEC-19
Thallium (Tl)-Total			104.3		%		80-120	03-DEC-19
Thorium (Th)-Total			104.5		%		80-120	03-DEC-19
Tin (Sn)-Total			98.4		%		80-120	03-DEC-19
Titanium (Ti)-Total			96.5		%		80-120	03-DEC-19
Tungsten (W)-Total			102.0		%		80-120	03-DEC-19
Uranium (U)-Total			110.2		%		80-120	03-DEC-19
Vanadium (V)-Total			102.4		%		80-120	03-DEC-19
Zinc (Zn)-Total			99.6		%		80-120	03-DEC-19
Zirconium (Zr)-Total			98.2		%		80-120	03-DEC-19

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Workorder: L2387437 Report Date: 10-DEC-19 Page 7 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4933220								
WG3233720-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	03-DEC-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	03-DEC-19
Boron (B)-Total			<0.010		mg/L		0.01	03-DEC-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	03-DEC-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	03-DEC-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	03-DEC-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	03-DEC-19
Iron (Fe)-Total			<0.010		mg/L		0.01	03-DEC-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	03-DEC-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	03-DEC-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	03-DEC-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	03-DEC-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	03-DEC-19
Potassium (K)-Total			<0.050		mg/L		0.05	03-DEC-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	03-DEC-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	03-DEC-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	03-DEC-19
Silicon (Si)-Total			<0.10		mg/L		0.1	03-DEC-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	03-DEC-19
Sodium (Na)-Total			<0.050		mg/L		0.05	03-DEC-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	03-DEC-19
Sulfur (S)-Total			<0.50		mg/L		0.5	03-DEC-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	03-DEC-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	03-DEC-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	03-DEC-19

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Workorder: L2387437 Report Date: 10-DEC-19 Page 8 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4933220								
WG3233720-1 MB								
Tungsten (W)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	03-DEC-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	03-DEC-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	03-DEC-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	03-DEC-19
Batch R4936273								
WG3234903-2 LCS								
Aluminum (Al)-Total			100.3		%		80-120	04-DEC-19
Antimony (Sb)-Total			102.8		%		80-120	04-DEC-19
Arsenic (As)-Total			97.6		%		80-120	04-DEC-19
Barium (Ba)-Total			98.8		%		80-120	04-DEC-19
Beryllium (Be)-Total			105.0		%		80-120	04-DEC-19
Bismuth (Bi)-Total			101.9		%		80-120	04-DEC-19
Boron (B)-Total			109.9		%		80-120	04-DEC-19
Cadmium (Cd)-Total			98.9		%		80-120	04-DEC-19
Calcium (Ca)-Total			100.5		%		80-120	04-DEC-19
Cesium (Cs)-Total			96.7		%		80-120	04-DEC-19
Chromium (Cr)-Total			98.0		%		80-120	04-DEC-19
Cobalt (Co)-Total			99.2		%		80-120	04-DEC-19
Copper (Cu)-Total			99.6		%		80-120	04-DEC-19
Iron (Fe)-Total			86.1		%		80-120	04-DEC-19
Lead (Pb)-Total			102.1		%		80-120	04-DEC-19
Lithium (Li)-Total			107.5		%		80-120	04-DEC-19
Magnesium (Mg)-Total			117.3		%		80-120	04-DEC-19
Manganese (Mn)-Total			98.9		%		80-120	04-DEC-19
Molybdenum (Mo)-Total			98.8		%		80-120	04-DEC-19
Nickel (Ni)-Total			97.8		%		80-120	04-DEC-19
Potassium (K)-Total			88.8		%		80-120	04-DEC-19
Phosphorus (P)-Total			98.3		%		80-120	04-DEC-19
Rubidium (Rb)-Total			98.7		%		80-120	04-DEC-19
Selenium (Se)-Total			96.2		%		80-120	04-DEC-19
Silicon (Si)-Total			93.2		%		80-120	04-DEC-19
Silver (Ag)-Total			97.1		%		80-120	04-DEC-19
Sodium (Na)-Total			103.1		%		80-120	04-DEC-19

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ALS Environmental

Quality Control Report

Workorder: L2387437 Report Date: 10-DEC-19 Page 9 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4936273								
WG3234903-2 LCS								
Strontium (Sr)-Total			94.9		%		80-120	04-DEC-19
Sulfur (S)-Total			94.7		%		80-120	04-DEC-19
Tellurium (Te)-Total			98.1		%		80-120	04-DEC-19
Thallium (Tl)-Total			103.7		%		80-120	04-DEC-19
Thorium (Th)-Total			96.2		%		80-120	04-DEC-19
Tin (Sn)-Total			100.0		%		80-120	04-DEC-19
Titanium (Ti)-Total			93.2		%		80-120	04-DEC-19
Tungsten (W)-Total			101.0		%		80-120	04-DEC-19
Uranium (U)-Total			106.1		%		80-120	04-DEC-19
Vanadium (V)-Total			100.1		%		80-120	04-DEC-19
Zinc (Zn)-Total			96.7		%		80-120	04-DEC-19
Zirconium (Zr)-Total			89.3		%		80-120	04-DEC-19
WG3234903-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	04-DEC-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	04-DEC-19
Boron (B)-Total			<0.010		mg/L		0.01	04-DEC-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	04-DEC-19
Calcium (Ca)-Total			<0.050		mg/L		0.05	04-DEC-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	04-DEC-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	04-DEC-19
Iron (Fe)-Total			<0.010		mg/L		0.01	04-DEC-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	04-DEC-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	04-DEC-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	04-DEC-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	04-DEC-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	04-DEC-19
Potassium (K)-Total			<0.050		mg/L		0.05	04-DEC-19

Quality Control Report

Workorder: L2387437 Report Date: 10-DEC-19 Page 10 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4936273								
WG3234903-1 MB								
Phosphorus (P)-Total			<0.030		mg/L		0.03	04-DEC-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	04-DEC-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	04-DEC-19
Silicon (Si)-Total			<0.10		mg/L		0.1	04-DEC-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	04-DEC-19
Sodium (Na)-Total			<0.050		mg/L		0.05	04-DEC-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	04-DEC-19
Sulfur (S)-Total			<0.50		mg/L		0.5	04-DEC-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	04-DEC-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	04-DEC-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	04-DEC-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	04-DEC-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	04-DEC-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	04-DEC-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	04-DEC-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	04-DEC-19
N-TOTKJ-WP	Water							
Batch R4927893								
WG3229333-6 LCS								
Total Kjeldahl Nitrogen			96.5		%		75-125	28-NOV-19
WG3229333-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	28-NOV-19
NH3-COL-WP	Water							
Batch R4934147								
WG3235151-2 LCS								
Ammonia, Total (as N)			101.5		%		85-115	03-DEC-19
WG3235151-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	03-DEC-19
NO2-IC-N-WP	Water							
Batch R4926807								
WG3228643-6 LCS								
Nitrite (as N)			102.0		%		90-110	27-NOV-19
WG3228643-5 MB								

Quality Control Report

Workorder: L2387437 Report Date: 10-DEC-19 Page 11 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NO2-IC-N-WP	Water							
Batch R4926807								
WG3228643-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	27-NOV-19
NO3-IC-N-WP	Water							
Batch R4926807								
WG3228643-6 LCS								
Nitrate (as N)			100.6		%		90-110	27-NOV-19
WG3228643-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	27-NOV-19
P-T-COL-WP	Water							
Batch R4927765								
WG3230456-2 LCS								
Phosphorus (P)-Total			98.9		%		80-120	28-NOV-19
WG3230456-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	28-NOV-19
PH-WP	Water							
Batch R4927641								
WG3230521-2 LCS								
pH			7.41		pH units		7.3-7.5	27-NOV-19
WG3230521-7 LCS								
pH			7.37		pH units		7.3-7.5	27-NOV-19
SO4-IC-N-WP	Water							
Batch R4926807								
WG3228643-6 LCS								
Sulfate (SO4)			102.1		%		90-110	27-NOV-19
WG3228643-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	27-NOV-19
TDS-WP	Water							
Batch R4927784								
WG3229286-2 LCS								
Total Dissolved Solids			103.6		%		85-115	27-NOV-19
WG3229286-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	27-NOV-19
Batch R4929933								
WG3231043-2 LCS								
Total Dissolved Solids			100.2		%		85-115	28-NOV-19
WG3231043-1 MB								

Quality Control Report

Workorder: L2387437 Report Date: 10-DEC-19 Page 12 of 14

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-WP	Water							
Batch R4929933								
WG3231043-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	28-NOV-19

Quality Control Report

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

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	21-NOV-19 13:40	27-NOV-19 12:00	0.25	142	hours	EHTR-FM
	2	22-NOV-19 10:50	27-NOV-19 12:00	0.25	121	hours	EHTR-FM
	4	22-NOV-19 13:25	27-NOV-19 12:00	0.25	119	hours	EHTR-FM
	5	22-NOV-19 12:12	27-NOV-19 12:00	0.25	120	hours	EHTR-FM
Anions and Nutrients							
Nitrate in Water by IC							
	1	21-NOV-19 13:40	27-NOV-19 07:45	3	6	days	EHTR
	2	22-NOV-19 10:50	27-NOV-19 07:45	3	5	days	EHTR
	4	22-NOV-19 13:25	27-NOV-19 07:45	3	5	days	EHTR
	5	22-NOV-19 12:12	27-NOV-19 07:45	3	5	days	EHTR
Nitrite in Water by IC							
	1	21-NOV-19 13:40	27-NOV-19 07:45	3	6	days	EHTR
	2	22-NOV-19 10:50	27-NOV-19 07:45	3	5	days	EHTR
	4	22-NOV-19 13:25	27-NOV-19 07:45	3	5	days	EHTR
	5	22-NOV-19 12:12	27-NOV-19 07:45	3	5	days	EHTR
Aggregate Organics							
Biochemical Oxygen Demand (BOD)							
	1	21-NOV-19 13:40	27-NOV-19 07:00	48	137	hours	EHTR
	2	22-NOV-19 10:50	27-NOV-19 07:00	48	116	hours	EHTR
	4	22-NOV-19 13:25	27-NOV-19 07:00	48	114	hours	EHTR
	5	22-NOV-19 12:12	27-NOV-19 07:00	48	115	hours	EHTR

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2387437 were received on 26-NOV-19 09:00.

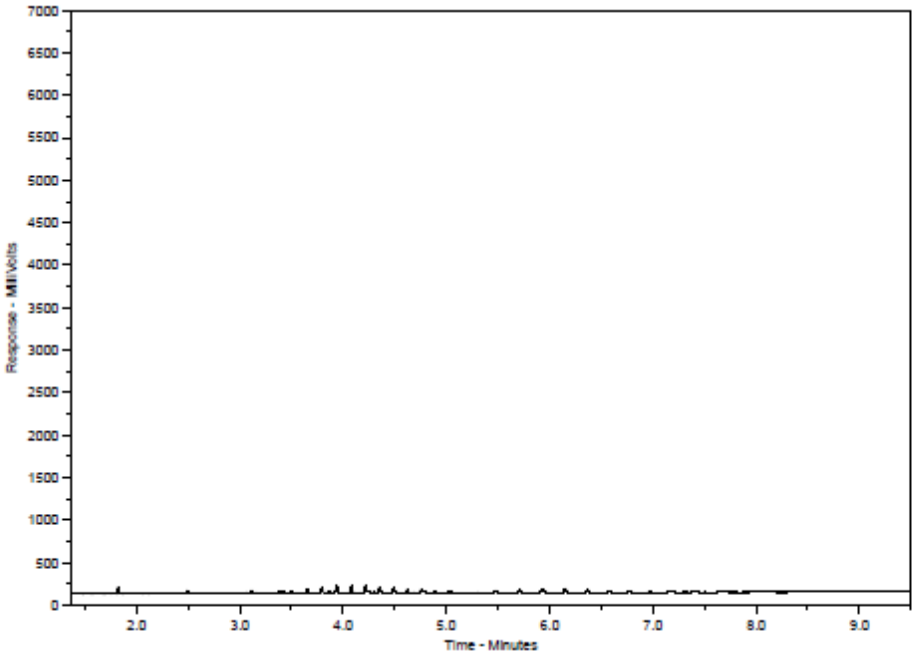
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

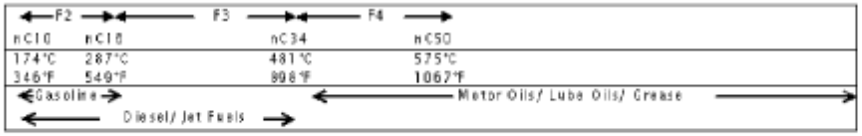
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2387437-1
Client Sample ID: GN1A





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.

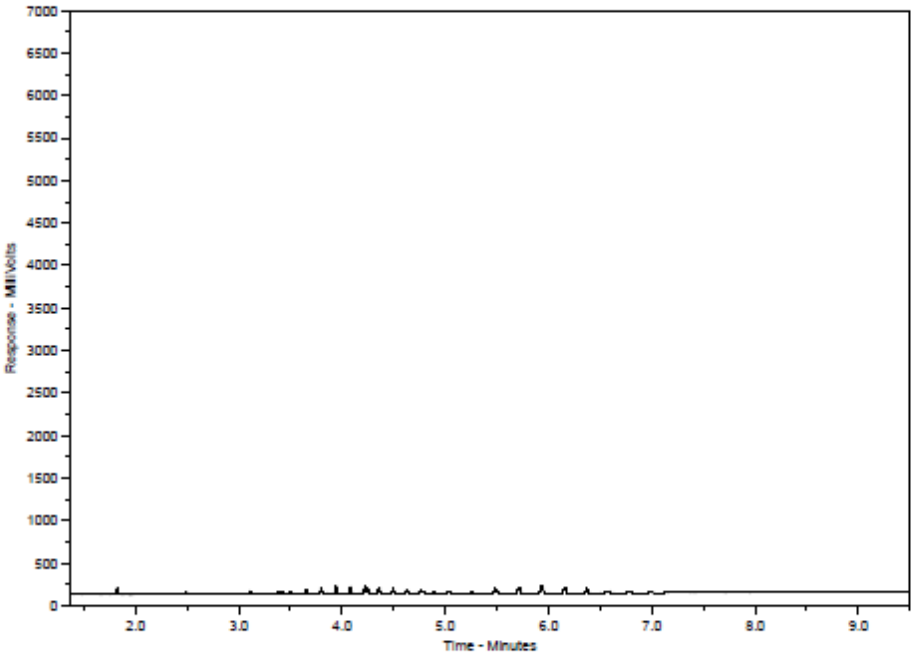
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

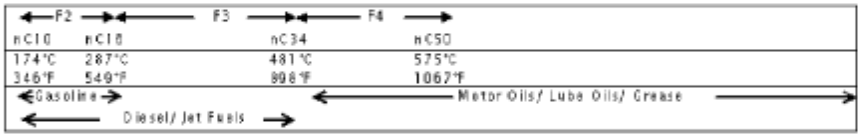
Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Printed on 12/3/2019 9:03:23 AM

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2387437-2
Client Sample ID: GN1B





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.

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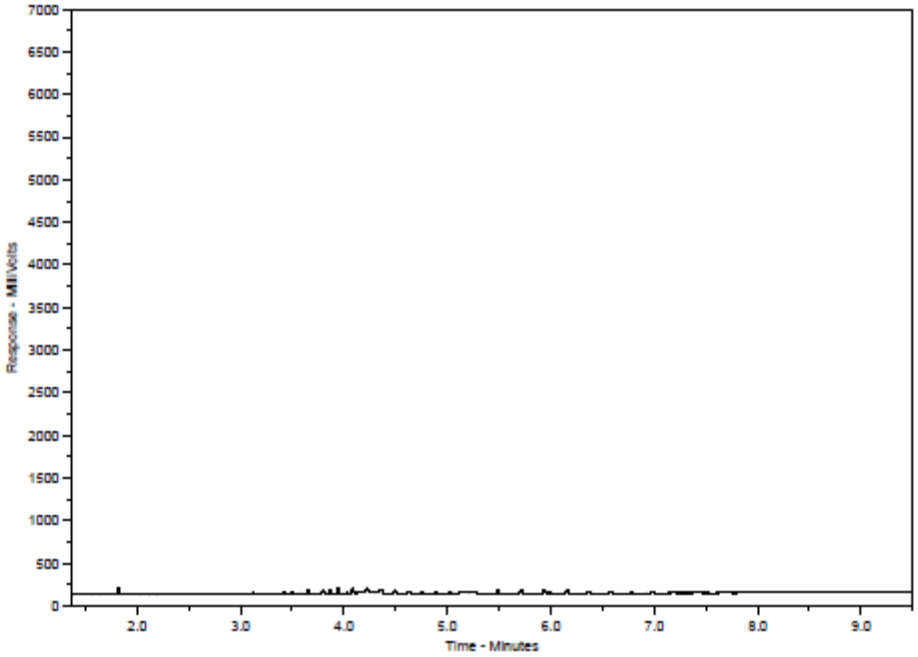
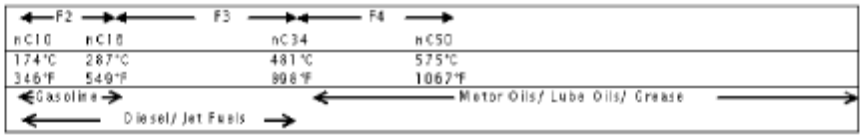
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2387437-4
Client Sample ID: MW3A





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.

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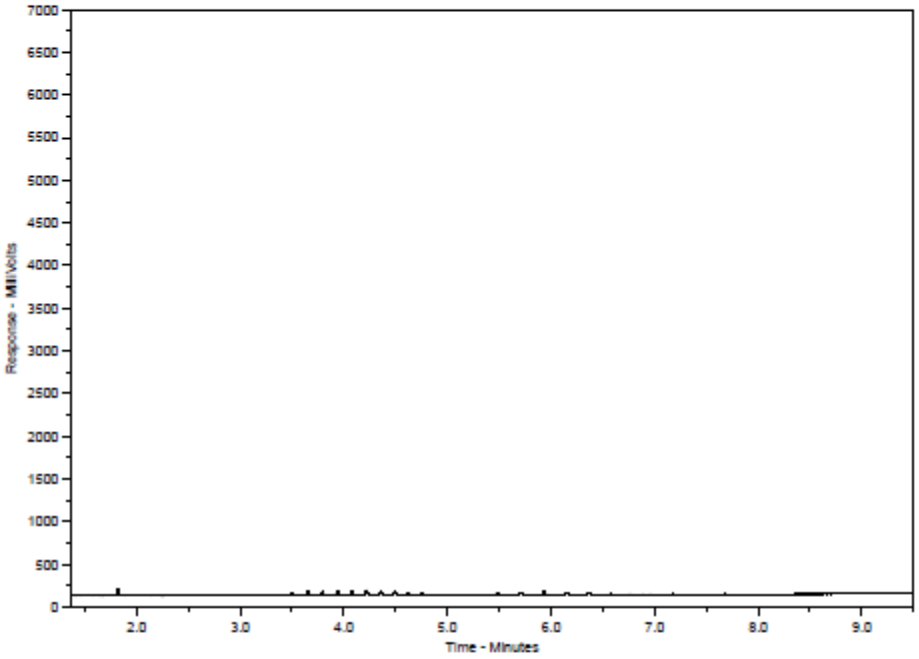
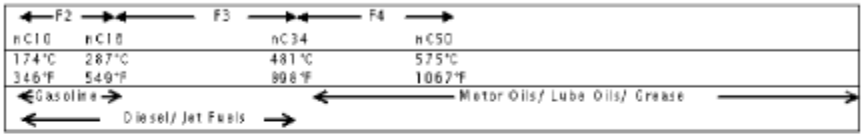
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2387437-5
Client Sample ID: MW3B





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.

Printed on 12/3/2019 9:03:36 AM

MWM ENVIRONMENTAL

ALS Environmental
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Chain of Custody Reque

Canada Toll Fre

L2387437-COFC

de label here (only)

COC Number: 17 - 750118

Page 1 of 1

L2387437

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:	MWM Environmental	Select Report Format: ☑ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brandi Berthold	Quality Control (QC) Report with Report ☐ YES ☐ NO	4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☐ (PRIORITY (Business Days))
Phone:	204-741-0289	☑ Compare Results to Criteria on Report - provide details below if box checked	1 Business day [E - 100%] ☐ / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐ (EMERGENCY)
	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:	BOX 459	Email 1 or Fax brandi@mwmenviro.ca	For tests that can not be performed according to the service level selected, you will be contacted.
City/Province:	Souris MB	Email 2	
Postal Code:	R0K 2C0	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 admin@mwmenviro.ca	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	~~Q76736~~ W10995	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

NUMBER OF CONTAINERS: Q76736 as per client COC 26-Nov-19

SAMPLES ON HOLD

SUSPECTED HAZARD (see Special Instructions)

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
	GW1A	21-11-19	13:40	water
	GW1B	22-11-19	10:50	water
	MW2	22-11-19	9:50	water
	MW3A	22-11-19	13:25	water
	MW3B	22-11-19	12:12	water
	~~MW4A~~	~~21-11-19~~		~~water~~
	~~MW4B~~	~~21-11-19~~		~~water~~
	MW5A	22-11-19	15:28	water
	~~MW5B~~	~~21-11-19~~		~~water~~

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			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Brandi Berthold	Date: Nov 22/19	Time: 17:30	Received by: CZ	Date: 26-Nov-19	Time: 9:00	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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

MWM Environmental
ATTN: BRANDI BERTHOLET
Box 459
Souris MB R0K 2C0

Date Received: 26-NOV-19
Report Date: 10-DEC-19 15:43 (MT)
Version: FINAL

Client Phone: 204-483-3986

Certificate of Analysis

Lab Work Order #: L2387433
Project P.O. #: NOT SUBMITTED
Job Reference:
C of C Numbers:
Legal Site Desc:

Hua Wo
Chemistry Laboratory Manager

ADDRESS: 1329 Niakwa Road East, Unit 12, Winnipeg, MB R2J 3T4 Canada | Phone: +1 204 255 9720 | Fax: +1 204 255 9721
ALS CANADA LTD Part of the ALS Group An ALS Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L2387433-1 MW2							
Sampled By: CLIENT on 22-NOV-19 @ 09:50							
Matrix: Water							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	<1.0	DLM	1.0	mg/L		27-NOV-19	R4926807
Nitrate+Nitrite							
Nitrate and Nitrite as N	<1.1		1.1	mg/L		29-NOV-19	
Nitrite in Water by IC							
Nitrite (as N)	<0.50	DLM	0.50	mg/L		27-NOV-19	R4926807
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
Toluene	<0.0010		0.0010	mg/L		27-NOV-19	R4929936
Ethyl benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
o-Xylene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
m+p-Xylenes	<0.00040		0.00040	mg/L		27-NOV-19	R4929936
F1 (C6-C10)	<0.10		0.10	mg/L		27-NOV-19	R4929936
Surrogate: 4-Bromofluorobenzene (SS)	82.0		70-130	%		27-NOV-19	R4929936
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	28-NOV-19	30-NOV-19	R4929054
F3 (C16-C34)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
F4 (C34-C50)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
Surrogate: 2-Bromobenzotrifluoride	95.5		60-140	%	28-NOV-19	30-NOV-19	R4929054
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		04-DEC-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		04-DEC-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		04-DEC-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	0.260		0.010	mg/L		03-DEC-19	R4934147
Biochemical Oxygen Demand	<2.0		2.0	mg/L		27-NOV-19	R4930316
Chemical Oxygen Demand	154		20	mg/L		26-NOV-19	R4925988
Chloride (Cl)	124		25	mg/L		27-NOV-19	R4926807
Dissolved Organic Carbon	56.7		0.50	mg/L		26-NOV-19	R4926439
Phosphorus (P)-Total	0.0480		0.0030	mg/L		28-NOV-19	R4927765
Sulfate (SO4)	10900		15	mg/L		27-NOV-19	R4926807
Total Dissolved Solids	15500		80	mg/L		28-NOV-19	R4929933
Total Kjeldahl Nitrogen	2.80		0.20	mg/L	27-NOV-19	28-NOV-19	R4927893
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.512		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Antimony (Sb)-Total	0.00050		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Arsenic (As)-Total	0.00255		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Barium (Ba)-Total	0.0120		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Beryllium (Be)-Total	0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Boron (B)-Total	0.148		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cadmium (Cd)-Total	0.000112		0.0000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Calcium (Ca)-Total	465		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Cesium (Cs)-Total	0.000080		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Chromium (Cr)-Total	0.00152		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cobalt (Co)-Total	0.00190		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Copper (Cu)-Total	0.0116		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Iron (Fe)-Total	1.05		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Lead (Pb)-Total	0.00406		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220

* 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
L2387433-1 MW2							
Sampled By: CLIENT on 22-NOV-19 @ 09:50							
Matrix: Water							
Total Metals in Water by CRC ICPMS							
Lithium (Li)-Total	3.02		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Magnesium (Mg)-Total	2280		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Manganese (Mn)-Total	3.33		0.0010	mg/L	03-DEC-19	03-DEC-19	R4933220
Molybdenum (Mo)-Total	0.00468		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Nickel (Ni)-Total	0.0586		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Potassium (K)-Total	35.8		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Phosphorus (P)-Total	0.070		0.030	mg/L	03-DEC-19	03-DEC-19	R4933220
Rubidium (Rb)-Total	0.00239		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Selenium (Se)-Total	0.0234		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silicon (Si)-Total	14.3		0.10	mg/L	03-DEC-19	03-DEC-19	R4933220
Silver (Ag)-Total	0.000064		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Sodium (Na)-Total	1100		0.50	mg/L	03-DEC-19	03-DEC-19	R4933220
Strontium (Sr)-Total	7.93		0.0020	mg/L	03-DEC-19	03-DEC-19	R4933220
Sulfur (S)-Total	3620		50	mg/L	03-DEC-19	06-DEC-19	R4939729
Tellurium (Te)-Total	0.00122		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Thallium (Tl)-Total	0.000183		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Thorium (Th)-Total	0.00022		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Tin (Sn)-Total	0.00098		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Titanium (Ti)-Total	0.0140		0.00030	mg/L	03-DEC-19	03-DEC-19	R4933220
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Uranium (U)-Total	0.145		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Vanadium (V)-Total	0.00215		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Zinc (Zn)-Total	0.0182		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Zirconium (Zr)-Total	0.00192		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					02-DEC-19	R4930087
Aluminum (Al)-Dissolved	0.0016		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Antimony (Sb)-Dissolved	0.00021		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Arsenic (As)-Dissolved	0.00182		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Barium (Ba)-Dissolved	0.00744		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Boron (B)-Dissolved	0.145		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cadmium (Cd)-Dissolved	0.0000943		0.0000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Calcium (Ca)-Dissolved	462		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Cesium (Cs)-Dissolved	<0.000010		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Chromium (Cr)-Dissolved	0.00035		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cobalt (Co)-Dissolved	0.00129		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Copper (Cu)-Dissolved	0.0110		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Lead (Pb)-Dissolved	0.00237		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Lithium (Li)-Dissolved	2.92		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Magnesium (Mg)-Dissolved	2540		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Manganese (Mn)-Dissolved	3.18		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Molybdenum (Mo)-Dissolved	0.00453		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Nickel (Ni)-Dissolved	0.0623		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Phosphorus (P)-Dissolved	0.032		0.030	mg/L	02-DEC-19	02-DEC-19	R4930341
Potassium (K)-Dissolved	32.9		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Rubidium (Rb)-Dissolved	0.00153		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Selenium (Se)-Dissolved	0.0198		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Silicon (Si)-Dissolved	16.0		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341

* 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
L2387433-1 MW2							
Sampled By: CLIENT on 22-NOV-19 @ 09:50							
Matrix: Water							
Dissolved Metals in Water by CRC ICPMS							
Silver (Ag)-Dissolved	0.000048		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sodium (Na)-Dissolved	1180		0.50	mg/L	02-DEC-19	02-DEC-19	R4930341
Strontium (Sr)-Dissolved	7.71		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sulfur (S)-Dissolved	3530		50	mg/L	02-DEC-19	06-DEC-19	R4939729
Tellurium (Te)-Dissolved	0.00042		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Thallium (Tl)-Dissolved	0.000208		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Tin (Sn)-Dissolved	0.00011		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Titanium (Ti)-Dissolved	<0.00030		0.00030	mg/L	02-DEC-19	02-DEC-19	R4930341
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Uranium (U)-Dissolved	0.186		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Vanadium (V)-Dissolved	<0.00050		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Zinc (Zn)-Dissolved	0.0134		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Zirconium (Zr)-Dissolved	0.00101		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Mercury Dissolved							
Dissolved Mercury Filtration Location	FIELD					02-DEC-19	R4934767
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4935634
pH, Conductivity and Total Alkalinity							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	976		1.2	mg/L		28-NOV-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		28-NOV-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		28-NOV-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	800		1.0	mg/L		27-NOV-19	R4927641
Conductivity							
Conductivity	12400		1.0	umhos/cm		27-NOV-19	R4927641
pH							
pH	7.61		0.10	pH units		27-NOV-19	R4927641
L2387433-2 MW5A							
Sampled By: CLIENT on 22-NOV-19 @ 15:28							
Matrix: Water							
Nitrate + Nitrite							
Nitrate in Water by IC							
Nitrate (as N)	<0.40	DLM	0.40	mg/L		27-NOV-19	R4926807
Nitrate+Nitrite							
Nitrate and Nitrite as N	<0.45		0.45	mg/L		29-NOV-19	
Nitrite in Water by IC							
Nitrite (as N)	<0.20	DLM	0.20	mg/L		27-NOV-19	R4926807
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
Toluene	<0.0010		0.0010	mg/L		27-NOV-19	R4929936
Ethyl benzene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
o-Xylene	<0.00050		0.00050	mg/L		27-NOV-19	R4929936
m+p-Xylenes	<0.00040		0.00040	mg/L		27-NOV-19	R4929936
F1 (C6-C10)	<0.10		0.10	mg/L		27-NOV-19	R4929936
Surrogate: 4-Bromofluorobenzene (SS)	84.0		70-130	%		27-NOV-19	R4929936
CCME PHC F2-F4 in Water							
F2 (C10-C16)	<0.10		0.10	mg/L	28-NOV-19	30-NOV-19	R4929054
F3 (C16-C34)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054

* 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
L2387433-2 MW5A							
Sampled By: CLIENT on 22-NOV-19 @ 15:28							
Matrix: Water							
CCME PHC F2-F4 in Water							
F4 (C34-C50)	<0.25		0.25	mg/L	28-NOV-19	30-NOV-19	R4929054
Surrogate: 2-Bromobenzotrifluoride	98.0		60-140	%	28-NOV-19	30-NOV-19	R4929054
CCME Total Hydrocarbons							
F1-BTEX	<0.10		0.10	mg/L		04-DEC-19	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		04-DEC-19	
Sum of Xylene Isomer Concentrations							
Xylenes (Total)	<0.00064		0.00064	mg/L		04-DEC-19	
Miscellaneous Parameters							
Ammonia, Total (as N)	1.15		0.10	mg/L		03-DEC-19	R4934147
Biochemical Oxygen Demand	<2.0		2.0	mg/L		27-NOV-19	R4930316
Chemical Oxygen Demand	75		20	mg/L		26-NOV-19	R4925988
Chloride (Cl)	90		10	mg/L		27-NOV-19	R4926807
Dissolved Organic Carbon	23.5		0.50	mg/L		26-NOV-19	R4926439
Phosphorus (P)-Total	0.0121		0.0030	mg/L		28-NOV-19	R4927765
Sulfate (SO4)	3650		6.0	mg/L		27-NOV-19	R4926807
Total Dissolved Solids	6260		20	mg/L		27-NOV-19	R4927784
Total Kjeldahl Nitrogen	2.04		0.20	mg/L	27-NOV-19	28-NOV-19	R4927893
Total Metals in Water by CRC ICPMS							
Aluminum (Al)-Total	0.0259		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Antimony (Sb)-Total	0.00116		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Arsenic (As)-Total	0.00346		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Barium (Ba)-Total	0.0104		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Beryllium (Be)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Bismuth (Bi)-Total	<0.000050		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Boron (B)-Total	0.492		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cadmium (Cd)-Total	0.000411		0.0000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Calcium (Ca)-Total	593		0.50	mg/L	03-DEC-19	03-DEC-19	R4933220
Cesium (Cs)-Total	0.000021		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Chromium (Cr)-Total	0.00064		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Cobalt (Co)-Total	0.0193		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Copper (Cu)-Total	0.00505		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Iron (Fe)-Total	0.068		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Lead (Pb)-Total	0.00517		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Lithium (Li)-Total	1.68		0.010	mg/L	03-DEC-19	03-DEC-19	R4933220
Magnesium (Mg)-Total	384		0.0050	mg/L	03-DEC-19	03-DEC-19	R4933220
Manganese (Mn)-Total	7.32		0.0010	mg/L	03-DEC-19	03-DEC-19	R4933220
Molybdenum (Mo)-Total	0.00417		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Nickel (Ni)-Total	0.0394		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Potassium (K)-Total	33.0		0.050	mg/L	03-DEC-19	03-DEC-19	R4933220
Phosphorus (P)-Total	<0.030		0.030	mg/L	03-DEC-19	03-DEC-19	R4933220
Rubidium (Rb)-Total	0.00610		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Selenium (Se)-Total	0.00246		0.000050	mg/L	03-DEC-19	03-DEC-19	R4933220
Silicon (Si)-Total	13		10	mg/L	03-DEC-19	06-DEC-19	R4939729
Silver (Ag)-Total	0.000053		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Sodium (Na)-Total	775		0.50	mg/L	03-DEC-19	03-DEC-19	R4933220
Strontium (Sr)-Total	4.76		0.0020	mg/L	03-DEC-19	03-DEC-19	R4933220
Sulfur (S)-Total	1120		5.0	mg/L	03-DEC-19	03-DEC-19	R4933220
Tellurium (Te)-Total	0.00048		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Thallium (Tl)-Total	0.000355		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Thorium (Th)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Tin (Sn)-Total	0.00085		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220

* 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
L2387433-2 MW5A							
Sampled By: CLIENT on 22-NOV-19 @ 15:28							
Matrix: Water							
Total Metals in Water by CRC ICPMS							
Titanium (Ti)-Total	0.00125		0.00030	mg/L	03-DEC-19	03-DEC-19	R4933220
Tungsten (W)-Total	<0.00010		0.00010	mg/L	03-DEC-19	03-DEC-19	R4933220
Uranium (U)-Total	0.0732		0.000010	mg/L	03-DEC-19	03-DEC-19	R4933220
Vanadium (V)-Total	0.00314		0.00050	mg/L	03-DEC-19	03-DEC-19	R4933220
Zinc (Zn)-Total	0.0685		0.0030	mg/L	03-DEC-19	03-DEC-19	R4933220
Zirconium (Zr)-Total	0.00107		0.00020	mg/L	03-DEC-19	03-DEC-19	R4933220
Dissolved Metals in Water by CRC ICPMS							
Dissolved Metals Filtration Location	FIELD					02-DEC-19	R4930087
Aluminum (Al)-Dissolved	0.0015		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Antimony (Sb)-Dissolved	0.00101		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Arsenic (As)-Dissolved	0.00296		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Barium (Ba)-Dissolved	0.0102		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Beryllium (Be)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Bismuth (Bi)-Dissolved	<0.000050		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Boron (B)-Dissolved	0.536		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cadmium (Cd)-Dissolved	0.000440		0.0000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Calcium (Ca)-Dissolved	667		0.50	mg/L	02-DEC-19	02-DEC-19	R4930341
Cesium (Cs)-Dissolved	0.000015		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Chromium (Cr)-Dissolved	0.00042		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Cobalt (Co)-Dissolved	0.0207		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Copper (Cu)-Dissolved	0.00492		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Iron (Fe)-Dissolved	<0.010		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Lead (Pb)-Dissolved	0.00217		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Lithium (Li)-Dissolved	1.66		0.010	mg/L	02-DEC-19	02-DEC-19	R4930341
Magnesium (Mg)-Dissolved	403		0.0050	mg/L	02-DEC-19	02-DEC-19	R4930341
Manganese (Mn)-Dissolved	8.26		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Molybdenum (Mo)-Dissolved	0.00396		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Nickel (Ni)-Dissolved	0.0432		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	02-DEC-19	02-DEC-19	R4930341
Potassium (K)-Dissolved	33.0		0.050	mg/L	02-DEC-19	02-DEC-19	R4930341
Rubidium (Rb)-Dissolved	0.00609		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Selenium (Se)-Dissolved	0.00241		0.000050	mg/L	02-DEC-19	02-DEC-19	R4930341
Silicon (Si)-Dissolved	12.7		5.0	mg/L	02-DEC-19	06-DEC-19	R4939729
Silver (Ag)-Dissolved	0.000025		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sodium (Na)-Dissolved	830		0.50	mg/L	02-DEC-19	02-DEC-19	R4930341
Strontium (Sr)-Dissolved	4.63		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Sulfur (S)-Dissolved	1370		5.0	mg/L	02-DEC-19	02-DEC-19	R4930341
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Thallium (Tl)-Dissolved	0.000358		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Tin (Sn)-Dissolved	0.00063		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Titanium (Ti)-Dissolved	0.00038		0.00030	mg/L	02-DEC-19	02-DEC-19	R4930341
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	02-DEC-19	02-DEC-19	R4930341
Uranium (U)-Dissolved	0.0763		0.000010	mg/L	02-DEC-19	02-DEC-19	R4930341
Vanadium (V)-Dissolved	0.00289		0.00050	mg/L	02-DEC-19	02-DEC-19	R4930341
Zinc (Zn)-Dissolved	0.0723		0.0010	mg/L	02-DEC-19	02-DEC-19	R4930341
Zirconium (Zr)-Dissolved	0.00095		0.00020	mg/L	02-DEC-19	02-DEC-19	R4930341
Mercury Dissolved							
Dissolved Mercury Filtration Location	FIELD					02-DEC-19	R4934767
Mercury (Hg)-Dissolved	<0.0000050		0.0000050	mg/L	04-DEC-19	04-DEC-19	R4935634
pH, Conductivity and Total Alkalinity							
Alkalinity, Bicarbonate							

* 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
L2387433-2 MW5A Sampled By: CLIENT on 22-NOV-19 @ 15:28 Matrix: Water							
Alkalinity, Bicarbonate							
Bicarbonate (HCO3)	869		1.2	mg/L		28-NOV-19	
Alkalinity, Carbonate							
Carbonate (CO3)	<0.60		0.60	mg/L		28-NOV-19	
Alkalinity, Hydroxide							
Hydroxide (OH)	<0.34		0.34	mg/L		28-NOV-19	
Alkalinity, Total (as CaCO3)							
Alkalinity, Total (as CaCO3)	712		1.0	mg/L		27-NOV-19	R4927641
Conductivity							
Conductivity	6080		1.0	umhos/cm		27-NOV-19	R4927641
pH							
pH	7.43		0.10	pH units		27-NOV-19	R4927641

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
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**
ALK-CO3CO3-CALC-WP	Water	Alkalinity, Carbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by carbonate is calculated and reported as mg CO3 2-/L.			
ALK-HCO3HCO3-CALC-WP	Water	Alkalinity, Bicarbonate	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by bicarbonate is calculated and reported as mg HCO3-/L			
ALK-OHOH-CALC-WP	Water	Alkalinity, Hydroxide	CALCULATION
The Alkalinity of water is a measure of its acid neutralizing capacity.Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. The fraction of alkalinity contributed by hydroxide is calculated and reported as mg OH-/L.			
ALK-TITR-WP	Water	Alkalinity, Total (as CaCO3)	APHA 2320B
The Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. Total alkalinity is determined by titration with a strong standard mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
BOD-WP	Water	Biochemical Oxygen Demand (BOD)	APHA 5210 B
Samples are diluted and seeded and then incubated in airtight bottles at 20□C for 5 days. Dissolved oxygen is measured initially and after incubation, and results are computed from the difference between initial and final DO.			
BTEXS+F1-HSMS-WP	Water	BTX plus F1 by GCMS	EPA 8260C / EPA 5021A
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.			
C-DOC-HTC-WP	Water	Dissolved Organic Carbon by Combustion	APHA 5310 B-WP
Filtered (0.45 um) sample is acidified and purged to remove inorganic carbon, then injected into a heated reaction chamber where organic carbon is oxidized to CO2 which is then transported in the carrier gas stream and measured via a non-dispersive infrared analyzer.			
CL-IC-N-WP	Water	Chloride in Water by IC	EPA 300.1 (mod)
Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.			
COD-WP	Water	Chemical Oxygen Demand	APHA 5220 D
This analysis is carried out using procedures adapted from APHA Method 5220 "Chemical Oxygen Demand (COD)". Chemical oxygen demand is determined using the closed reflux colorimetric method.			
EC-SCREEN-WP	Water	Conductivity Screen (Internal Use Only)	APHA 2510
Qualitative analysis of conductivity where required during preparation of other test eg. IC, TDS, TSS, etc			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
F1-F4-CALC-WP	Water	CCME Total Hydrocarbons	CCME CWS-PHC, Pub #1310, Dec 2001-L
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.			

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

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-FID-WP	Water	CCME PHC F2-F4 in Water	EPA 3511

Petroleum hydrocarbons in water are determined by liquid-liquid micro-scale solvent extraction using a reciprocal shaker extraction apparatus prior to capillary column gas chromatography with flame ionization detection (GC-FID) analysis.

HG-D-CVAA-WP	Water	Mercury Dissolved	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.

MET-D-CCMS-WP	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020B (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.

MET-T-CCMS-WP	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020B (mod.)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

N-TOTKJ-WP	Water	Total Kjeldahl Nitrogen	APHA 4500 NorgD (modified)

Aqueous samples are digested in a block digester with sulfuric acid and copper sulfate as a catalyst. Total Kjeldahl Nitrogen is then analyzed using a discrete analyzer with colorimetric detection.

NH3-COL-WP	Water	Ammonia by colour	APHA 4500 NH3 F

Ammonia in water samples forms indophenol when reacted with hypochlorite and phenol. The intensity is amplified by the addition of sodium nitroprusside and measured colourmetrically.

NO2+NO3-CALC-WP	Water	Nitrate+Nitrite	CALCULATION
NO2-IC-N-WP	Water	Nitrite in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-IC-N-WP	Water	Nitrate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

P-T-COL-WP	Water	Phosphorus, Total	APHA 4500 P PHOSPHORUS-L

This analysis is carried out using procedures adapted from APHA METHOD 4500-P "Phosphorus". Total Phosphorus is determined colourmetrically after persulphate digestion of the sample.

PH-WP	Water	pH	APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

SO4-IC-N-WP	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-WP	Water	Total Dissolved Solids (TDS)	APHA 2540 SOLIDS C,E

A well-mixed sample is filtered through a glass fiber filter paper. The filtrate is then evaporated to dryness in a pre-weighed vial and dried at 180 – 2C. The increase in vial weight represents the total dissolved solids.

XYLENES-SUM-CALC-	Water	Sum of Xylene Isomer Concentrations	CALCULATED RESULT

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

WP

Total xylenes represents the sum of o-xylene and m&p-xylene.

** 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:

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.

MWM ENVIRONMENTAL

ALS Environmental

Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19

Client: MWM Environmental
Box 459
Souris MB R0K 2C0

Contact: BRANDI BERTHOLET

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TITR-WP	Water							
Batch R4927641								
WG3230521-4 LCS								
Alkalinity, Total (as CaCO3)			104.1		%		85-115	27-NOV-19
WG3230521-1 MB								
Alkalinity, Total (as CaCO3)			<1.0		mg/L		1	27-NOV-19
BOD-WP	Water							
Batch R4930316								
WG3228792-2 LCS								
Biochemical Oxygen Demand			99.4		%		85-115	27-NOV-19
WG3228792-1 MB								
Biochemical Oxygen Demand			<2.0		mg/L		2	27-NOV-19
BTEXS+F1-HSMS-WP	Water							
Batch R4929936								
WG3229963-2 LCS								
Benzene			87.7		%		70-130	27-NOV-19
Toluene			92.4		%		70-130	27-NOV-19
Ethyl benzene			87.7		%		70-130	27-NOV-19
o-Xylene			90.9		%		70-130	27-NOV-19
m+p-Xylenes			101.4		%		70-130	27-NOV-19
WG3229963-3 LCS								
F1 (C6-C10)			96.0		%		70-130	27-NOV-19
WG3229963-1 MB								
Benzene			<0.00050		mg/L		0.0005	27-NOV-19
Toluene			<0.0010		mg/L		0.001	27-NOV-19
Ethyl benzene			<0.00050		mg/L		0.0005	27-NOV-19
o-Xylene			<0.00050		mg/L		0.0005	27-NOV-19
m+p-Xylenes			<0.00040		mg/L		0.0004	27-NOV-19
F1 (C6-C10)			<0.10		mg/L		0.1	27-NOV-19
Surrogate: 4-Bromofluorobenzene (SS)			92.0		%		70-130	27-NOV-19
WG3229963-5 MS		L2387433-1						
Benzene			92.3		%		50-150	27-NOV-19
Toluene			94.7		%		50-150	27-NOV-19
Ethyl benzene			88.4		%		50-150	27-NOV-19
o-Xylene			90.6		%		50-150	27-NOV-19
m+p-Xylenes			102.0		%		50-150	27-NOV-19
WG3229963-6 MS		L2387433-2						
F1 (C6-C10)			101.7		%		50-150	27-NOV-19
C-DOC-HTC-WP	Water							

Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19 Page 2 of 11

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
C-DOC-HTC-WP	Water							
Batch R4926439								
WG3229389-6 LCS								
Dissolved Organic Carbon			100.7		%		80-120	26-NOV-19
WG3229389-5 MB								
Dissolved Organic Carbon			<0.50		mg/L		0.5	26-NOV-19
CL-IC-N-WP	Water							
Batch R4926807								
WG3228643-6 LCS								
Chloride (Cl)			101.2		%		90-110	27-NOV-19
WG3228643-5 MB								
Chloride (Cl)			<0.50		mg/L		0.5	27-NOV-19
COD-WP	Water							
Batch R4925988								
WG3229254-2 LCS								
Chemical Oxygen Demand			101.7		%		85-115	26-NOV-19
WG3229254-1 MB								
Chemical Oxygen Demand			<20		mg/L		20	26-NOV-19
EC-WP	Water							
Batch R4927641								
WG3230521-3 LCS								
Conductivity			98.4		%		90-110	27-NOV-19
WG3230521-1 MB								
Conductivity			<1.0		umhos/cm		1	27-NOV-19
F2-F4-FID-WP	Water							
Batch R4929054								
WG3230328-2 LCS								
F2 (C10-C16)			104.8		%		70-130	29-NOV-19
F3 (C16-C34)			96.5		%		70-130	29-NOV-19
F4 (C34-C50)			99.3		%		70-130	29-NOV-19
WG3230328-1 MB								
F2 (C10-C16)			<0.10		mg/L		0.1	29-NOV-19
F3 (C16-C34)			<0.25		mg/L		0.25	29-NOV-19
F4 (C34-C50)			<0.25		mg/L		0.25	29-NOV-19
Surrogate: 2-Bromobenzotrifluoride			98.7		%		60-140	29-NOV-19
HG-D-CVAA-WP	Water							

Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19 Page 3 of 11

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-D-CVAA-WP	Water							
Batch R4935634								
WG3235354-2 LCS								
Mercury (Hg)-Dissolved			103.0		%		80-120	04-DEC-19
WG3235354-1 MB								
Mercury (Hg)-Dissolved			<0.0000050		mg/L		0.000005	04-DEC-19
MET-D-CCMS-WP	Water							
Batch R4930341								
WG3233319-2 LCS								
Aluminum (Al)-Dissolved			97.4		%		80-120	02-DEC-19
Antimony (Sb)-Dissolved			102.5		%		80-120	02-DEC-19
Arsenic (As)-Dissolved			106.4		%		80-120	02-DEC-19
Barium (Ba)-Dissolved			105.4		%		80-120	02-DEC-19
Beryllium (Be)-Dissolved			106.0		%		80-120	02-DEC-19
Bismuth (Bi)-Dissolved			103.4		%		80-120	02-DEC-19
Boron (B)-Dissolved			90.1		%		80-120	02-DEC-19
Cadmium (Cd)-Dissolved			106.4		%		80-120	02-DEC-19
Calcium (Ca)-Dissolved			103.9		%		80-120	02-DEC-19
Cesium (Cs)-Dissolved			101.6		%		80-120	02-DEC-19
Chromium (Cr)-Dissolved			105.8		%		80-120	02-DEC-19
Cobalt (Co)-Dissolved			105.2		%		80-120	02-DEC-19
Copper (Cu)-Dissolved			106.2		%		80-120	02-DEC-19
Iron (Fe)-Dissolved			92.0		%		80-120	02-DEC-19
Lead (Pb)-Dissolved			104.6		%		80-120	02-DEC-19
Lithium (Li)-Dissolved			101.2		%		80-120	02-DEC-19
Magnesium (Mg)-Dissolved			117.6		%		80-120	02-DEC-19
Manganese (Mn)-Dissolved			105.8		%		80-120	02-DEC-19
Molybdenum (Mo)-Dissolved			104.2		%		80-120	02-DEC-19
Nickel (Ni)-Dissolved			103.1		%		80-120	02-DEC-19
Phosphorus (P)-Dissolved			104.6		%		80-120	02-DEC-19
Potassium (K)-Dissolved			95.7		%		80-120	02-DEC-19
Rubidium (Rb)-Dissolved			106.5		%		80-120	02-DEC-19
Selenium (Se)-Dissolved			104.9		%		80-120	02-DEC-19
Silicon (Si)-Dissolved			81.1		%		80-120	02-DEC-19
Silver (Ag)-Dissolved			103.1		%		80-120	02-DEC-19
Sodium (Na)-Dissolved			101.7		%		80-120	02-DEC-19
Strontium (Sr)-Dissolved			101.0		%		80-120	02-DEC-19

MWM ENVIRONMENTAL

ALS Environmental

Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19 Page 4 of 11

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	Water							
Batch R4930341								
WG3233319-2 LCS								
Sulfur (S)-Dissolved			80.1		%		80-120	02-DEC-19
Tellurium (Te)-Dissolved			104.0		%		80-120	02-DEC-19
Thallium (Tl)-Dissolved			104.6		%		80-120	02-DEC-19
Thorium (Th)-Dissolved			95.4		%		80-120	02-DEC-19
Tin (Sn)-Dissolved			102.4		%		80-120	02-DEC-19
Titanium (Ti)-Dissolved			101.0		%		80-120	02-DEC-19
Tungsten (W)-Dissolved			103.9		%		80-120	02-DEC-19
Uranium (U)-Dissolved			107.3		%		80-120	02-DEC-19
Vanadium (V)-Dissolved			105.7		%		80-120	02-DEC-19
Zinc (Zn)-Dissolved			105.8		%		80-120	02-DEC-19
Zirconium (Zr)-Dissolved			98.5		%		80-120	02-DEC-19
WG3233319-1 MB								
Aluminum (Al)-Dissolved			<0.0010		mg/L		0.001	02-DEC-19
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Barium (Ba)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Beryllium (Be)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Bismuth (Bi)-Dissolved			<0.000050		mg/L		0.00005	02-DEC-19
Boron (B)-Dissolved			<0.010		mg/L		0.01	02-DEC-19
Cadmium (Cd)-Dissolved			<0.0000050		mg/L		0.000005	02-DEC-19
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	02-DEC-19
Cesium (Cs)-Dissolved			<0.000010		mg/L		0.00001	02-DEC-19
Chromium (Cr)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Cobalt (Co)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	02-DEC-19
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	02-DEC-19
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	02-DEC-19
Lithium (Li)-Dissolved			<0.0010		mg/L		0.001	02-DEC-19
Magnesium (Mg)-Dissolved			<0.0050		mg/L		0.005	02-DEC-19
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Molybdenum (Mo)-Dissolved			<0.000050		mg/L		0.00005	02-DEC-19
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	02-DEC-19
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	02-DEC-19
Potassium (K)-Dissolved			<0.050		mg/L		0.05	02-DEC-19

Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19 Page 5 of 11

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-WP	Water							
Batch R4930341								
WG3233319-1 MB								
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	02-DEC-19
Selenium (Se)-Dissolved			<0.000050		mg/L		0.00005	02-DEC-19
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	02-DEC-19
Silver (Ag)-Dissolved			<0.000010		mg/L		0.00001	02-DEC-19
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	02-DEC-19
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Sulfur (S)-Dissolved			<0.50		mg/L		0.5	02-DEC-19
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	02-DEC-19
Thallium (Tl)-Dissolved			<0.000010		mg/L		0.00001	02-DEC-19
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Tin (Sn)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Titanium (Ti)-Dissolved			<0.00030		mg/L		0.0003	02-DEC-19
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	02-DEC-19
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	02-DEC-19
Vanadium (V)-Dissolved			<0.00050		mg/L		0.0005	02-DEC-19
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	02-DEC-19
Zirconium (Zr)-Dissolved			<0.00020		mg/L		0.0002	02-DEC-19
MET-T-CCMS-WP	Water							
Batch R4933220								
WG3233715-2 LCS								
Aluminum (Al)-Total			102.9		%		80-120	03-DEC-19
Antimony (Sb)-Total			100.3		%		80-120	03-DEC-19
Arsenic (As)-Total			100.3		%		80-120	03-DEC-19
Barium (Ba)-Total			100.5		%		80-120	03-DEC-19
Beryllium (Be)-Total			99.3		%		80-120	03-DEC-19
Bismuth (Bi)-Total			93.2		%		80-120	03-DEC-19
Boron (B)-Total			93.7		%		80-120	03-DEC-19
Cadmium (Cd)-Total			100.0		%		80-120	03-DEC-19
Calcium (Ca)-Total			98.5		%		80-120	03-DEC-19
Cesium (Cs)-Total			107.4		%		80-120	03-DEC-19
Chromium (Cr)-Total			101.8		%		80-120	03-DEC-19
Cobalt (Co)-Total			100.1		%		80-120	03-DEC-19
Copper (Cu)-Total			99.4		%		80-120	03-DEC-19
Iron (Fe)-Total			91.4		%		80-120	03-DEC-19

MWM ENVIRONMENTAL

ALS Environmental

Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19 Page 6 of 11

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4933220								
WG3233715-2 LCS								
Lead (Pb)-Total			94.2		%		80-120	03-DEC-19
Lithium (Li)-Total			99.3		%		80-120	03-DEC-19
Magnesium (Mg)-Total			109.9		%		80-120	03-DEC-19
Manganese (Mn)-Total			101.3		%		80-120	03-DEC-19
Molybdenum (Mo)-Total			99.9		%		80-120	03-DEC-19
Nickel (Ni)-Total			97.2		%		80-120	03-DEC-19
Potassium (K)-Total			98.3		%		80-120	03-DEC-19
Phosphorus (P)-Total			105.5		%		80-120	03-DEC-19
Rubidium (Rb)-Total			101.3		%		80-120	03-DEC-19
Selenium (Se)-Total			99.3		%		80-120	03-DEC-19
Silicon (Si)-Total			96.5		%		80-120	03-DEC-19
Silver (Ag)-Total			100.2		%		80-120	03-DEC-19
Sodium (Na)-Total			100.0		%		80-120	03-DEC-19
Strontium (Sr)-Total			107.8		%		80-120	03-DEC-19
Sulfur (S)-Total			91.9		%		80-120	03-DEC-19
Tellurium (Te)-Total			95.6		%		80-120	03-DEC-19
Thallium (Tl)-Total			95.0		%		80-120	03-DEC-19
Thorium (Th)-Total			94.1		%		80-120	03-DEC-19
Tin (Sn)-Total			97.7		%		80-120	03-DEC-19
Titanium (Ti)-Total			95.6		%		80-120	03-DEC-19
Tungsten (W)-Total			100.6		%		80-120	03-DEC-19
Uranium (U)-Total			102.0		%		80-120	03-DEC-19
Vanadium (V)-Total			101.2		%		80-120	03-DEC-19
Zinc (Zn)-Total			99.6		%		80-120	03-DEC-19
Zirconium (Zr)-Total			99.2		%		80-120	03-DEC-19
WG3233715-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	03-DEC-19
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Arsenic (As)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Barium (Ba)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Beryllium (Be)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Bismuth (Bi)-Total			<0.000050		mg/L		0.00005	03-DEC-19
Boron (B)-Total			<0.010		mg/L		0.01	03-DEC-19
Cadmium (Cd)-Total			<0.0000050		mg/L		0.000005	03-DEC-19

MWM ENVIRONMENTAL

ALS Environmental

Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-WP	Water							
Batch R4933220								
WG3233715-1 MB								
Calcium (Ca)-Total			<0.050		mg/L		0.05	03-DEC-19
Cesium (Cs)-Total			<0.000010		mg/L		0.00001	03-DEC-19
Chromium (Cr)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Cobalt (Co)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Copper (Cu)-Total			<0.00050		mg/L		0.0005	03-DEC-19
Iron (Fe)-Total			<0.010		mg/L		0.01	03-DEC-19
Lead (Pb)-Total			<0.000050		mg/L		0.00005	03-DEC-19
Lithium (Li)-Total			<0.0010		mg/L		0.001	03-DEC-19
Magnesium (Mg)-Total			<0.0050		mg/L		0.005	03-DEC-19
Manganese (Mn)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	03-DEC-19
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	03-DEC-19
Potassium (K)-Total			<0.050		mg/L		0.05	03-DEC-19
Phosphorus (P)-Total			<0.030		mg/L		0.03	03-DEC-19
Rubidium (Rb)-Total			<0.00020		mg/L		0.0002	03-DEC-19
Selenium (Se)-Total			<0.000050		mg/L		0.00005	03-DEC-19
Silicon (Si)-Total			<0.10		mg/L		0.1	03-DEC-19
Silver (Ag)-Total			<0.000010		mg/L		0.00001	03-DEC-19
Sodium (Na)-Total			<0.050		mg/L		0.05	03-DEC-19
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	03-DEC-19
Sulfur (S)-Total			<0.50		mg/L		0.5	03-DEC-19
Tellurium (Te)-Total			<0.00020		mg/L		0.0002	03-DEC-19
Thallium (Tl)-Total			<0.000010		mg/L		0.00001	03-DEC-19
Thorium (Th)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Tin (Sn)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Titanium (Ti)-Total			<0.00030		mg/L		0.0003	03-DEC-19
Tungsten (W)-Total			<0.00010		mg/L		0.0001	03-DEC-19
Uranium (U)-Total			<0.000010		mg/L		0.00001	03-DEC-19
Vanadium (V)-Total			<0.00050		mg/L		0.0005	03-DEC-19
Zinc (Zn)-Total			<0.0030		mg/L		0.003	03-DEC-19
Zirconium (Zr)-Total			<0.00020		mg/L		0.0002	03-DEC-19
N-TOTKJ-WP	Water							

MWM ENVIRONMENTAL

ALS Environmental

Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
N-TOTKJ-WP	Water							
Batch R4927893								
WG3229333-6 LCS								
Total Kjeldahl Nitrogen			96.5		%		75-125	28-NOV-19
WG3229333-5 MB								
Total Kjeldahl Nitrogen			<0.20		mg/L		0.2	28-NOV-19
NH3-COL-WP	Water							
Batch R4934147								
WG3235151-2 LCS								
Ammonia, Total (as N)			101.5		%		85-115	03-DEC-19
WG3235151-1 MB								
Ammonia, Total (as N)			<0.010		mg/L		0.01	03-DEC-19
NO2-IC-N-WP	Water							
Batch R4926807								
WG3228643-6 LCS								
Nitrite (as N)			102.0		%		90-110	27-NOV-19
WG3228643-5 MB								
Nitrite (as N)			<0.010		mg/L		0.01	27-NOV-19
NO3-IC-N-WP	Water							
Batch R4926807								
WG3228643-6 LCS								
Nitrate (as N)			100.6		%		90-110	27-NOV-19
WG3228643-5 MB								
Nitrate (as N)			<0.020		mg/L		0.02	27-NOV-19
P-T-COL-WP	Water							
Batch R4927765								
WG3230456-2 LCS								
Phosphorus (P)-Total			98.9		%		80-120	28-NOV-19
WG3230456-1 MB								
Phosphorus (P)-Total			<0.0030		mg/L		0.003	28-NOV-19
PH-WP	Water							
Batch R4927641								
WG3230521-2 LCS								
pH			7.41		pH units		7.3-7.5	27-NOV-19
SO4-IC-N-WP	Water							

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Quality Control Report

Workorder: L2387433 Report Date: 10-DEC-19 Page 9 of 11

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SO4-IC-N-WP	Water							
Batch R4926807								
WG3228643-6 LCS								
Sulfate (SO4)			102.1		%		90-110	27-NOV-19
WG3228643-5 MB								
Sulfate (SO4)			<0.30		mg/L		0.3	27-NOV-19
TDS-WP	Water							
Batch R4927784								
WG3229286-2 LCS								
Total Dissolved Solids			103.6		%		85-115	27-NOV-19
WG3229286-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	27-NOV-19
Batch R4929933								
WG3231043-2 LCS								
Total Dissolved Solids			100.2		%		85-115	28-NOV-19
WG3231043-1 MB								
Total Dissolved Solids			<4.0		mg/L		4	28-NOV-19

Quality Control Report

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

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	22-NOV-19 09:50	27-NOV-19 12:00	0.25	122	hours	EHTR-FM
	2	22-NOV-19 15:28	27-NOV-19 12:00	0.25	117	hours	EHTR-FM
Anions and Nutrients							
Nitrate in Water by IC							
	1	22-NOV-19 09:50	27-NOV-19 07:45	3	5	days	EHTR
	2	22-NOV-19 15:28	27-NOV-19 07:45	3	5	days	EHTR
Nitrite in Water by IC							
	1	22-NOV-19 09:50	27-NOV-19 07:45	3	5	days	EHTR
	2	22-NOV-19 15:28	27-NOV-19 07:45	3	5	days	EHTR
Aggregate Organics							
Biochemical Oxygen Demand (BOD)							
	1	22-NOV-19 09:50	27-NOV-19 07:00	48	117	hours	EHTR
	2	22-NOV-19 15:28	27-NOV-19 07:00	48	112	hours	EHTR

Legend & Qualifier Definitions:

EHTR-FM:	Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR:	Exceeded ALS recommended hold time prior to sample receipt.
EHTL:	Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT:	Exceeded ALS recommended hold time prior to analysis.
Rec. HT:	ALS recommended hold time (see units).

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L2387433 were received on 26-NOV-19 09:00.

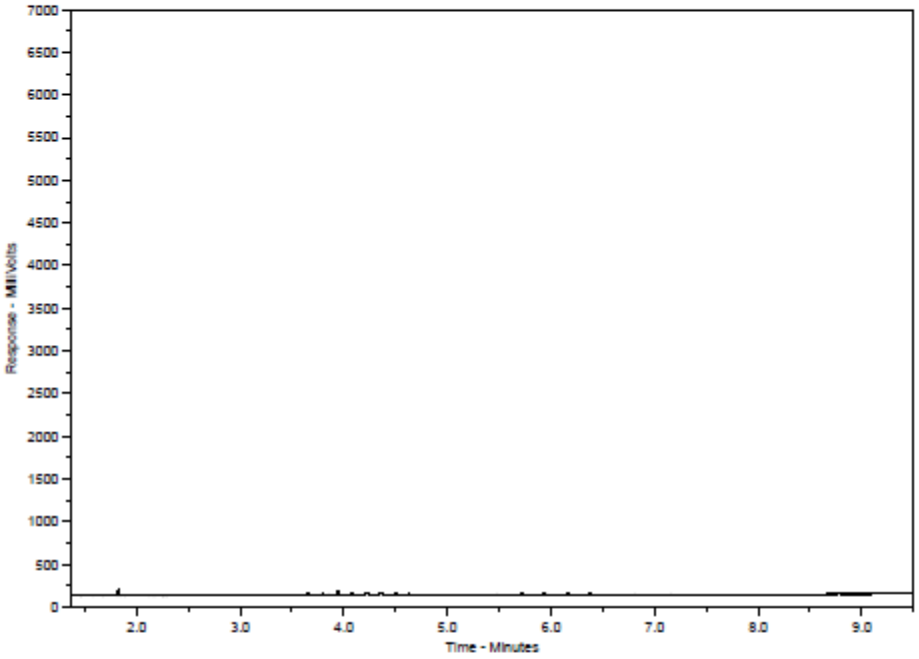
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

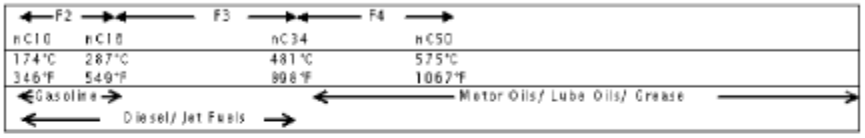
The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide 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: L2387433-1
Client Sample ID: MW2





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.

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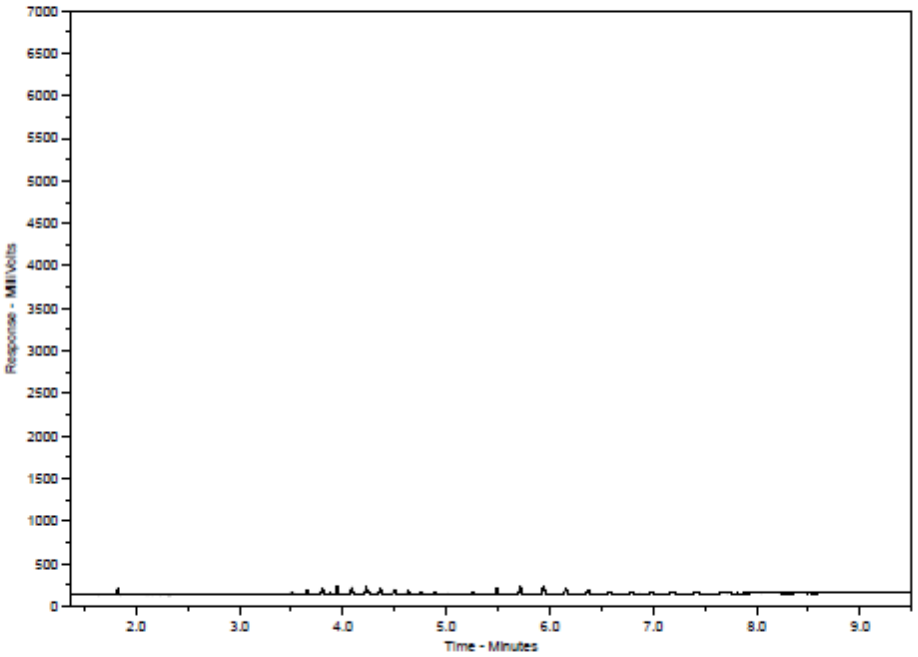
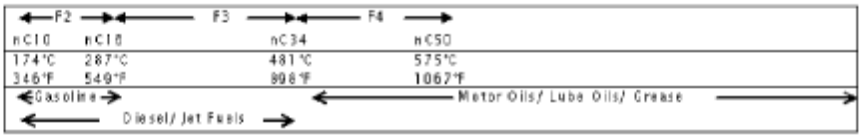
CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L2387433-2
Client Sample ID: MW5A





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.

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ALS Environmental
www.alsglobal.com

Chain of Custody (COC) Request

L2387433-COFC

Canada Toll Free:

e label here

COC Number: 17 - 782098

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L2387433

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:	MWM Environmental	Select Report Format: PDF EXCEL EDD (DIGITAL)	Regular [R] Standard TAT if received by 3 pm - business days - no surcharges apply
Contact:	Brandi Berthelet	Quality Control (QC) Report with Report YES NO	4 day [P4-20%] / 3 day [P3-25%] / 2 day [P2-50%] / 1 Business day [E - 100%] / Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)]
Phone:	204-741-0989	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:	Box 459	Email 1 or Fax brandi@mwmenviro.ca	Date and Time Required for all E&P TATs: dd-mm-yy hh:mm
City/Province:	Souris MB	Email 2	For tests that can not be performed according to the service level selected, you will be contacted.
Postal Code:	R0K 2C0	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	
Company:		Email 1 or Fax admin@mwmenviro.ca	
Contact:		Email 2	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	W10995	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	NUMBER OF CONTAINERS	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) Below	SAMPLES ON HOLD	SUSPECTED HAZARD (see Special Instructions)
	MW2	22-11-19	9:50	water	Q76736 as per client			
	MW5A	22-11-19	15:28	water				

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)	SAMPLE CONDITION AS RECEIVED (lab use only)
Are samples taken from a Regulated DW System? YES NO		Frozen / SIF Observations Yes No / Ice Packs / Ice Cubes / Custody seal intact Yes No / Cooling Initiated
Are samples for human consumption/ use? YES NO		INITIAL COOLER TEMPERATURES °C / 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:	Date:	Time:
Brandi Berthelet	Nov 25/19	13:30	CR	26-Nov-19	9:00			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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