

# Annual Report

March 2017



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- ALS ASR Sampling Analysis Results



**INDUSTRIAL METALS (2011)**  
**550 MESSIER STREET**  
**WINNIPEG, MANITOBA**  
**R2J 0G5**

PH (204) 233-1908 FAX (204) 233-1933

## ENVIRONMENTAL MONITORING

In accordance with Clause 25 of the Environment Act Licence (No. 2856 RRRR), the following is an annual report of site operations as required by Manitoba Sustainable Development. This report includes details of the annual monitoring occurring at the Industrial Metals property. The following sections describe the results of the noise testing, air quality testing, soil testing, groundwater testing and ASR testing.

### SECTION 1

#### Noise Monitoring

In the Standard Operating Procedures and Monitoring Program, four sites around the perimeter of the property were chosen as representative locations for noise leaving the property. Noise levels in decibels were recorded using a digital sound level meter at each location on the property several times during the day, in a sampling event. The average noise level for each location was recorded. Sampling events were taken monthly (beginning in May, 2016) and always during operating hours. Results of the noise level monitoring during 2016 are summarized in the table below:

Month (2016)	Units	Sampling Location			
		North	West	South	East
May	dba	78.1	70	81	91
June	dba	70.2	70.8	73.6	86.4
July	dba	71.4	75.6	74.1	84.6
August	dba	71	73.8	76	84.9
September	dba	73.9	72.8	75	85
October	dba	69.4	71.4	72.8	84.6
November	dba	73.4	70.4	71.4	82.4
December	dba	72.1	73.4	68.6	82.3
<b>Yearly Average</b>	<b>dba</b>	<b>72.4</b>	<b>72.3</b>	<b>74.1</b>	<b>85.2</b>

Sampling locations corresponded with the location plan attached to the Standard Operating Procedures and Monitoring Plan. No noise complaints for the site were received in 2016.



## Noise Reduction Program

The following steps have been taken to reduce noise levels on the property:

- Suppliers are continually informed of acceptable materials to be received onsite, such as those without combustible fuels and hazardous materials, which reduce the potential for explosions and other noise impacts
- All incoming loads are inspected for potentially explosive materials and those materials not accepted are sent back with the suppliers
- The mechanical equipment onsite (i.e. material transport vehicles, material sorting equipment and the shredder) are maintained regularly
- Explosive noises from the shredder operation are reduced by containing within the hammermill
- New methods for reducing noise impacts and explosion prevention technologies are continually explored through supplier meetings and conferences attended by Industrial Metals staff.

## Shredder Explosions

The following table is a summary of explosion events occurring at the shredder in 2016:

Date	Time	Description and Cause of Explosion	Outcome or Action Taken	Intensity * 1 - 10
22/2/16	9:41 am	Midsized explosion in the shredder with a small visible fire. Cause unknown	The shredder operation continued. The flame was extinguished in seconds. No need for fire suppression or emergency services	5
29/2/16	11:10 am	Small explosion in the hammermill. Cause unknown	-	3
25/5/16	10:30 am	Small explosion visible from a car	-	3
28/9/16	11:00 am	Small visible fire. May have been a small amount of fuel trapped in a fuel line. Nothing unusual being fed into shredder at the time of the incident	-	3

\* Intensity Scale: 1 – audible with no visible fire;  
 5 – audible with fire contained in the hammermill;  
 10 – audible with fire visible outside the hammermill



## **SECTION 2**

### **Air Quality and Monitoring**

Air quality is maintained at acceptable levels in the site buildings and around the perimeter of the property, in accordance with the Manitoba Ambient Air Quality Criteria and to the Environment Act Licence (No. 2856 RRRR). Air quality monitoring helps to determine if levels of air borne particulates exceed published levels, and if a potential threat to human and environmental health and safety exists.

Dust emissions are minimized from the onsite operations, in accordance with the Environment Act Licence requirements, which include:

- the use of skirts on all drop chutes of the shredder
- the use of covered bins for ASR collection.

In addition, water is used to suppress dust from dry ground conditions onsite, if it become a nuisance to surrounding properties.

Baseline air quality sampling will include:

- one sampling event over a 24 hour period to be conducted while the site is not in operation
- one sampling event over a 24 hour period to be conducted while the site is in operation
- three sample locations over the site as indicated on the attached plan
- utilizing appropriate pump and filters for the following parameters:
  - Total Suspended Particulate
  - Total Metals
  - Mercury
  - Chromium
- Submitting samples to a laboratory for analysis.

Wind direction and speed will also be recorded throughout the sampling period, along with other weather conditions which may impact results. If possible, measurements should be taken on days with minimal wind and precipitation.



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Due to the timing of the approval of the site sampling program and limitations of equipment during the winter season, air quality samples were not obtained in 2016, but will be conducted in 2017.



## SECTION 3

### Soil Quality Monitoring

Baseline soil quality sampling was conducted on January 11, 2017, and included:

- Sampling from 3 separate locations as identified in the Standard Operating and Maintenance Program
  - Site 1 was located in the north portion of the property, near the ASR processing building. The site was used for storage of scrap metal materials
  - Site 2 was located west of the shredder. The site was used for storage of scrap metal materials
  - Site 3 was located in the southwest corner of the site next to the perimeter fence. The site was for storage of a metals collection bin
- One set of shallow samples from each location obtained at a depth of approximately 0.3 m below the surface
- Submitting samples to laboratory for analysis of the parameters in the table below.

Deeper samples from each location were not able to be obtained due to the frost depth and the limitations of equipment onsite. Testing of deeper soil samples will occur after the ground has thawed in the spring/summer of 2017.

Results of the laboratory analysis are summarized in the table below:

Parameter Measured	Units	Site 1	Site 2	Site 3
		0.3 m depth	0.3 m depth	0.3 m depth
Benzene (VOC)	mg/kg	0.0584	0.195	0.169
Ethylbenzene (VOC)	mg/kg	0.056	0.055	0.054
Toluene (VOC)	mg/kg	0.072	0.10	0.181
Xylene (VOC)	mg/kg	0.22	0.117	0.142
Naphthalene (PAH)	mg/kg	0.106	0.298	0.131
Benzo(a)pyrene (PAH)	mg/kg	0.871	0.481	0.492
Polychlorinated Biphenyl (PCB)	mg/kg	<1.5	<3.0	<1.5
Arsenic	mg/kg	19.3	13.5	9.04
Cadmium	mg/kg	5.03	7.65	2.99
Chromium	mg/kg	188	171	53
Copper	mg/kg	985	644	183
Iron	mg/kg	97300	75500	47700
Lead	mg/kg	684	856	328



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Parameter Measured	Units	Site 1	Site 2	Site 3
		0.3 m depth	0.3 m depth	0.3 m depth
Magnesium	mg/kg	55300	32600	23600
Mercury	mg/kg	0.688	1.59	0.15
Nickel	mg/kg	191	168	34.5
Tin	mg/kg	39.4	39.2	16.0
Uranium	Mg/kg	0.579	0.536	0.927
Zinc	mg/kg	2500	3200	522

Details of the soil analysis laboratory results are attached in the Appendix.





## SECTION 4

### Groundwater Quality Monitoring

Baseline groundwater quality sampling was conducted on January 11, 2017, and included:

- a sample collected from the non-potable water tap, located in the shredder building (this water originates from an existing deep aquifer well on site)
- submitting samples to laboratory for analysis of the parameters in the table below.

Results of the laboratory analysis were compared with federal and provincial water quality guidelines for drinking water and are summarized in the table below:

Parameter Measured	Units	Groundwater	Drinking Water Guidelines	
			MAC	AO
Benzene (VOC)	mg/L	<0.0005	0.005	
Ethylbenzene (VOC)	mg/L	<0.0005	0.14	≤0.0016
Toluene (VOC)	mg/L	<0.0005	0.06	≤0.024
Xylene (VOC)	mg/L	<0.0005	0.09	≤0.02
Naphthalene (PAH)	mg/L	<0.00005	NG	
Benzo(a)pyrene (PAH)	mg/L	<0.000005	0.00001	
Polychlorinated Biphenyl (PCB)	mg/L	<0.0015	NG	
Arsenic	mg/L	0.00164	0.010	
Cadmium	mg/L	<0.00001	0.005	
Chromium	mg/L	<0.001	0.05	
Copper	mg/L	0.00639		≤1.0
Iron	mg/L	0.334		≤0.3
Lead	mg/L	0.000513	0.01	
Magnesium	mg/L	75.6	NG	
Mercury	mg/L	0.000005	0.001	
Nickel	mg/L	<0.002	NG	
Tin	mg/L	<0.0002	NG	
Uranium	mg/L	0.0019	0.02	
Zinc	mg/L	0.0337		≤5.0

**Notes for Table**

MAC - Maximum Acceptable Concentration

AO - Aesthetic Objective

NG - No Guideline Criteria Established

*Bolded and highlighted values indicate values exceeding the Canadian Drinking Water Guideline limits*

*Guidelines for Canadian Drinking Water Quality, Health Canada, 2012, and Tier III Water Quality Objectives, Manitoba Water Stewardship, 2011.*



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Parameters tested in the groundwater did not exceed limits of the federal or provincial drinking water quality guidelines. Details of the groundwater analysis laboratory results are attached in the Appendix.



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## **SECTION 5**

### **ASR Sampling Analysis**

ASR sampling was conducted in March, June September and December 2016. The laboratory analysis results are attached in the Appendix.



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## **SECTION 6**

### **Public Correspondence:**

Industrial Metals did not receive any public complaints in 2016.

## **Appendix**

ALS Soils Analysis Results

ALS Groundwater Analysis Results

ALS ASR Sampling Analysis Results

## ALS Soils Analysis Results



J.R. Cousin Consultants  
ATTN: OSWALD WOHLGEMUT  
91A Scurfield Boulevard  
Winnipeg MB R3Y 1G4

Date Received: 11-JAN-17  
Report Date: 20-JAN-17 14:22 (MT)  
Version: FINAL

Client Phone: 204-489-0474

## Certificate of Analysis

Lab Work Order #: L1878348  
Project P.O. #: NOT SUBMITTED  
Job Reference:  
C of C Numbers:  
Legal Site Desc:



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Chantal Bouchard  
Account Manager

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ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1878348-1 SITE 1 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 10:00							
Matrix: SOIL							
<b>Miscellaneous Parameters</b>							
Moisture	22.7		0.10	%		14-JAN-17	R3633233
Mercury (Hg)	0.688		0.0050	mg/kg	13-JAN-17	17-JAN-17	R3634766
Total Polychlorinated Biphenyls	<1.5		1.5	mg/kg		20-JAN-17	
<b>Metals</b>							
Aluminum (Al)	10700		5.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Antimony (Sb)	25.7		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Arsenic (As)	19.3		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Barium (Ba)	198		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Beryllium (Be)	0.38		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Bismuth (Bi)	2.72		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Boron (B)	41		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Cadmium (Cd)	5.03		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Calcium (Ca)	114000		100	mg/kg	13-JAN-17	16-JAN-17	R3634214
Chromium (Cr)	188		1.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Cobalt (Co)	13.3		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Copper (Cu)	985		1.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Iron (Fe)	97300		25	mg/kg	13-JAN-17	16-JAN-17	R3634214
Lead (Pb)	684		0.20	mg/kg	13-JAN-17	16-JAN-17	R3634214
Magnesium (Mg)	55300		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Manganese (Mn)	2420		50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Molybdenum (Mo)	25.2		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Nickel (Ni)	191		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Phosphorus (P)	310		100	mg/kg	13-JAN-17	16-JAN-17	R3634214
Potassium (K)	974		25	mg/kg	13-JAN-17	16-JAN-17	R3634214
Selenium (Se)	0.75		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Silver (Ag)	1.47		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Sodium (Na)	535		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Strontium (Sr)	78.5		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Thallium (Tl)	<0.10		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Tin (Sn)	39.4		5.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Titanium (Ti)	259		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Uranium (U)	0.579		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Vanadium (V)	28.3		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Zinc (Zn)	2500		1000	mg/kg	13-JAN-17	16-JAN-17	R3634214
<b>Polyaromatic Hydrocarbons (PAHs)</b>							
1-Methyl Naphthalene	0.063		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
2-Methyl Naphthalene	0.095		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Acenaphthene	0.0555		0.0050	mg/kg	17-JAN-17	18-JAN-17	R3635294
Acenaphthylene	0.111		0.0050	mg/kg	17-JAN-17	18-JAN-17	R3635294
Acridine	<0.010		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Anthracene	0.161		0.0040	mg/kg	17-JAN-17	18-JAN-17	R3635294
Benzo(a)anthracene	0.868		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Benzo(a)pyrene	0.871		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Benzo(b&j)fluoranthene	1.12		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Benzo(g,h,i)perylene	0.880		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Benzo(k)fluoranthene	0.339		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Chrysene	1.37		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Dibenzo(a,h)anthracene	0.185		0.0050	mg/kg	17-JAN-17	18-JAN-17	R3635294
Fluoranthene	0.989		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Fluorene	0.080		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Indeno(1,2,3-cd)pyrene	0.813		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294

\* 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
L1878348-1 SITE 1 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 10:00							
Matrix: SOIL							
<b>Polyaromatic Hydrocarbons (PAHs)</b>							
Naphthalene	0.106		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Phenanthrene	0.537		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Pyrene	2.24		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
Quinoline	<0.010		0.010	mg/kg	17-JAN-17	18-JAN-17	R3635294
B(a)P Total Potency Equivalent	1.39		0.020	mg/kg	17-JAN-17	18-JAN-17	R3635294
IACR (CCME)	16.0		0.15	mg/kg	17-JAN-17	18-JAN-17	R3635294
Benzo(b+j+k)fluoranthene	1.46		0.014	mg/kg	17-JAN-17	18-JAN-17	R3635294
Surrogate: Acenaphthene d10	94.5		50-130	%	17-JAN-17	18-JAN-17	R3635294
Surrogate: Chrysene d12	92.3		50-130	%	17-JAN-17	18-JAN-17	R3635294
Surrogate: Naphthalene d8	84.9		50-130	%	17-JAN-17	18-JAN-17	R3635294
Surrogate: Phenanthrene d10	77.2		50-130	%	17-JAN-17	18-JAN-17	R3635294
<b>PCB</b>							
Aroclor 1016	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1221	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1232	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1242	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1248	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1254	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1260	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1262	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1268	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Surrogate: Decachlorobiphenyl	74.0		65-130	%	13-JAN-17	16-JAN-17	R3636778
<b>VOC plus F1-F4 by Tumbler</b>							
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	42		25	mg/kg	13-JAN-17	13-JAN-17	R3634627
F3 (C16-C34)	3900		50	mg/kg	13-JAN-17	13-JAN-17	R3634627
F4 (C34-C50)	957		50	mg/kg	13-JAN-17	13-JAN-17	R3634627
Surrogate: 2-Bromobenzotrifluoride	99.0		60-140	%	13-JAN-17	13-JAN-17	R3634627
Chrom. to baseline at nC50	YES				13-JAN-17	13-JAN-17	R3634627
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	<10		10	mg/kg		20-JAN-17	
F2-Naphth	42		25	mg/kg		20-JAN-17	
F3-PAH	3900		50	mg/kg		20-JAN-17	
Total Hydrocarbons (C6-C50)	4900		76	mg/kg		20-JAN-17	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	0.402		0.045	mg/kg		20-JAN-17	
<b>VOC plus F1 by GCMS</b>							
Acetone	<0.50		0.50	mg/kg	16-JAN-17	17-JAN-17	R3636962
Benzene	0.0584		0.0050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromobenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromochloromethane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromodichloromethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromoform	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromomethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
n-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
sec-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
tert-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Carbon disulfide	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Carbon Tetrachloride	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chlorobenzene	0.334		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chloroethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chloroform	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962

\* 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
L1878348-1 SITE 1 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 10:00							
Matrix: SOIL							
<b>VOC plus F1 by GCMS</b>							
Chloromethane	<0.060	DLM	0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
2-Chlorotoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
4-Chlorotoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dibromochloromethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dibromo-3-chloropropane	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dibromoethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dibromomethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichlorobenzene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3-Dichlorobenzene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,4-Dichlorobenzene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dichlorodifluoromethane	<0.060	DLM	0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-dichloroethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichloroethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-dichloroethene	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
cis-1,2-Dichloroethene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
trans-1,2-Dichloroethene	<0.060		0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dichloromethane	3.14		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichloropropane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3-Dichloropropane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
2,2-Dichloropropane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-Dichloropropene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
cis-1,3-Dichloropropene	<0.10	DLM	0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
trans-1,3-Dichloropropene	<0.10	DLM	0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Ethylbenzene	0.056		0.015	mg/kg	16-JAN-17	17-JAN-17	R3636962
F1	<10		10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Hexachlorobutadiene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Hexane	0.321		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
2-Hexanone (Methyl butyl ketone)	<0.40	DLM	0.40	mg/kg	16-JAN-17	17-JAN-17	R3636962
Isopropylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
4-Isopropyltoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
MEK	<0.50		0.50	mg/kg	16-JAN-17	17-JAN-17	R3636962
MIBK	<0.20		0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
MTBE	<0.20		0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
Styrene	0.161		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1,2-Tetrachloroethane	<0.0080		0.0080	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1,2,2-Tetrachloroethane	<0.0080		0.0080	mg/kg	16-JAN-17	17-JAN-17	R3636962
Tetrachloroethene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Toluene	0.072		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,3-Trichlorobenzene	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,4-Trichlorobenzene	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1-Trichloroethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,2-Trichloroethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Trichloroethene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Trichlorofluoromethane	28.5	DLHC	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,3-Trichloropropane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,4-Trimethylbenzene	0.29		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3,5-Trimethylbenzene	0.16		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Vinyl Chloride	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
M+P-Xylenes	0.220		0.040	mg/kg	16-JAN-17	17-JAN-17	R3636962
o-Xylene	0.182		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Surrogate: 1,4-Difluorobenzene (SS)	130.1	SOL:MI	70-130	%	16-JAN-17	17-JAN-17	R3636962

\* 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
L1878348-1 SITE 1 - SHALLOW Sampled By: OSWALD on 10-JAN-17 @ 10:00 Matrix: SOIL <b>VOC plus F1 by GCMS</b> Surrogate: 4-Bromofluorobenzene (SS)	140.9	SOL:MI	70-130	%	16-JAN-17	17-JAN-17	R3636962

\* 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
L1878348-3 SITE 2 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 11:00							
Matrix: SOIL							
<b>Miscellaneous Parameters</b>							
Moisture	24.0		0.10	%		14-JAN-17	R3633233
F4G-SG	1440		500	mg/kg		18-JAN-17	R3636100
Mercury (Hg)	1.59		0.025	mg/kg	13-JAN-17	17-JAN-17	R3634766
Total Polychlorinated Biphenyls	<3.0		3.0	mg/kg		20-JAN-17	
<b>Metals</b>							
Aluminum (Al)	12800		500	mg/kg	13-JAN-17	16-JAN-17	R3634214
Antimony (Sb)	21.9		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Arsenic (As)	13.5		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Barium (Ba)	214		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Beryllium (Be)	0.33		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Bismuth (Bi)	1.07		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Boron (B)	94		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Cadmium (Cd)	7.65		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Calcium (Ca)	83500		100	mg/kg	13-JAN-17	16-JAN-17	R3634214
Chromium (Cr)	171		1.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Cobalt (Co)	11.8		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Copper (Cu)	644		1.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Iron (Fe)	75500		25	mg/kg	13-JAN-17	16-JAN-17	R3634214
Lead (Pb)	856		0.20	mg/kg	13-JAN-17	16-JAN-17	R3634214
Magnesium (Mg)	32600		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Manganese (Mn)	1300		50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Molybdenum (Mo)	18.6		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Nickel (Ni)	168		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Phosphorus (P)	360		100	mg/kg	13-JAN-17	16-JAN-17	R3634214
Potassium (K)	819		25	mg/kg	13-JAN-17	16-JAN-17	R3634214
Selenium (Se)	<0.50		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Silver (Ag)	3.84		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Sodium (Na)	439		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Strontium (Sr)	81.0		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Thallium (Tl)	<0.10		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Tin (Sn)	39.2		5.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Titanium (Ti)	303		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Uranium (U)	0.536		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Vanadium (V)	25.3		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Zinc (Zn)	3200		1000	mg/kg	13-JAN-17	16-JAN-17	R3634214
<b>Polyaromatic Hydrocarbons (PAHs)</b>							
1-Methyl Naphthalene	0.066		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
2-Methyl Naphthalene	0.076		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Acenaphthene	0.100		0.0050	mg/kg	17-JAN-17	20-JAN-17	R3635294
Acenaphthylene	0.219		0.0050	mg/kg	17-JAN-17	20-JAN-17	R3635294
Acridine	0.037		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Anthracene	0.232		0.0040	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(a)anthracene	0.377		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(a)pyrene	0.481		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(b&j)fluoranthene	0.788		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(g,h,i)perylene	0.416		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(k)fluoranthene	0.252		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Chrysene	0.389		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Dibenzo(a,h)anthracene	0.0953		0.0050	mg/kg	17-JAN-17	20-JAN-17	R3635294
Fluoranthene	0.929		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Fluorene	0.133		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294

\* 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
L1878348-3 SITE 2 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 11:00							
Matrix: SOIL							
<b>Polyaromatic Hydrocarbons (PAHs)</b>							
Indeno(1,2,3-cd)pyrene	0.430		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Naphthalene	0.298		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Phenanthrene	0.823		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Pyrene	0.947		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Quinoline	0.016		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
B(a)P Total Potency Equivalent	0.769		0.020	mg/kg	17-JAN-17	20-JAN-17	R3635294
IACR (CCME)	9.76		0.15	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(b+j+k)fluoranthene	1.04		0.014	mg/kg	17-JAN-17	20-JAN-17	R3635294
Surrogate: Acenaphthene d10	90.2		50-130	%	17-JAN-17	20-JAN-17	R3635294
Surrogate: Chrysene d12	65.3		50-130	%	17-JAN-17	20-JAN-17	R3635294
Surrogate: Naphthalene d8	91.9		50-130	%	17-JAN-17	20-JAN-17	R3635294
Surrogate: Phenanthrene d10	85.1		50-130	%	17-JAN-17	20-JAN-17	R3635294
<b>PCB</b>							
Aroclor 1016	<1.0	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1221	<1.0	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1232	<1.0	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1242	<1.0	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1248	1.2	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1254	<1.0	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1260	<1.0	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1262	<1.0	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1268	<1.0	DLM	1.0	mg/kg	13-JAN-17	16-JAN-17	R3636778
Surrogate: Decachlorobiphenyl	75.0		65-130	%	13-JAN-17	16-JAN-17	R3636778
<b>VOC plus F1-F4 by Tumbler</b>							
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	30		25	mg/kg	13-JAN-17	13-JAN-17	R3634627
F3 (C16-C34)	2200		50	mg/kg	13-JAN-17	13-JAN-17	R3634627
F4 (C34-C50)	727		50	mg/kg	13-JAN-17	13-JAN-17	R3634627
Surrogate: 2-Bromobenzotrifluoride	106.0		60-140	%	13-JAN-17	13-JAN-17	R3634627
Chrom. to baseline at nC50	NO				13-JAN-17	13-JAN-17	R3634627
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	<10		10	mg/kg		20-JAN-17	
F2-Naphth	30		25	mg/kg		20-JAN-17	
F3-PAH	2200		50	mg/kg		20-JAN-17	
Total Hydrocarbons (C6-C50)	2960		76	mg/kg		20-JAN-17	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	0.179		0.045	mg/kg		20-JAN-17	
<b>VOC plus F1 by GCMS</b>							
Acetone	<0.50		0.50	mg/kg	16-JAN-17	17-JAN-17	R3636962
Benzene	0.195		0.0050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromobenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromochloromethane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromodichloromethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromoform	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromomethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
n-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
sec-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
tert-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Carbon disulfide	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Carbon Tetrachloride	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chlorobenzene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chloroethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962

\* 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
L1878348-3 SITE 2 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 11:00							
Matrix: SOIL							
<b>VOC plus F1 by GCMS</b>							
Chloroform	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chloromethane	<0.060	DLM	0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
2-Chlorotoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
4-Chlorotoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dibromochloromethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dibromo-3-chloropropane	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dibromoethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dibromomethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichlorobenzene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3-Dichlorobenzene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,4-Dichlorobenzene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dichlorodifluoromethane	<0.060	DLM	0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-dichloroethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichloroethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-dichloroethene	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
cis-1,2-Dichloroethene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
trans-1,2-Dichloroethene	<0.060		0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dichloromethane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichloropropane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3-Dichloropropane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
2,2-Dichloropropane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-Dichloropropene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
cis-1,3-Dichloropropene	<0.10	DLM	0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
trans-1,3-Dichloropropene	<0.10	DLM	0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Ethylbenzene	0.055		0.015	mg/kg	16-JAN-17	17-JAN-17	R3636962
F1	<10		10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Hexachlorobutadiene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Hexane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
2-Hexanone (Methyl butyl ketone)	<0.40	DLM	0.40	mg/kg	16-JAN-17	17-JAN-17	R3636962
Isopropylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
4-Isopropyltoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
MEK	<0.50		0.50	mg/kg	16-JAN-17	17-JAN-17	R3636962
MIBK	<0.20		0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
MTBE	<0.20		0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
Styrene	1.29		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1,2-Tetrachloroethane	<0.0080		0.0080	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1,2,2-Tetrachloroethane	<0.0080		0.0080	mg/kg	16-JAN-17	17-JAN-17	R3636962
Tetrachloroethene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Toluene	0.100		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,3-Trichlorobenzene	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,4-Trichlorobenzene	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1-Trichloroethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1,2-Trichloroethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Trichloroethene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Trichlorofluoromethane	0.820		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,3-Trichloropropane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,4-Trimethylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3,5-Trimethylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Vinyl Chloride	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
M+P-Xylenes	0.117		0.040	mg/kg	16-JAN-17	17-JAN-17	R3636962
o-Xylene	0.063		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962

\* 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
L1878348-3 SITE 2 - SHALLOW Sampled By: OSWALD on 10-JAN-17 @ 11:00 Matrix: SOIL <b>VOC plus F1 by GCMS</b> Surrogate: 1,4-Difluorobenzene (SS) Surrogate: 4-Bromofluorobenzene (SS)	    107.6 112.5	      	    70-130 70-130	    % %	    16-JAN-17 16-JAN-17	    17-JAN-17 17-JAN-17	    R3636962 R3636962

\* 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
L1878348-5 SITE 3 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 12:00							
Matrix: SOIL							
<b>Miscellaneous Parameters</b>							
Moisture	9.58		0.10	%		14-JAN-17	R3633233
Mercury (Hg)	0.150		0.0050	mg/kg	13-JAN-17	17-JAN-17	R3634766
Total Polychlorinated Biphenyls	<1.5		1.5	mg/kg		20-JAN-17	
<b>Metals</b>							
Aluminum (Al)	12600		500	mg/kg	13-JAN-17	16-JAN-17	R3634214
Antimony (Sb)	13.7		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Arsenic (As)	9.04		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Barium (Ba)	296		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Beryllium (Be)	0.93		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Bismuth (Bi)	0.266		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Boron (B)	29		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Cadmium (Cd)	2.99		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Calcium (Ca)	50600		100	mg/kg	13-JAN-17	16-JAN-17	R3634214
Chromium (Cr)	53.0		1.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Cobalt (Co)	7.53		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Copper (Cu)	183		1.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Iron (Fe)	47700		25	mg/kg	13-JAN-17	16-JAN-17	R3634214
Lead (Pb)	328		0.20	mg/kg	13-JAN-17	16-JAN-17	R3634214
Magnesium (Mg)	23600		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Manganese (Mn)	5820		50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Molybdenum (Mo)	3.48		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Nickel (Ni)	34.5		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Phosphorus (P)	520		100	mg/kg	13-JAN-17	16-JAN-17	R3634214
Potassium (K)	1710		25	mg/kg	13-JAN-17	16-JAN-17	R3634214
Selenium (Se)	0.63		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Silver (Ag)	0.31		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Sodium (Na)	828		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Strontium (Sr)	113		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Thallium (Tl)	0.12		0.10	mg/kg	13-JAN-17	16-JAN-17	R3634214
Tin (Sn)	16.0		5.0	mg/kg	13-JAN-17	16-JAN-17	R3634214
Titanium (Ti)	562		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Uranium (U)	0.927		0.020	mg/kg	13-JAN-17	16-JAN-17	R3634214
Vanadium (V)	46.1		0.50	mg/kg	13-JAN-17	16-JAN-17	R3634214
Zinc (Zn)	522		10	mg/kg	13-JAN-17	16-JAN-17	R3634214
<b>Polyaromatic Hydrocarbons (PAHs)</b>							
1-Methyl Naphthalene	0.090		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
2-Methyl Naphthalene	0.114		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Acenaphthene	0.0364		0.0050	mg/kg	17-JAN-17	20-JAN-17	R3635294
Acenaphthylene	0.0459		0.0050	mg/kg	17-JAN-17	20-JAN-17	R3635294
Acridine	0.021		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Anthracene	0.0808		0.0040	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(a)anthracene	0.366		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(a)pyrene	0.492		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(b&j)fluoranthene	0.814		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(g,h,i)perylene	0.422		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(k)fluoranthene	0.285		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Chrysene	0.417		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Dibenzo(a,h)anthracene	0.123		0.0050	mg/kg	17-JAN-17	20-JAN-17	R3635294
Fluoranthene	0.673		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Fluorene	0.039		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Indeno(1,2,3-cd)pyrene	0.439		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294

\* 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
L1878348-5 SITE 3 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 12:00							
Matrix: SOIL							
<b>Polyaromatic Hydrocarbons (PAHs)</b>							
Naphthalene	0.131		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Phenanthrene	0.446		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Pyrene	0.595		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
Quinoline	0.013		0.010	mg/kg	17-JAN-17	20-JAN-17	R3635294
B(a)P Total Potency Equivalent	0.814		0.020	mg/kg	17-JAN-17	20-JAN-17	R3635294
IACR (CCME)	10.3		0.15	mg/kg	17-JAN-17	20-JAN-17	R3635294
Benzo(b+j+k)fluoranthene	1.10		0.014	mg/kg	17-JAN-17	20-JAN-17	R3635294
Surrogate: Acenaphthene d10	87.2		50-130	%	17-JAN-17	20-JAN-17	R3635294
Surrogate: Chrysene d12	66.9		50-130	%	17-JAN-17	20-JAN-17	R3635294
Surrogate: Naphthalene d8	84.6		50-130	%	17-JAN-17	20-JAN-17	R3635294
Surrogate: Phenanthrene d10	87.4		50-130	%	17-JAN-17	20-JAN-17	R3635294
<b>PCB</b>							
Aroclor 1016	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1221	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1232	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1242	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1248	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1254	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1260	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1262	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Aroclor 1268	<0.50	DLM	0.50	mg/kg	13-JAN-17	16-JAN-17	R3636778
Surrogate: Decachlorobiphenyl	69.0		65-130	%	13-JAN-17	16-JAN-17	R3636778
<b>VOC plus F1-F4 by Tumbler</b>							
<b>CCME Total Extractable Hydrocarbons</b>							
F2 (C10-C16)	<25		25	mg/kg	13-JAN-17	13-JAN-17	R3634627
F3 (C16-C34)	382		50	mg/kg	13-JAN-17	13-JAN-17	R3634627
F4 (C34-C50)	102		50	mg/kg	13-JAN-17	13-JAN-17	R3634627
Surrogate: 2-Bromobenzotrifluoride	102.4		60-140	%	13-JAN-17	13-JAN-17	R3634627
Chrom. to baseline at nC50	YES				13-JAN-17	13-JAN-17	R3634627
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	<10		10	mg/kg		20-JAN-17	
F2-Naphth	<25		25	mg/kg		20-JAN-17	
F3-PAH	378		50	mg/kg		20-JAN-17	
Total Hydrocarbons (C6-C50)	484		76	mg/kg		20-JAN-17	
<b>Sum of Xylene Isomer Concentrations</b>							
Xylenes (Total)	0.207		0.045	mg/kg		20-JAN-17	
<b>VOC plus F1 by GCMS</b>							
Acetone	<1.0	DLM	1.0	mg/kg	16-JAN-17	17-JAN-17	R3636962
Benzene	0.169		0.0050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromobenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromochloromethane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromodichloromethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromoform	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Bromomethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
n-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
sec-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
tert-Butylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Carbon disulfide	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Carbon Tetrachloride	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chlorobenzene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chloroethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Chloroform	0.010	EMPC	0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962

\* 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
L1878348-5 SITE 3 - SHALLOW							
Sampled By: OSWALD on 10-JAN-17 @ 12:00							
Matrix: SOIL							
<b>VOC plus F1 by GCMS</b>							
Chloromethane	<0.060	DLM	0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
2-Chlorotoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
4-Chlorotoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dibromochloromethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dibromo-3-chloropropane	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dibromoethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dibromomethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichlorobenzene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3-Dichlorobenzene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,4-Dichlorobenzene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dichlorodifluoromethane	<0.060	DLM	0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-dichloroethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichloroethane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-dichloroethene	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
cis-1,2-Dichloroethene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
trans-1,2-Dichloroethene	<0.060		0.060	mg/kg	16-JAN-17	17-JAN-17	R3636962
Dichloromethane	2.26		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2-Dichloropropane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3-Dichloropropane	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
2,2-Dichloropropane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1-Dichloropropene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
cis-1,3-Dichloropropene	<0.10	DLM	0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
trans-1,3-Dichloropropene	<0.10	DLM	0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Ethylbenzene	0.054		0.015	mg/kg	16-JAN-17	17-JAN-17	R3636962
F1	<10		10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Hexachlorobutadiene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Hexane	0.356		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
2-Hexanone (Methyl butyl ketone)	<0.40	DLM	0.40	mg/kg	16-JAN-17	17-JAN-17	R3636962
Isopropylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
4-Isopropyltoluene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
MEK	<0.50		0.50	mg/kg	16-JAN-17	17-JAN-17	R3636962
MIBK	<0.20		0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
MTBE	<0.20		0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
Styrene	0.216		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1,2-Tetrachloroethane	<0.0080		0.0080	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1,2,2-Tetrachloroethane	<0.010	DLM	0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Tetrachloroethene	<0.020		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Toluene	0.181		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,3-Trichlorobenzene	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,4-Trichlorobenzene	<0.20	DLM	0.20	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,1-Trichloroethane	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,1,2-Trichloroethane	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Trichloroethene	<0.010		0.010	mg/kg	16-JAN-17	17-JAN-17	R3636962
Trichlorofluoromethane	0.337		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,3-Trichloropropane	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,2,4-Trimethylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
1,3,5-Trimethylbenzene	<0.10		0.10	mg/kg	16-JAN-17	17-JAN-17	R3636962
Vinyl Chloride	<0.050		0.050	mg/kg	16-JAN-17	17-JAN-17	R3636962
M+P-Xylenes	0.142		0.040	mg/kg	16-JAN-17	17-JAN-17	R3636962
o-Xylene	0.065		0.020	mg/kg	16-JAN-17	17-JAN-17	R3636962
Surrogate: 1,4-Difluorobenzene (SS)	110.1		70-130	%	16-JAN-17	17-JAN-17	R3636962

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

# ALS ENVIRONMENTAL ANALYTICAL REPORT

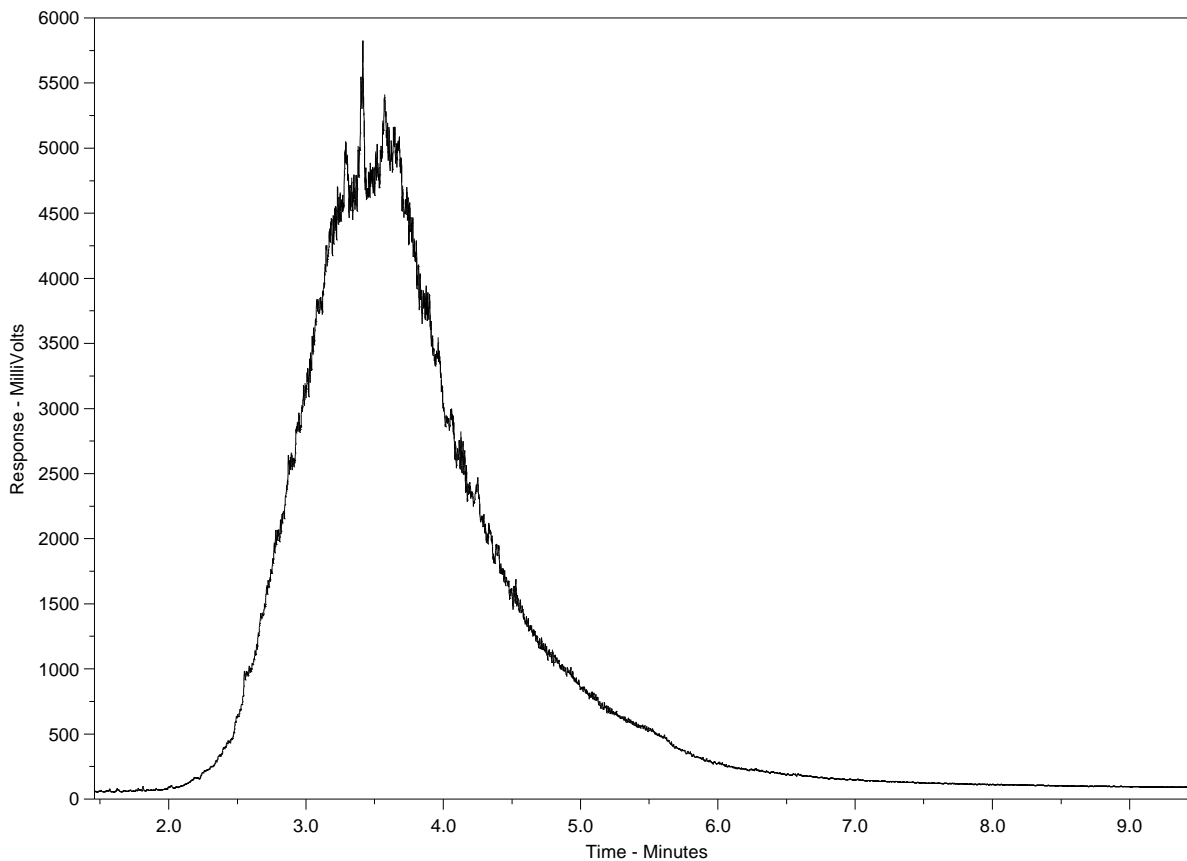
Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1878348-5 SITE 3 - SHALLOW Sampled By: OSWALD on 10-JAN-17 @ 12:00 Matrix: SOIL <b>VOC plus F1 by GCMS</b> Surrogate: 4-Bromofluorobenzene (SS)	106.8		70-130	%	16-JAN-17	17-JAN-17	R3636962

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

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1878348-1  
 Client Sample ID: SITE 1 - SHALLOW



← 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.

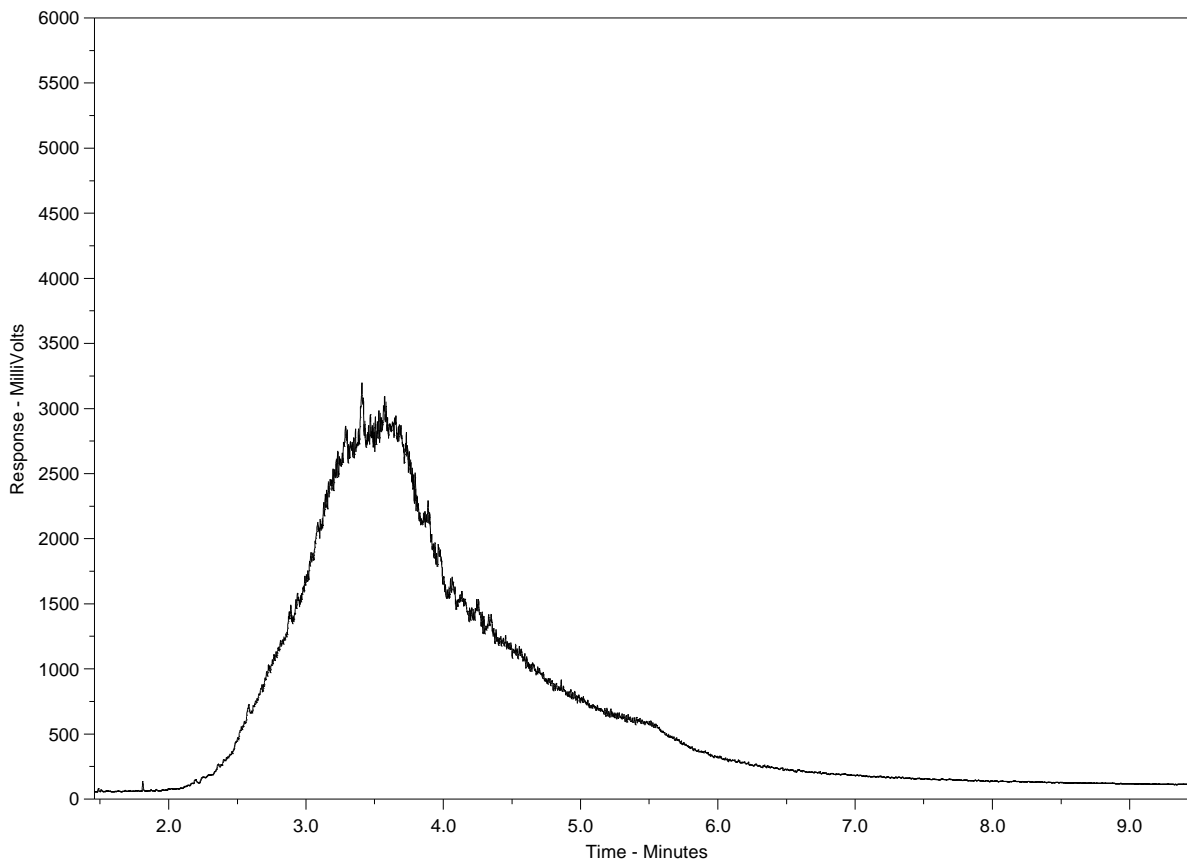
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1878348-3  
 Client Sample ID: SITE 2 - SHALLOW



← 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.

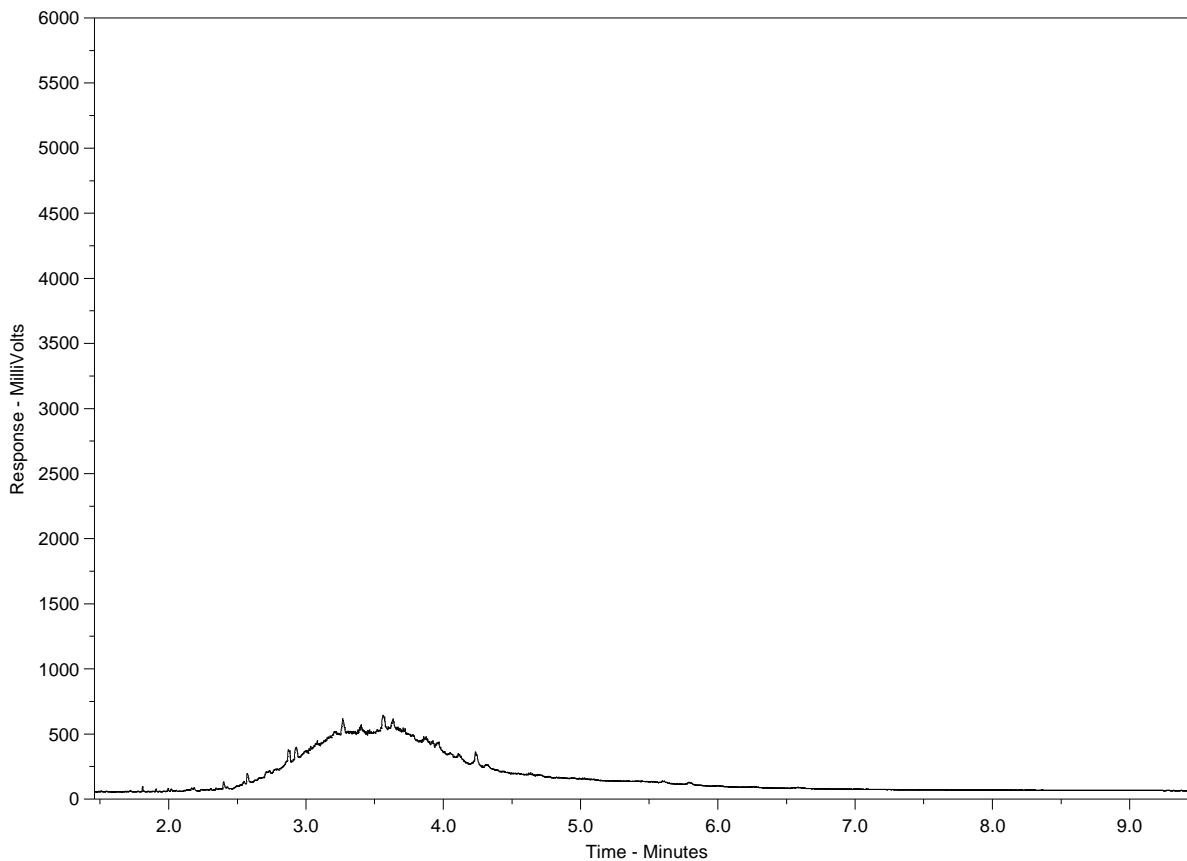
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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](http://www.alsglobal.com).

# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1878348-5  
 Client Sample ID: SITE 3 - SHALLOW



← 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](http://www.alsglobal.com).

## ALS Groundwater Analysis Results

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1878348-7 GW1							
Sampled By: OSWALD on 10-JAN-17 @ 12:30							
Matrix: WATER							
<b>Miscellaneous Parameters</b>							
Mercury (Hg)-Total	<0.0000050		0.0000050	mg/L	12-JAN-17	17-JAN-17	R3634765
Total Polychlorinated Biphenyls	<0.0015		0.0015	mg/L		18-JAN-17	
<b>Total Metals by ICP-MS</b>							
Aluminum (Al)-Total	0.0085		0.0050	mg/L	16-JAN-17	16-JAN-17	R3634214
Antimony (Sb)-Total	<0.00020		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Arsenic (As)-Total	0.00164		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Barium (Ba)-Total	0.0356		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Beryllium (Be)-Total	<0.00020		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Bismuth (Bi)-Total	<0.00020		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Boron (B)-Total	0.372		0.010	mg/L	16-JAN-17	16-JAN-17	R3634214
Cadmium (Cd)-Total	<0.000010		0.000010	mg/L	16-JAN-17	16-JAN-17	R3634214
Calcium (Ca)-Total	91.9		0.10	mg/L	16-JAN-17	16-JAN-17	R3634214
Cesium (Cs)-Total	<0.00010		0.00010	mg/L	16-JAN-17	16-JAN-17	R3634214
Chromium (Cr)-Total	<0.0010		0.0010	mg/L	16-JAN-17	16-JAN-17	R3634214
Cobalt (Co)-Total	<0.00020		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Copper (Cu)-Total	0.00639		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Iron (Fe)-Total	0.334		0.010	mg/L	16-JAN-17	16-JAN-17	R3634214
Lead (Pb)-Total	0.000513		0.000090	mg/L	16-JAN-17	16-JAN-17	R3634214
Lithium (Li)-Total	0.0919		0.0020	mg/L	16-JAN-17	16-JAN-17	R3634214
Magnesium (Mg)-Total	75.6		0.010	mg/L	16-JAN-17	16-JAN-17	R3634214
Manganese (Mn)-Total	0.0210		0.00030	mg/L	16-JAN-17	16-JAN-17	R3634214
Molybdenum (Mo)-Total	<0.00020		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Nickel (Ni)-Total	<0.0020		0.0020	mg/L	16-JAN-17	16-JAN-17	R3634214
Phosphorus (P)-Total	<0.10		0.10	mg/L	16-JAN-17	16-JAN-17	R3634214
Potassium (K)-Total	9.96		0.020	mg/L	16-JAN-17	16-JAN-17	R3634214
Rubidium (Rb)-Total	0.00352		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Selenium (Se)-Total	<0.0010		0.0010	mg/L	16-JAN-17	16-JAN-17	R3634214
Silicon (Si)-Total	6.53		0.10	mg/L	16-JAN-17	16-JAN-17	R3634214
Silver (Ag)-Total	<0.00010		0.00010	mg/L	16-JAN-17	16-JAN-17	R3634214
Sodium (Na)-Total	350		0.030	mg/L	16-JAN-17	16-JAN-17	R3634214
Strontium (Sr)-Total	0.825		0.00010	mg/L	16-JAN-17	16-JAN-17	R3634214
Tellurium (Te)-Total	<0.00020		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Thallium (Tl)-Total	<0.00010		0.00010	mg/L	16-JAN-17	16-JAN-17	R3634214
Thorium (Th)-Total	<0.00010		0.00010	mg/L	16-JAN-17	16-JAN-17	R3634214
Tin (Sn)-Total	<0.00020		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Titanium (Ti)-Total	<0.00050		0.00050	mg/L	16-JAN-17	16-JAN-17	R3634214
Tungsten (W)-Total	<0.00010		0.00010	mg/L	16-JAN-17	16-JAN-17	R3634214
Uranium (U)-Total	0.00190		0.00010	mg/L	16-JAN-17	16-JAN-17	R3634214
Vanadium (V)-Total	<0.00020		0.00020	mg/L	16-JAN-17	16-JAN-17	R3634214
Zinc (Zn)-Total	0.0337		0.0020	mg/L	16-JAN-17	16-JAN-17	R3634214
Zirconium (Zr)-Total	<0.00040		0.00040	mg/L	16-JAN-17	16-JAN-17	R3634214
<b>Polyaromatic Hydrocarbons (PAHs)</b>							
1-Methyl Naphthalene	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
2-Methyl Naphthalene	0.000028		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
Acenaphthene	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
Acenaphthylene	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
Anthracene	<0.000010		0.000010	mg/L	19-JAN-17	19-JAN-17	R3636775
Acridine	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
Benzo(a)anthracene	<0.000010		0.000010	mg/L	19-JAN-17	19-JAN-17	R3636775
Benzo(a)pyrene	<0.0000050		0.0000050	mg/L	19-JAN-17	19-JAN-17	R3636775
Benzo(b&j)fluoranthene	<0.000010		0.000010	mg/L	19-JAN-17	19-JAN-17	R3636775

\* 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
L1878348-7 GW1							
Sampled By: OSWALD on 10-JAN-17 @ 12:30							
Matrix: WATER							
<b>Polyaromatic Hydrocarbons (PAHs)</b>							
Benzo(g,h,i)perylene	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
Benzo(k)fluoranthene	<0.000010		0.000010	mg/L	19-JAN-17	19-JAN-17	R3636775
Chrysene	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
Dibenzo(a,h)anthracene	<0.0000050		0.0000050	mg/L	19-JAN-17	19-JAN-17	R3636775
Fluoranthene	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
Fluorene	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
Indeno(1,2,3-cd)pyrene	<0.000010		0.000010	mg/L	19-JAN-17	19-JAN-17	R3636775
Naphthalene	<0.000050		0.000050	mg/L	19-JAN-17	19-JAN-17	R3636775
Phenanthrene	<0.000050		0.000050	mg/L	19-JAN-17	19-JAN-17	R3636775
Pyrene	<0.000010		0.000010	mg/L	19-JAN-17	19-JAN-17	R3636775
Quinoline	<0.000020		0.000020	mg/L	19-JAN-17	19-JAN-17	R3636775
B(a)P Total Potency Equivalent	<0.000030		0.000030	mg/L	19-JAN-17	19-JAN-17	R3636775
Surrogate: Acenaphthene d10	83.1		40-130	%	19-JAN-17	19-JAN-17	R3636775
Surrogate: Acridine d9	92.5		40-130	%	19-JAN-17	19-JAN-17	R3636775
Surrogate: Chrysene d12	84.7		40-130	%	19-JAN-17	19-JAN-17	R3636775
Surrogate: Naphthalene d8	77.1		40-130	%	19-JAN-17	19-JAN-17	R3636775
Surrogate: Phenanthrene d10	82.7		40-130	%	19-JAN-17	19-JAN-17	R3636775
<b>PCB</b>							
Aroclor 1016	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Aroclor 1221	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Aroclor 1232	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Aroclor 1242	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Aroclor 1248	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Aroclor 1254	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Aroclor 1260	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Aroclor 1262	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Aroclor 1268	<0.00050	DLM	0.00050	mg/L	13-JAN-17	16-JAN-17	R3635285
Surrogate: Decachlorobiphenyl	107.0		65-130	%	13-JAN-17	16-JAN-17	R3635285
<b>VOC plus F1 to F4</b>							
<b>CCME PHC F2-F4 in Water</b>							
F2 (C10-C16)	<0.10		0.10	mg/L	14-JAN-17	14-JAN-17	R3633881
F3 (C16-C34)	<0.25		0.25	mg/L	14-JAN-17	14-JAN-17	R3633881
F4 (C34-C50)	<0.25		0.25	mg/L	14-JAN-17	14-JAN-17	R3633881
Surrogate: 2-Bromobenzotrifluoride	94.4		60-140	%	14-JAN-17	14-JAN-17	R3633881
<b>CCME Total Hydrocarbons</b>							
F1-BTEX	<0.10		0.10	mg/L		20-JAN-17	
F2-Naphth	<0.10		0.10	mg/L		20-JAN-17	
F3-PAH	<0.25		0.25	mg/L		20-JAN-17	
Total Hydrocarbons (C6-C50)	<0.38		0.38	mg/L		20-JAN-17	
<b>Total Trihalomethanes (THMs)</b>							
Total THMs	<0.0010		0.0010	mg/L		19-JAN-17	
<b>VOC plus F1 by GCMS</b>							
Acetone	<0.020		0.020	mg/L		17-JAN-17	R3635584
Benzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Bromobenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Bromochloromethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Bromodichloromethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Bromoform	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Bromomethane	<0.0010		0.0010	mg/L		17-JAN-17	R3635584
n-Butylbenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
sec-Butylbenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
tert-Butylbenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584

\* 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
L1878348-7 GW1							
Sampled By: OSWALD on 10-JAN-17 @ 12:30							
Matrix: WATER							
<b>VOC plus F1 by GCMS</b>							
Carbon disulfide	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Carbon Tetrachloride	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Chlorobenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Chloroethane	<0.0010		0.0010	mg/L		17-JAN-17	R3635584
Chloroform	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Chloromethane	<0.0010	DLM	0.0010	mg/L		17-JAN-17	R3635584
2-Chlorotoluene	<0.020		0.020	mg/L		17-JAN-17	R3635584
4-Chlorotoluene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Dibromochloromethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,2-Dibromo-3-chloropropane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,2-Dibromoethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Dibromomethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,2-Dichlorobenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,3-Dichlorobenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,4-Dichlorobenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Dichlorodifluoromethane	<0.0020	DLM	0.0020	mg/L		17-JAN-17	R3635584
1,1-dichloroethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,2-Dichloroethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,1-dichloroethene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
cis-1,2-Dichloroethene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
trans-1,2-Dichloroethene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Dichloromethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,2-Dichloropropane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,3-Dichloropropane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
2,2-Dichloropropane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,1-Dichloropropene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
cis-1,3-Dichloropropene	<0.0010	DLM	0.0010	mg/L		17-JAN-17	R3635584
trans-1,3-Dichloropropene	<0.0010	DLM	0.0010	mg/L		17-JAN-17	R3635584
Ethylbenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
F1	<0.10		0.10	mg/L		17-JAN-17	R3635584
Hexachlorobutadiene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Hexane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
2-Hexanone (Methyl butyl ketone)	<0.020		0.020	mg/L		17-JAN-17	R3635584
Isopropylbenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
4-Isopropyltoluene	<0.0010		0.0010	mg/L		17-JAN-17	R3635584
MEK	<0.020		0.020	mg/L		17-JAN-17	R3635584
MIBK	<0.020		0.020	mg/L		17-JAN-17	R3635584
MTBE	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Styrene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,1,1,2-Tetrachloroethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,1,2,2-Tetrachloroethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Tetrachloroethene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Toluene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,2,3-Trichlorobenzene	<0.0010	DLM	0.0010	mg/L		17-JAN-17	R3635584
1,2,4-Trichlorobenzene	<0.0010	DLM	0.0010	mg/L		17-JAN-17	R3635584
1,1,1-Trichloroethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,1,2-Trichloroethane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Trichloroethene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
Trichlorofluoromethane	<0.0010		0.0010	mg/L		17-JAN-17	R3635584
1,2,3-Trichloropropane	<0.00050		0.00050	mg/L		17-JAN-17	R3635584
1,2,4-Trimethylbenzene	<0.00050		0.00050	mg/L		17-JAN-17	R3635584

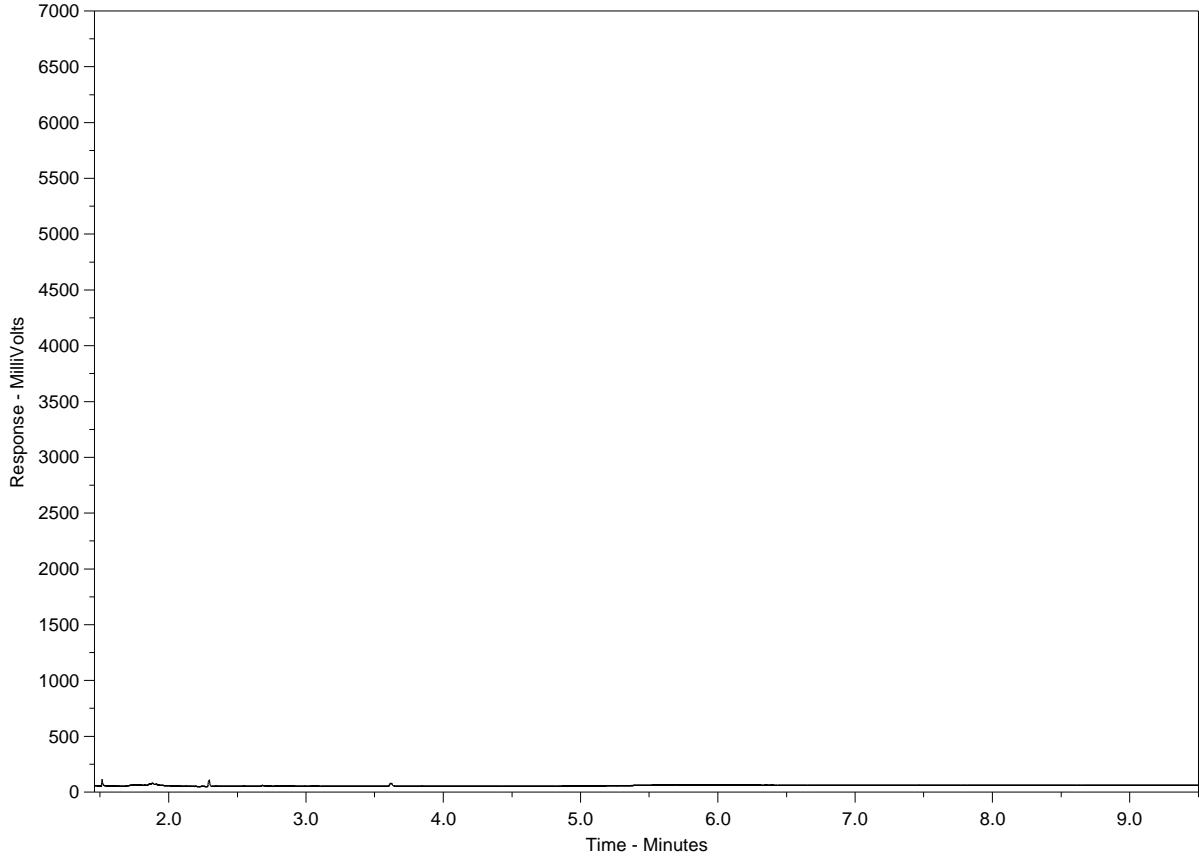
\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1878348-7  
 Client Sample ID: GW1



← 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](http://www.alsglobal.com).

## ALS ASR Sampling Analysis Results



Industrial Metals (2011)  
ATTN: DAN CHISICK  
550 Messier Street  
Winnipeg MB R2J 0G5

Date Received: 11-APR-16  
Report Date: 27-APR-16 14:39 (MT)  
Version: FINAL

Client Phone: 204-233-1908

## Certificate of Analysis

Lab Work Order #: L1754104

Project P.O. #: Paid \$628.16 by visa on 11-Apr-16

Job Reference:

C of C Numbers:

Legal Site Desc:

Hua Wo  
Chemistry Laboratory Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

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 A Campbell Brothers Limited Company

## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1754104-1 SAMPLE 1							
Sampled By: CLIENT							
Matrix: MISC							
<b>Leachate metals by TCLP</b>							
<b>Leachate prep TCLP</b>							
Percent Solids	100		0.010	%		21-APR-16	R3442727
Initial pH	8.90		0.10	pH units		21-APR-16	R3442727
If pH>5 dilute HCl added and heated	Yes					21-APR-16	R3442727
Intermediate pH	4.89		0.10	pH units		21-APR-16	R3442727
Extraction Solution	One					21-APR-16	R3442727
Extraction Volume	2000		1	mL		21-APR-16	R3442727
Percent Solids For Dry Wt Equiv	N/A					21-APR-16	R3442727
Sample Weight	100.53		0.10	g		21-APR-16	R3442727
Final pH	5.74		0.10	pH units		21-APR-16	R3442727
Solution Blank pH	5.02		0.10	pH units		21-APR-16	R3442727
<b>Mercury Total by TCLP prep</b>							
Mercury (Hg)-Total	<0.010		0.010	mg/L	22-APR-16	22-APR-16	R3444043
<b>Total Metals by ICP-MS</b>							
Antimony (Sb)-Leachable	<0.050		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Arsenic (As)-Leachable	<0.020		0.020	mg/L	22-APR-16	26-APR-16	R3446316
Barium (Ba)-Leachable	0.974		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Beryllium (Be)-Leachable	<0.050		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Boron (B)-Leachable	1.21		0.50	mg/L	22-APR-16	26-APR-16	R3446316
Cadmium (Cd)-Leachable	0.209		0.0050	mg/L	22-APR-16	26-APR-16	R3446316
Calcium (Ca)-Leachable	304		0.50	mg/L	22-APR-16	26-APR-16	R3446316
Chromium (Cr)-Leachable	<0.050		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Cobalt (Co)-Leachable	0.077		0.020	mg/L	22-APR-16	26-APR-16	R3446316
Copper (Cu)-Leachable	1.10		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Iron (Fe)-Leachable	3.50		0.50	mg/L	22-APR-16	26-APR-16	R3446316
Lead (Pb)-Leachable	0.918		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Magnesium (Mg)-Leachable	30.8		0.50	mg/L	22-APR-16	26-APR-16	R3446316
Manganese (Mn)-Leachable	5.09		0.0050	mg/L	22-APR-16	26-APR-16	R3446316
Molybdenum (Mo)-Leachable	<0.0050		0.0050	mg/L	22-APR-16	26-APR-16	R3446316
Nickel (Ni)-Leachable	0.688		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Potassium (K)-Leachable	10.8		0.50	mg/L	22-APR-16	26-APR-16	R3446316
Selenium (Se)-Leachable	<0.020		0.020	mg/L	22-APR-16	26-APR-16	R3446316
Silver (Ag)-Leachable	<0.050		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Strontium (Sr)-Leachable	1.03		0.0010	mg/L	22-APR-16	26-APR-16	R3446316
Thallium (Tl)-Leachable	<0.010		0.010	mg/L	22-APR-16	26-APR-16	R3446316
Tin (Sn)-Leachable	<0.0050		0.0050	mg/L	22-APR-16	26-APR-16	R3446316
Uranium (U)-Leachable	<0.0050		0.0050	mg/L	22-APR-16	26-APR-16	R3446316
Vanadium (V)-Leachable	<0.050		0.050	mg/L	22-APR-16	26-APR-16	R3446316
Zinc (Zn)-Leachable	212		10	mg/L	22-APR-16	26-APR-16	R3446316
Zirconium (Zr)-Leachable	<0.050		0.050	mg/L	22-APR-16	26-APR-16	R3446316
<b>Leachate Procedure for Reg 347</b>							
Initial pH	9.05		0.10	pH units	12-APR-16	12-APR-16	R3437904
Final pH	5.31		0.10	pH units	12-APR-16	12-APR-16	R3437904
<b>BTEX for O. Reg 347</b>							
Benzene	<0.025	VT	0.025	mg/L		14-APR-16	R3437850
Ethylbenzene	<0.025	VT	0.025	mg/L		14-APR-16	R3437850
m+p-Xylenes	<0.050	VT	0.050	mg/L		14-APR-16	R3437850
o-Xylene	<0.025	VT	0.025	mg/L		14-APR-16	R3437850
Styrene	<0.025	VT	0.025	mg/L		14-APR-16	R3437850
Toluene	<0.025	VT	0.025	mg/L		14-APR-16	R3437850
Xylenes (Total)	<0.075		0.075	mg/L		14-APR-16	R3437850

\* 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
L1754104-1 SAMPLE 1							
Sampled By: CLIENT							
Matrix: MISC							
<b>BTEX for O. Reg 347</b>							
Surrogate: 4-Bromofluorobenzene	78.7		70-130	%		14-APR-16	R3437850
<b>PCBs for O. Reg 347</b>							
Aroclor 1242	<0.00020		0.00020	mg/L	18-APR-16	18-APR-16	R3440073
Aroclor 1248	<0.00020		0.00020	mg/L	18-APR-16	18-APR-16	R3440073
Aroclor 1254	<0.00020		0.00020	mg/L	18-APR-16	18-APR-16	R3440073
Aroclor 1260	<0.00020		0.00020	mg/L	18-APR-16	18-APR-16	R3440073
Total PCBs	<0.00040		0.00040	mg/L	18-APR-16	18-APR-16	R3440073
Surrogate: 2-Fluorobiphenyl	56.8		40-160	%	18-APR-16	18-APR-16	R3440073

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





Industrial Metals (2011)  
ATTN: DAN CHISICK  
550 Messier Street  
Winnipeg MB R2J 0G5

Date Received: 06-JUL-16  
Report Date: 21-JUL-16 15:12 (MT)  
Version: FINAL

Client Phone: 204-233-1908

## Certificate of Analysis

Lab Work Order #: L1793994  
Project P.O. #: Paid \$630.26 by visa  
Job Reference:  
C of C Numbers:  
Legal Site Desc:

Hua Wo  
Chemistry Laboratory Manager

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1793994-1 SOIL SAMPLES							
Sampled By: CLIENT on 30-JUN-16 @ 10:00							
Matrix: SOIL							
<b>Leachate metals by TCLP</b>							
<b>Leachate prep TCLP</b>							
Percent Solids	100		0.010	%		15-JUL-16	R3504053
Initial pH	8.82		0.10	pH units		15-JUL-16	R3504053
If pH>5 dilute HCl added and heated	YES					15-JUL-16	R3504053
Intermediate pH	5.46		0.10	pH units		15-JUL-16	R3504053
Extraction Solution	TWO					15-JUL-16	R3504053
Extraction Volume	2000		1	mL		15-JUL-16	R3504053
Percent Solids For Dry Wt Equiv	N/A					15-JUL-16	R3504053
Sample Weight	100.06		0.10	g		15-JUL-16	R3504053
Final pH	5.15		0.10	pH units		15-JUL-16	R3504053
Solution Blank pH	2.89		0.10	pH units		15-JUL-16	R3504053
<b>Mercury Total by TCLP prep</b>							
Mercury (Hg)-Total	<0.010		0.010	mg/L	15-JUL-16	15-JUL-16	R3504411
<b>Total Metals by ICP-MS</b>							
Antimony (Sb)-Leachable	<0.050		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Arsenic (As)-Leachable	<0.020		0.020	mg/L	20-JUL-16	20-JUL-16	R3508134
Barium (Ba)-Leachable	1.54		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Beryllium (Be)-Leachable	<0.050		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Boron (B)-Leachable	4.27		0.50	mg/L	20-JUL-16	20-JUL-16	R3508134
Cadmium (Cd)-Leachable	0.798		0.0050	mg/L	20-JUL-16	20-JUL-16	R3508134
Calcium (Ca)-Leachable	715		0.50	mg/L	20-JUL-16	20-JUL-16	R3508134
Chromium (Cr)-Leachable	0.118		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Cobalt (Co)-Leachable	0.187		0.020	mg/L	20-JUL-16	20-JUL-16	R3508134
Copper (Cu)-Leachable	0.872		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Iron (Fe)-Leachable	57.0		0.50	mg/L	20-JUL-16	20-JUL-16	R3508134
Lead (Pb)-Leachable	7.44		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Magnesium (Mg)-Leachable	78.6		0.50	mg/L	20-JUL-16	20-JUL-16	R3508134
Manganese (Mn)-Leachable	13.9		0.50	mg/L	20-JUL-16	20-JUL-16	R3508134
Molybdenum (Mo)-Leachable	<0.0050		0.0050	mg/L	20-JUL-16	20-JUL-16	R3508134
Nickel (Ni)-Leachable	4.66		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Potassium (K)-Leachable	14.9		0.50	mg/L	20-JUL-16	20-JUL-16	R3508134
Selenium (Se)-Leachable	<0.020		0.020	mg/L	20-JUL-16	20-JUL-16	R3508134
Silver (Ag)-Leachable	<0.050		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Strontium (Sr)-Leachable	2.42		0.0010	mg/L	20-JUL-16	20-JUL-16	R3508134
Thallium (Tl)-Leachable	<0.010		0.010	mg/L	20-JUL-16	20-JUL-16	R3508134
Tin (Sn)-Leachable	<0.0050		0.0050	mg/L	20-JUL-16	20-JUL-16	R3508134
Uranium (U)-Leachable	<0.0050		0.0050	mg/L	20-JUL-16	20-JUL-16	R3508134
Vanadium (V)-Leachable	<0.050		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
Zinc (Zn)-Leachable	747		10	mg/L	20-JUL-16	20-JUL-16	R3508134
Zirconium (Zr)-Leachable	<0.050		0.050	mg/L	20-JUL-16	20-JUL-16	R3508134
<b>Leachate Procedure for Reg 347</b>							
Initial pH	8.97		0.10	pH units	10-JUL-16	10-JUL-16	R3501632
Final pH	5.05		0.10	pH units	10-JUL-16	10-JUL-16	R3501632
<b>BTEX for O. Reg 347</b>							
Benzene	<0.025		0.025	mg/L		13-JUL-16	R3502319
Ethylbenzene	<0.025		0.025	mg/L		13-JUL-16	R3502319
m+p-Xylenes	<0.050		0.050	mg/L		13-JUL-16	R3502319
o-Xylene	<0.025		0.025	mg/L		13-JUL-16	R3502319
Styrene	<0.025		0.025	mg/L		13-JUL-16	R3502319
Toluene	<0.025		0.025	mg/L		13-JUL-16	R3502319
Xylenes (Total)	<0.075		0.075	mg/L		13-JUL-16	R3502319

\* 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
L1793994-1 SOIL SAMPLES							
Sampled By: CLIENT on 30-JUN-16 @ 10:00							
Matrix: SOIL							
<b>BTEX for O. Reg 347</b>							
Surrogate: 4-Bromofluorobenzene	92.2		70-130	%		13-JUL-16	R3502319
<b>PCBs for O. Reg 347</b>							
Aroclor 1242	0.00043		0.00020	mg/L	15-JUL-16	15-JUL-16	R3504008
Aroclor 1248	<0.00020		0.00020	mg/L	15-JUL-16	15-JUL-16	R3504008
Aroclor 1254	<0.00020		0.00020	mg/L	15-JUL-16	15-JUL-16	R3504008
Aroclor 1260	<0.00020		0.00020	mg/L	15-JUL-16	15-JUL-16	R3504008
Total PCBs	0.00043		0.00040	mg/L	15-JUL-16	15-JUL-16	R3504008
Surrogate: 2-Fluorobiphenyl	62.8		40-160	%	15-JUL-16	15-JUL-16	R3504008

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



Industrial Metals (2011)  
ATTN: DAN CHISICK  
550 Messier Street  
Winnipeg MB R2J 0G5

Date Received: 13-OCT-16  
Report Date: 02-FEB-17 15:05 (MT)  
Version: FINAL REV. 2

Client Phone: 204-233-1908

## Certificate of Analysis

Lab Work Order #: L1842884

Project P.O. #: Client paid \$881.95 by Visa

Job Reference:

C of C Numbers:

Legal Site Desc:

Craig Riddell, B.Sc.Ag  
Account Manager

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1842884-1 INDUSTRIAL METALS							
Sampled By: CLIENT on 28-SEP-16							
Matrix:							
<b>Leachate metals by TCLP</b>							
<b>Leachate prep TCLP</b>							
1st Preliminary pH	8.70		0.10	pH		21-OCT-16	R3578095
2nd Preliminary pH	4.43		0.10	pH		21-OCT-16	R3578095
Extraction Solution Initial pH	4.98		0.10	pH		21-OCT-16	R3578095
Final pH	6.12		0.10	pH		21-OCT-16	R3578095
<b>Mercury Total by TCLP prep</b>							
Mercury (Hg)-Total	<0.010		0.010	mg/L	24-OCT-16	27-OCT-16	R3582828
<b>Total Metals by ICP-MS</b>							
Antimony (Sb)-Leachable	<0.050		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Arsenic (As)-Leachable	<0.020		0.020	mg/L	25-OCT-16	26-OCT-16	R3580733
Barium (Ba)-Leachable	1.35		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Beryllium (Be)-Leachable	<0.050		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Boron (B)-Leachable	1.67		0.50	mg/L	25-OCT-16	26-OCT-16	R3580733
Cadmium (Cd)-Leachable	0.118		0.0050	mg/L	25-OCT-16	26-OCT-16	R3580733
Calcium (Ca)-Leachable	457		0.50	mg/L	25-OCT-16	26-OCT-16	R3580733
Chromium (Cr)-Leachable	<0.050		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Cobalt (Co)-Leachable	0.160		0.020	mg/L	25-OCT-16	26-OCT-16	R3580733
Copper (Cu)-Leachable	<0.050		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Iron (Fe)-Leachable	18.7		0.50	mg/L	25-OCT-16	26-OCT-16	R3580733
Lead (Pb)-Leachable	0.303		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Magnesium (Mg)-Leachable	38.1		0.50	mg/L	25-OCT-16	26-OCT-16	R3580733
Manganese (Mn)-Leachable	9.24		0.0050	mg/L	25-OCT-16	26-OCT-16	R3580733
Molybdenum (Mo)-Leachable	0.0050		0.0050	mg/L	25-OCT-16	26-OCT-16	R3580733
Nickel (Ni)-Leachable	1.36		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Potassium (K)-Leachable	11.3		0.50	mg/L	25-OCT-16	26-OCT-16	R3580733
Selenium (Se)-Leachable	<0.020		0.020	mg/L	25-OCT-16	26-OCT-16	R3580733
Silver (Ag)-Leachable	<0.050		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Strontium (Sr)-Leachable	1.58		0.0010	mg/L	25-OCT-16	26-OCT-16	R3580733
Thallium (Tl)-Leachable	<0.010		0.010	mg/L	25-OCT-16	26-OCT-16	R3580733
Tin (Sn)-Leachable	<0.0050		0.0050	mg/L	25-OCT-16	26-OCT-16	R3580733
Uranium (U)-Leachable	<0.0050		0.0050	mg/L	25-OCT-16	26-OCT-16	R3580733
Vanadium (V)-Leachable	<0.050		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
Zinc (Zn)-Leachable	192		10	mg/L	25-OCT-16	26-OCT-16	R3580733
Zirconium (Zr)-Leachable	<0.050		0.050	mg/L	25-OCT-16	26-OCT-16	R3580733
<b>Leachate Procedure for Reg 347</b>							
Initial pH	8.55		0.10	pH units	19-OCT-16	19-OCT-16	R3577752
Final pH	5.23		0.10	pH units	19-OCT-16	19-OCT-16	R3577752
<b>BTEX for O. Reg 347</b>							
Benzene	<0.025	VTHS	0.025	mg/L		20-OCT-16	R3575234
Ethylbenzene	<0.025	VTHS	0.025	mg/L		20-OCT-16	R3575234
m+p-Xylenes	<0.050	VTHS	0.050	mg/L		20-OCT-16	R3575234
o-Xylene	<0.025	VTHS	0.025	mg/L		20-OCT-16	R3575234
Styrene	<0.025	VTHS	0.025	mg/L		20-OCT-16	R3575234
Toluene	<0.025	VTHS	0.025	mg/L		20-OCT-16	R3575234
Xylenes (Total)	<0.075		0.075	mg/L		20-OCT-16	R3575234
Surrogate: 4-Bromofluorobenzene	93.5		70-130	%		20-OCT-16	R3575234
<b>O. Reg 347 TCLP leachable F2-F4</b>							
Chrom. to baseline at nC50	YES				28-OCT-16	02-NOV-16	R3586029
Surrogate: 2-Bromobenzotrifluoride	94.5		50-150	%	28-OCT-16	02-NOV-16	R3586029
<b>PCBs for O. Reg 347</b>							
Aroclor 1242	0.00056	PRAR	0.00020	mg/L	24-OCT-16	24-OCT-16	R3578169

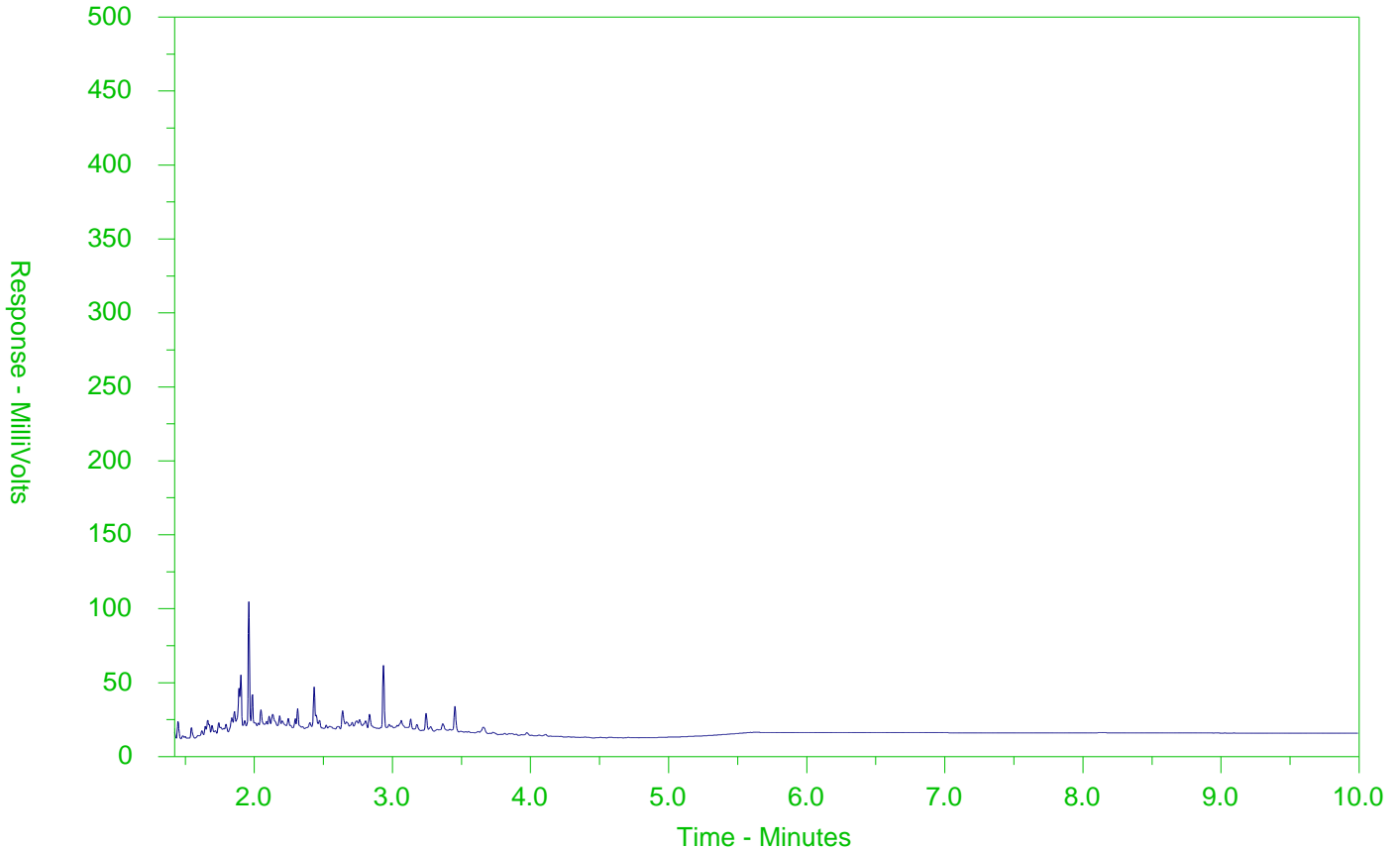
\* Refer to Referenced Information for Qualifiers (if any) and Methodology.



# CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1842884-1  
 Client Sample ID: INDUSTRIAL METALS



← 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 the 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](http://www.alsglobal.com).



Industrial Metals (2011)  
ATTN: JOSH CHISICK  
550 Messier Street  
Winnipeg MB R2J 0G5

Date Received: 09-FEB-17  
Report Date: 27-FEB-17 09:04 (MT)  
Version: FINAL

Client Phone: 204-233-1908

## Certificate of Analysis

Lab Work Order #: L1888843  
Project P.O. #: NOT SUBMITTED  
Job Reference: INDUSTRIAL METALS - 550 MESSIER STREET  
C of C Numbers:  
Legal Site Desc:

Hua Wo  
Chemistry Laboratory Manager

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## ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1888843-1 ASR-1							
Sampled By: CLIENT on 20-DEC-16							
Matrix: ASR							
<b>Leachate metals by TCLP</b>							
<b>Leachate prep TCLP</b>							
1st Preliminary pH	8.34		0.10	pH		16-FEB-17	R3655966
2nd Preliminary pH	2.61		0.10	pH		16-FEB-17	R3655966
Extraction Solution Initial pH	4.93		0.10	pH		16-FEB-17	R3655966
Final pH	6.30		0.10	pH		16-FEB-17	R3655966
<b>Mercury Total by TCLP prep</b>							
Mercury (Hg)-Total	<0.10		0.10	mg/L	16-FEB-17	24-FEB-17	R3661379
<b>Total Metals by ICP-MS</b>							
Antimony (Sb)-Leachable	<0.050		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Arsenic (As)-Leachable	<0.020		0.020	mg/L	17-FEB-17	22-FEB-17	R3659719
Barium (Ba)-Leachable	0.413		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Beryllium (Be)-Leachable	<0.050		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Boron (B)-Leachable	0.95		0.50	mg/L	17-FEB-17	22-FEB-17	R3659719
Cadmium (Cd)-Leachable	0.209		0.0050	mg/L	17-FEB-17	22-FEB-17	R3659719
Calcium (Ca)-Leachable	364		0.50	mg/L	17-FEB-17	22-FEB-17	R3659719
Chromium (Cr)-Leachable	<0.050		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Cobalt (Co)-Leachable	0.099		0.020	mg/L	17-FEB-17	22-FEB-17	R3659719
Copper (Cu)-Leachable	<0.050		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Iron (Fe)-Leachable	255		0.50	mg/L	17-FEB-17	22-FEB-17	R3659719
Lead (Pb)-Leachable	1.93		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Magnesium (Mg)-Leachable	41.7		0.50	mg/L	17-FEB-17	22-FEB-17	R3659719
Manganese (Mn)-Leachable	7.80		0.0050	mg/L	17-FEB-17	22-FEB-17	R3659719
Molybdenum (Mo)-Leachable	0.0093		0.0050	mg/L	17-FEB-17	22-FEB-17	R3659719
Nickel (Ni)-Leachable	0.768		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Potassium (K)-Leachable	9.39		0.50	mg/L	17-FEB-17	22-FEB-17	R3659719
Selenium (Se)-Leachable	<0.020		0.020	mg/L	17-FEB-17	22-FEB-17	R3659719
Silver (Ag)-Leachable	<0.050		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Strontium (Sr)-Leachable	1.72		0.0010	mg/L	17-FEB-17	22-FEB-17	R3659719
Thallium (Tl)-Leachable	<0.010		0.010	mg/L	17-FEB-17	22-FEB-17	R3659719
Tin (Sn)-Leachable	<0.0050		0.0050	mg/L	17-FEB-17	22-FEB-17	R3659719
Uranium (U)-Leachable	<0.0050		0.0050	mg/L	17-FEB-17	22-FEB-17	R3659719
Vanadium (V)-Leachable	<0.050		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
Zinc (Zn)-Leachable	272		10	mg/L	17-FEB-17	22-FEB-17	R3659719
Zirconium (Zr)-Leachable	<0.050		0.050	mg/L	17-FEB-17	22-FEB-17	R3659719
<b>Leachate Procedure for Reg 347</b>							
Initial pH	8.74		0.10	pH units		14-FEB-17	R3652943
Final pH	6.46		0.10	pH units		14-FEB-17	R3652943
<b>BTEX for O. Reg 347</b>							
Benzene	<0.025	VTHS	0.025	mg/L		16-FEB-17	R3654211
Ethylbenzene	0.026	VTHS	0.025	mg/L		16-FEB-17	R3654211
m+p-Xylenes	<0.050	VTHS	0.050	mg/L		16-FEB-17	R3654211
o-Xylene	0.066	VTHS	0.025	mg/L		16-FEB-17	R3654211
Styrene	<0.025	VTHS	0.025	mg/L		16-FEB-17	R3654211
Toluene	0.090	VTHS	0.025	mg/L		16-FEB-17	R3654211
Xylenes (Total)	<0.075		0.075	mg/L		16-FEB-17	R3654211
Surrogate: 4-Bromofluorobenzene	106.0		70-130	%		16-FEB-17	R3654211
<b>PCBs for O. Reg 347</b>							
Aroclor 1242	<0.00040	DLM	0.00040	mg/L	23-FEB-17	23-FEB-17	R3659744
Aroclor 1248	<0.00020		0.00020	mg/L	23-FEB-17	23-FEB-17	R3659744
Aroclor 1254	<0.00020		0.00020	mg/L	23-FEB-17	23-FEB-17	R3659744
Aroclor 1260	<0.00020		0.00020	mg/L	23-FEB-17	23-FEB-17	R3659744

\* 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
L1888843-1 ASR-1 Sampled By: CLIENT on 20-DEC-16 Matrix: ASR <b>PCBs for O. Reg 347</b> Total PCBs Surrogate: 2-Fluorobiphenyl	    <0.00050 78.1	        	    0.00050 40-160	    mg/L %	    23-FEB-17 23-FEB-17	    23-FEB-17 23-FEB-17	    R3659744 R3659744

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