

***Phase II Environmental Site Assessment  
208 St. Anne's Road, Winnipeg, Manitoba  
(Outlet No. 63955)***

**Prepared for:  
Suncor Energy Products Partnership  
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**Prepared by:**

**PARSONS**

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**Ref. No.: 10-1177.100**

**Distribution:**

1 copy – Suncor Energy Products Partnership, Site Remediation/Asset Management

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April 17, 2013



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## **1.0 INTRODUCTION**

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Under the authorization of Suncor Energy (Suncor), O'Connor Associates Environmental Inc., a Parsons Company (Parsons) conducted Phase II environmental site assessments (ESA) at the former Certigard Car Repair Facility located at 208 St. Anne's Road in Winnipeg, Manitoba (hereafter referred to as the Site). The purpose of the work was to assess the nature and extent of petroleum hydrocarbon impacts beneath the Site. This report summarizes our Site activities and findings.

### **1.1 SITE FEATURES AND GEOLOGY**

The Site location is shown on Drawing No. 1 and a Site plan showing the current and former Site facilities is presented as Drawing No. 2. The borehole and monitoring well locations are shown on Drawing No. 3.

The former Certigard Car Repair Facility is located at 208 St. Anne's Road in Winnipeg, Manitoba. Current Site facilities include a service building (with an inactive car wash) and one waste oil underground storage tank (UST). Former Site facilities included several petroleum USTs and associated product piping and dispensing equipment.

Groundwater in the area is typically not used as a source of drinking water or for industrial purposes. Potable water for the City of Winnipeg is obtained from Shoal Lake, located approximately 125 km east of the city.

According to regional geologic maps, surficial soils in the area generally consist of glacial silt and clay overlying grey calcareous till. The underlying bedrock reportedly consists of dolomitic limestone. Although specific data is not available, regional shallow groundwater flow is expected to be towards the Red River located to the west of the Site.

The Site is zoned for commercial land use.



## **2.0 SITE ACTIVITIES**

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### **2.1 SUBSURFACE INVESTIGATION**

During the subsurface investigation, field monitoring and sampling procedures were undertaken in general accordance with Parsons protocols. In addition, during the investigation, both Parsons and Suncor health and safety protocols were followed.

Prior to proceeding with the subsurface investigation, Parsons personnel met with representatives of the various utility companies to locate the underground utilities.

Between April 25, 2012 and April 27, 2012, 12 boreholes (BH3A and BH-19 to BH-29) were advanced to a maximum depth of approximately 6.1 metres below ground surface (mbgs) at selected on-Site locations using a truck-mounted auger drill rig (B-40) equipped with hollow stem and solid stem augers. On October 16, 2012, four boreholes (BH-30 to BH-33) were advanced to a maximum depth of approximately 6.1 mbgs at selected on-Site locations using a truck-mounted auger drill rig (B-40) equipped with solid stem augers. Two boreholes (BH-31 and BH-32) were drilled at a 45 degree angle to assess soil conditions beneath the service building. On February 21, 2013 and February 22, 2013, 11 boreholes (BH-34 to BH-44) were advanced to a maximum depth of approximately 6.1 mbgs at selected on-Site locations using a truck-mounted auger drill rig (B-40) equipped with solid stem augers. Borehole BH-41 was daylighted to approximately 2.4 mbgs prior to drilling. The borehole locations are shown on Drawing No. 3.

Soil samples were obtained from each borehole at regular depth intervals (typically 0.6 m), directly from the augers to permit soil classification and vapour concentration measurements as shown on the borehole logs presented in Appendix A. Each collected soil sample was typically split and one portion immediately sealed in a clean plastic bag (with headspace) for vapour measurement and textural classification. The other portion was sealed in clean, laboratory-supplied glass jars (with no headspace) and stored on ice for possible laboratory analyses. Soil sample headspace vapour concentrations were measured after approximately 15 minutes. Vapour concentrations were measured on-Site using a combustible gas detector (RKI Eagle) having a minimum detection level of 5 parts per million by volume (ppmv). The gas detector was operated in the methane elimination mode.



Selected soil samples (along with field duplicates) were submitted to the Suncor-contracted laboratory, Maxxam Analytics Inc. (Maxxam) located in Edmonton, Alberta and Winnipeg, Manitoba, for analyses of a suite of petroleum hydrocarbon parameters: benzene, toluene, ethylbenzene, and xylenes (BTEX); petroleum hydrocarbons (PHC) fractions F1 to F4 (F1:  $C_6 - C_{10}$ , F2:  $>C_{10} - C_{16}$ , F3:  $>C_{16} - C_{34}$  and F4:  $>C_{34} - C_{50}$ ); lead scavengers, specifically 1,2-dibromoethane (1,2-DBA) and 1,2-dichloroethane (1,2-DCA); lead; selected polycyclic aromatic hydrocarbons (PAHs); selected metals; and, selected glycols and grain size.

A monitoring well, consisting of a 51 mm diameter polyvinyl chloride (PVC) 10 slot screen and an un-slotted riser, was installed in boreholes BH3A, BH-19 to BH-21, BH-24 to BH-29, BH-34 and BH-35. The annular space between the PVC well and the borehole wall was backfilled to approximately 0.3 m above the top of the screen with #2 silica sand, and then with hydrated bentonite pellets to approximately 0.15 mbgs. The monitoring wells were then finished with a flush-mount casing. The borehole and monitoring well construction details are presented on the borehole logs in Appendix A.

Soil cuttings were stored on-Site in soil bags, and removed from Site by Mid-Canada Environmental Services Ltd., under contract to Parsons. The soil was disposed of at the Mid-Canada soil recycling facility located in Ile des Chene, Manitoba.

## **2.2 GROUNDWATER MONITORING AND SAMPLING**

On June 6, 2012 and February 28, 2013 the vertical elevations of the monitoring wells were surveyed. The benchmark location is shown on Drawings No. 4 and 5 and described in Table 1. On June 15, 2012, October 16, 2012 and February 28, 2013, the horizontal locations of the boreholes/monitoring wells were surveyed.

On April 25, 2012, all accessible previously existing monitoring wells were monitored for subsurface vapour concentrations, water levels, and the presence or absence of light non-aqueous phase liquids (free product). On June 13, 2012, February 28, 2013 and March 14, 2013, all accessible previously existing and newly installed monitoring wells were monitored for subsurface vapour concentrations, water levels, the presence or absence of light non-aqueous phase liquids (free product); and, were purged in preparation for water sampling. A groundwater sample could not be obtained from monitoring well BH-34 due to dry conditions in the well. Due to accessibility issues, monitoring wells BH1, BH2, BH17, BH-21 and BH-25 were monitored on July 19, 2012 or August 16, 2012.



During the 2012 sampling events (June 13, 2012, July 19, 2012 and August 16, 2012), and 2013 sampling event (March 14, 2013), groundwater samples were obtained from the previously existing and newly installed monitoring wells. A groundwater sample could not be obtained from monitoring well BH-34 due to dry conditions in the well.

The groundwater samples were submitted to Maxxam for analyses of petroleum hydrocarbon parameters: BTEX, PHC fractions F1 and F2, 1,2-DBA, 1,2-DCA and lead. Furthermore, during the 2012 sampling events, selected samples were submitted for analyses of selected PAHs, selected metals and selected glycols.

In addition, field duplicate samples and field and trip blank samples were prepared and submitted for the appropriate analyses for quality control purposes.

### **3.0 RESULTS OF THE INVESTIGATION**

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#### **3.1 STRATIGRAPHY**

The soil profile encountered during drilling of the boreholes generally consisted of asphalt underlain by fill material (sand and/or gravel). The underlying native soil profile generally consisted of interlayered silt and clay which extended to the maximum depth of investigation, approximately 6.1 mbgs. Fill material (former tank nest) was encountered in boreholes BH-19, BH-30 and BH-40 to maximum depth of approximately 4.4 mbgs.

Detailed descriptions of the soil profile at each borehole location are presented in the borehole logs in Appendix A.

#### **3.2 GROUNDWATER CONDITIONS**

On June 13, 2012, the depth to groundwater ranged from 1.45 mbgs to 3.67 mbgs and on March 14, 2013, the depth to groundwater ranged from 2.04 mbgs to 2.85 mbgs. The groundwater potentiometric surface elevations are presented on Drawings No. 4 and 5. As indicated, on June 13, 2012, the inferred principal direction of groundwater flow was to the north and on March 14, 2013, the inferred principal direction of groundwater flow was to the east.

The groundwater depths, calculated potentiometric elevations and the measured product thicknesses are presented in Table 1.



### **3.3 SUBSURFACE LIQUID-PHASE PETROLEUM HYDROCARBONS**

On April 25, 2012, a sheen of subsurface liquid phase hydrocarbons (LPH) were detected at the water surface in monitoring wells BH5 and BH7.

### **3.4 SUBSURFACE VAPOUR CONCENTRATIONS**

Headspace vapour concentrations measured on the soil samples collected during the drilling events are presented on the borehole logs in Appendix A. A maximum headspace vapour concentration of >100% lower explosive limit (LEL) was measured in soil samples recovered from 1.7 mbgs to 2.0 mbgs and 2.3 mbgs to 2.6 mbgs in borehole BH-24. Elevated vapour concentrations (>5% LEL) were measured in selected soil samples recovered from boreholes BH-20, BH-22 to BH-25, BH-43 and BH-44.

Subsurface vapour concentrations measured in the monitoring wells during the 2012 and 2013 monitoring events are summarized in Table 1. A maximum subsurface vapour concentration of >100% LEL was measured in monitoring wells BH5 on March 14, 2013, and BH7 on June 13, 2012 and March 14, 2013.

## **4.0 APPLICABLE CRITERIA SELECTION**

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For the assessment work, Manitoba Conservation's direction to adopt the Canadian Council of Ministers of the Environment (CCME) *Canadian Environmental Quality Guidelines* (CEQG) (2010) and *Canada Wide Standards for Petroleum Hydrocarbons in Soil* (CWS) (2008) was followed. Where CCME has no criteria, criteria from the Alberta Environment (AENV) *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* (2010) and the Ontario Ministry of the Environment (MOE) *Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (2011) were selected for comparison.

### **4.1 SOIL CRITERIA**

With respect to hydrocarbon constituents in soil, the selected applicable criteria considers one or more of the following: grain size, land use, a suite of human health and environmental health exposure pathways.

The Site is currently zoned for commercial land use, and the dominant soil type encountered during the Site investigation activities was characterized as fine-grained. This led to the selection of criteria concerning fine-grained surface and sub-surface soils in a commercial land use setting.



The selected applicable soil criteria are those presented under the CCME CEQG *Canadian Soil Quality Guidelines for the Protection of Environment and Human Health* (2010) Tables 2 and 3 Soil quality guidelines and check values for BTEX, selected PAHs, selected metals and selected glycols; the CCME CWS (2008) Table 2 Tier 1 levels for PHCs for fine-grained surface soils and Table 4 Tier 1 levels for PHCs for fine-grained subsoils for PHC fractions F1 to F4; and, the AENV (2010) Table A-4 Surface Soil Remediation Guidelines Values for Commercial Land Use – All Exposure Pathways for 1,2-DCA.

Note, there is currently no applicable criterion for 1,2-DBA or propylene glycol in soil.

## **4.2 GROUNDWATER CRITERIA**

With respect to petroleum hydrocarbon constituents in groundwater, the applicable criteria considers one or more of the following: grain size, land use, a suite of human health and environmental health exposure pathways.

The City of Winnipeg is supplied with potable water from a municipal water supply system which obtains water from Shoal Lake located approximately 125 km southeast of the City. This led to the selection of criteria concerning a non-potable aquifer in fine-grained surface soils within a commercial land use setting.

The selected applicable groundwater criteria are those presented under the AENV (2010) Table B-4 Groundwater Remediation Guidelines for Commercial/Industrial – All Water Uses for BTEX, PHC fractions F1 and F2, 1,2-DCA and selected PAHs; and, the MOE (2011) Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Conditions for selected metals.

Note, there is currently no applicable criteria for 1,2-DBA, acenaphthene, benzo(a)anthracene, benzo[a]pyrene equivalency, fluorene, naphthalene, phenanthrene, pyrene, ethylene glycol and propylene glycol in groundwater.

## **4.3 RESULTS OF LABORATORY ANALYSIS**

As noted above, soil samples were analyzed by Maxxam for BTEX, PHC fractions F1 to F4, 1,2-DBA, 1,2-DCA, lead, selected PAHs, selected metals, selected glycols and grain size. The laboratory certificates are presented in Appendix B, along with a quality assurance/quality control (QA/QC) program review forms.



#### **4.4 SOIL CHEMISTRY**

The results of laboratory chemical analyses conducted on the selected soil samples recovered during drilling are summarized in Tables 2 to 7 along with the referenced applicable criteria. As the data in the tables indicate, one or more of the following: benzene, PHC fractions F1 and F2, lead and arsenic concentrations exceeded the applicable criteria in soil samples collected from the following locations (and depths):

- BH-20 (2.3 mbgs to 2.6 mbgs);
- BH-21 (3.5 mbgs to 3.8 mbgs);
- BH-22 (2.3 mbgs to 2.6 mbgs) (and its duplicate);
- BH-24 (2.3 mbgs to 2.6 mbgs);
- BH-37 (0.0 mbgs to 0.6 mbgs);
- BH-43 (1.8 mbgs to 2.4 mbgs); and,
- BH-44 (1.2 mbgs to 1.8 mbgs and 1.8 mbgs to 2.4 mbgs) (and its duplicate).

All of the results met the applicable criteria in soil samples collected from boreholes BH-19, BH-23, BH-25 to BH-36 and BH-38 to BH-42.

#### **4.5 HYDROCHEMISTRY**

The results of the hydrochemical analysis of the groundwater samples collected during the 2012 sampling events (June 13, 2012, July 19, 2012 and August 16, 2012) and 2013 sampling event (March 15, 2013) from all monitoring wells are summarized in Tables 8 to 11 along with the referenced applicable criteria. As the data in the tables indicates, one or more of the following: benzene and PHC fractions F1 and F2 concentrations exceeded the applicable criteria in groundwater samples collected from the following locations:

- DUP-2 (BH5 duplicate);
- BH7;
- BH-20;
- BH-24; and,
- BH-27.

All of the results met the applicable criteria in groundwater samples collected from monitoring wells BH1, BH2, BH3A, BH6, BH9, BH17, BH-19, BH-21, BH-25, BH-26, BH-28, BH-29 and BH-35.



## 4.6 QUALITY ASSURANCE/QUALITY CONTROL

A QA/QC program was implemented to reduce and quantify potential issues introduced during sample collection, handling, shipping and analysis. The program included, but was not limited to, using dedicated sampling equipment, using sample specific identification and labelling procedures, and using chain of custody records.

The soil QA/QC samples submitted to the laboratory included nine field duplicate soil samples for BTEX, PHC fractions F1 to F4, 1,2-DBA, 1,2-DCA and lead.

The groundwater QA/QC samples submitted to the laboratory included five field duplicate groundwater samples for BTEX, PHC fractions F1 and F2, 1,2-DBA, 1,2-DCA and lead; one field duplicate groundwater sample for selected PAHs; one field duplicate groundwater sample for selected metals and selected glycols; and, two field blank and trip blank groundwater samples for BTEX and PHC fraction F1.

## 5.0 SUMMARY

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Between April 25, 2012 and March 15, 2013, environmental site assessments were conducted at the former Certigard Car Repair Facility (No. 63955) located at 208 St. Anne's Road in Winnipeg, Manitoba. The purpose of the work was to assess the nature and extent of petroleum hydrocarbon impacts beneath the Site. The following are the key investigation findings:

- The soil profile encountered during drilling of the boreholes generally consisted of asphalt underlain by fill material (sand and/or gravel). The underlying native soil profile generally consisted of interlayered silt and clay which extended to the maximum depth of investigation, approximately 6.1 mbgs. Fill material (former tank nest) was encountered in boreholes BH-19, BH-30 and BH-40 to maximum depth of approximately 4.4 mbgs;
- The groundwater levels in the monitoring wells ranged from 1.45 mbgs to 3.67 mbgs on June 13, 2012 and 2.04 mbgs to 2.85 mbgs on March 14, 2013. On June 13, 2012, the inferred principal direction of groundwater flow was to the north and on March 14, 2013, the inferred principal direction of groundwater flow was to the east;
- A sheen of LPH were detected at the water surface in monitoring wells BH5 and BH7 on April 25, 2012;



- A maximum headspace vapour concentration of >100% LEL was measured in soil samples recovered from 1.7 mbgs to 2.0 mbgs and 2.3 mbgs to 2.6 mbgs in borehole BH-24;
- A maximum subsurface vapour concentration of >100% LEL was measured in monitoring well BH7 on June 13, 2012. Elevated vapour concentrations (>5% LEL) were measured in selected soil samples recovered from boreholes BH-20, BH-22 to BH-25, BH-43 and BH-44;
- One or more of the following: benzene, PHC fractions F1 and F2, lead and arsenic concentrations exceeded the applicable criteria in soil samples collected from boreholes BH-20 to BH-22, BH-24, BH-37, BH-43 and BH-44;
- All of the results met the applicable criteria in soil samples collected from boreholes BH-19, BH-23, BH-25 to BH-36 and BH-38 to BH-42;
- One or more of the following: benzene and PHC fractions F1 and F2 exceeded the applicable criteria in groundwater samples collected from DUP-2 (BH5 duplicate), BH7, BH-20, BH-24 and BH-27; and,
- All of the results met the applicable criteria in groundwater samples collected from monitoring wells BH1, BH2, BH3A, BH6, BH9, BH17, BH-19, BH-21, BH-25, BH-26, BH-28, BH-29 and BH-35.



## **6.0 LIMITATION OF LIABILITY, SCOPE OF REPORT AND THIRD PARTY RELIANCE**

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This report has been prepared and the work referred to in this report has been undertaken by O'Connor Associates Environmental Inc., a Parsons Company, for Suncor. It is intended for the sole and exclusive use of Suncor, its affiliated companies and partners and their respective insurers, agents, employees and advisors (collectively, "Suncor"). Any use, reliance on or decision made by any person other than Suncor based on this report is the sole responsibility of such other person. Suncor and O'Connor Associates Environmental Inc., a Parsons Company make no representation or warranty to any other person with regard to this report and the work referred to in this report and they accept no duty of care to any other person or any liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made or any action taken based on this report or the work referred to in this report.

The investigations undertaken by O'Connor Associates Environmental Inc., a Parsons Company, with respect to this report and any conclusions or recommendations made in this report reflect O'Connor Associates Environmental Inc., a Parsons Company's judgment based on the Site conditions observed at the time of the Site inspection on the date(s) set out or noted in this report and on information examined at the time of preparation of this report. This report has been prepared for specific application to this Site and it is based, in part, upon visual observation of the Site, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future Site conditions, portions of the Site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Substances other than those addressed by the investigation described in this report may exist within the Site, substances addressed by this investigation may exist in areas of the Site not investigated and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken.

If Site conditions or applicable standards change or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

Other than by Suncor, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of O'Connor Associates Environmental Inc., a Parsons Company. Nothing in this report is intended to constitute or provide a legal opinion.



## 7.0 CLOSURE

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This report has been prepared in accordance with generally accepted environmental engineering practices for the exclusive use of Suncor.

The reported information is believed to provide a reasonable preliminary representation of the general environmental conditions at the Site. However, with respect to the referenced Phase II report, the data were collected at specific locations and conditions may vary at other locations. The referenced Phase II work was limited to a study of those contaminants specifically addressed in the Phase II report.

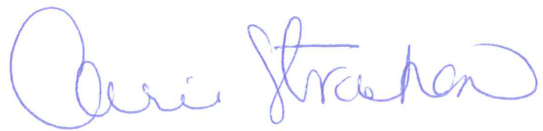
We trust that the foregoing information is satisfactory for your present requirements. Should you have any questions, please do not hesitate to contact the undersigned.

Yours very truly,

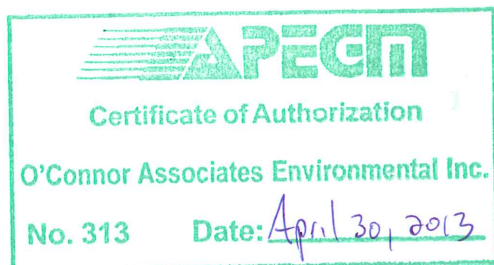
O'CONNOR ASSOCIATES ENVIRONMENTAL INC., A PARSONS COMPANY



Alexia Reske-Naurocki, B.Env.Sc.



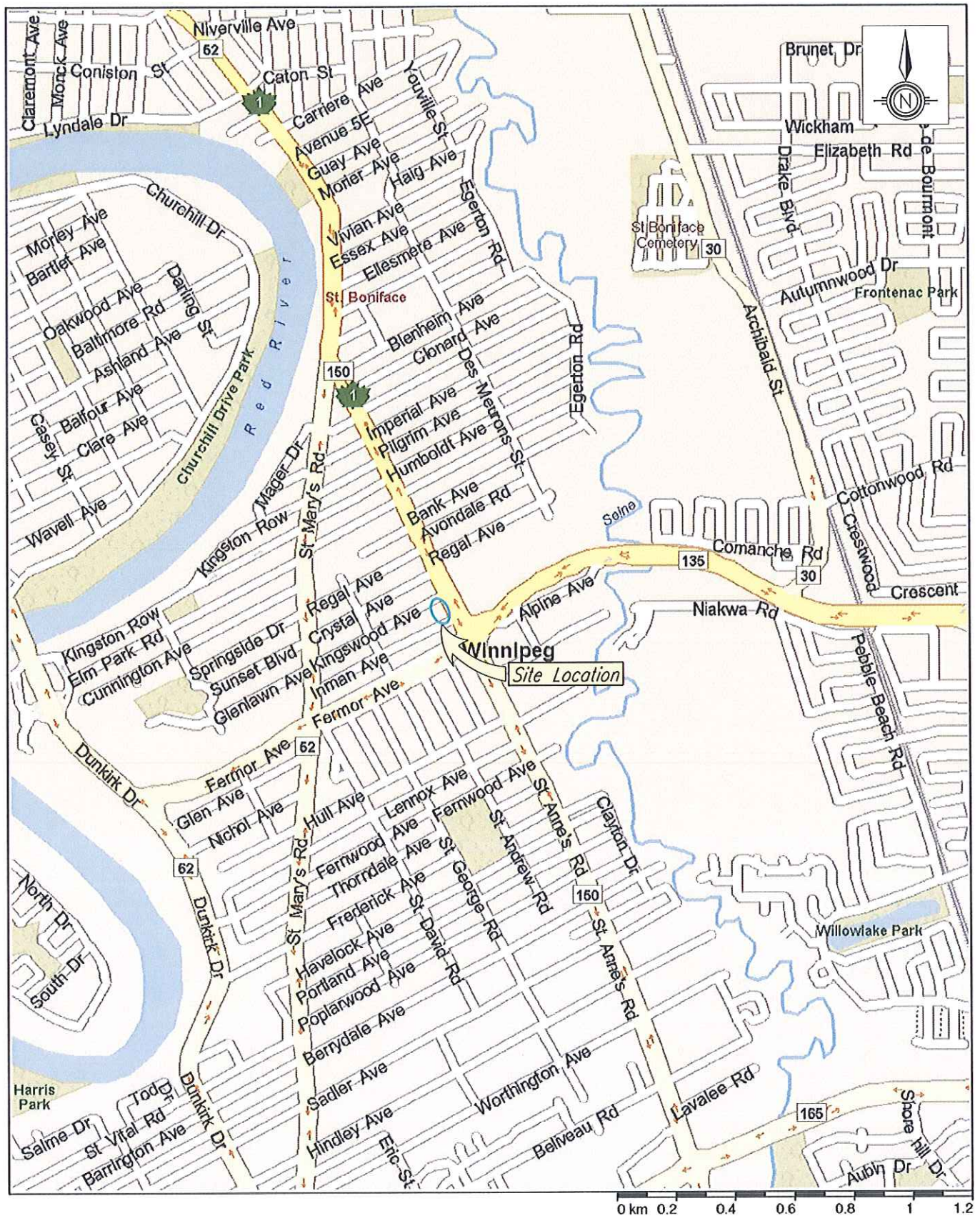
Carrie D. Strachan, B.Sc., C.E.T.



Gary S. Karp, P.Geo.

Distribution: Suncor Energy (1)





REFERENCE: Microsoft Streets and Trips, 2012.

### Site Location Map

Suncor Energy  
208 St. Anne's Road, Winnipeg, Manitoba

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Reviewed: MSH

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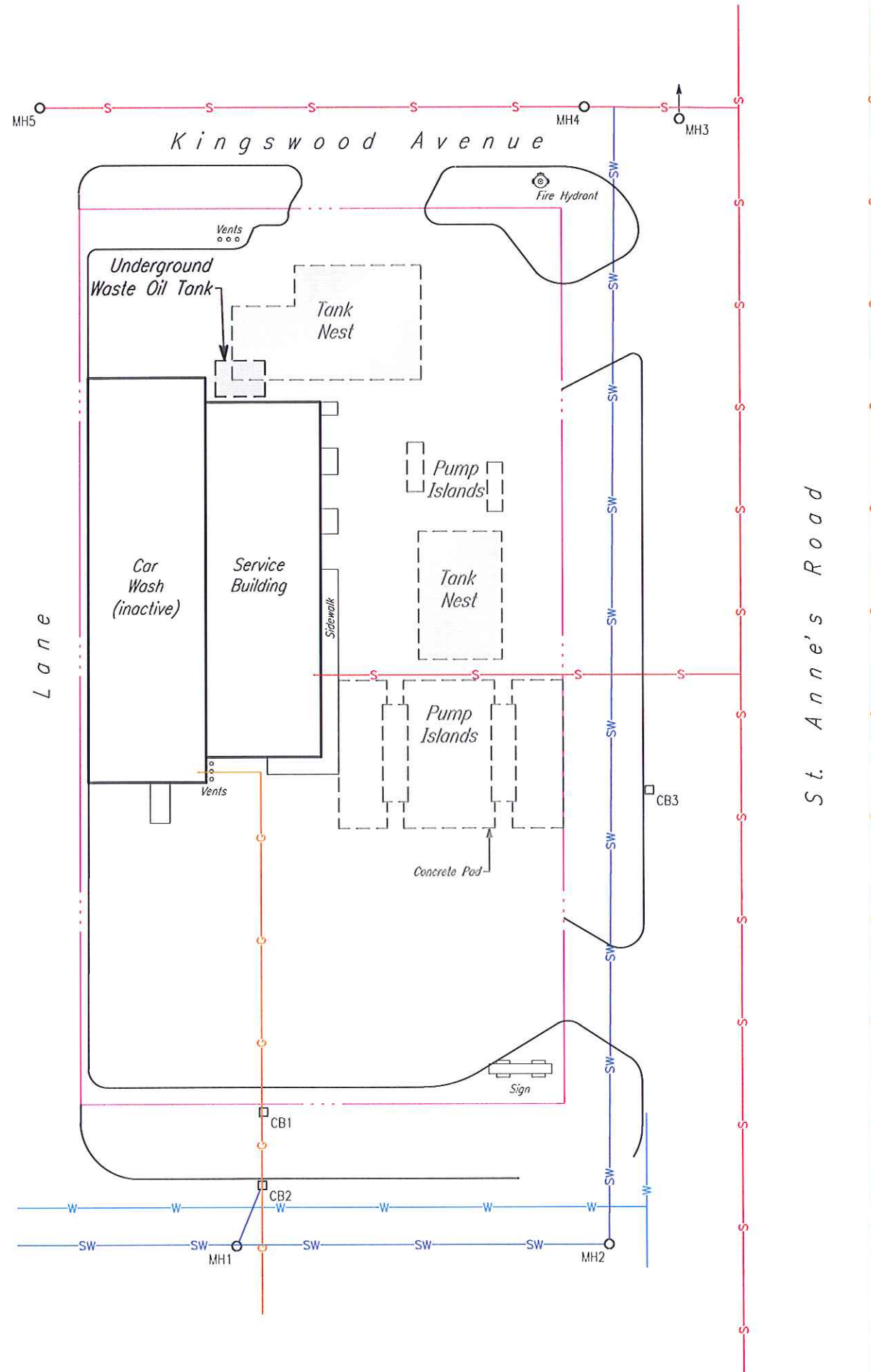
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Date: 2013/03/27

**PARSONS**

Drawing No.: 1





### LEGEND

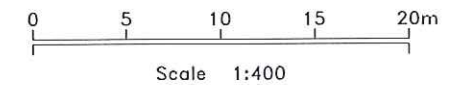
- Former Feature
- .-.- Assumed Property Line
- 2010/12/31 Date Format: yyyy/mm/dd

### Utilities

All utility lines are underground unless noted as O/H - overhead.

- Catch Basin
- Manhole
- E Electricity
- G Natural Gas
- S Sanitary Sewer
- SW Storm Sewer
- W Water

NOTE: All features are approximate.



### Site Plan

Suncor Energy  
208 St. Anne's Road, Winnipeg, Manitoba

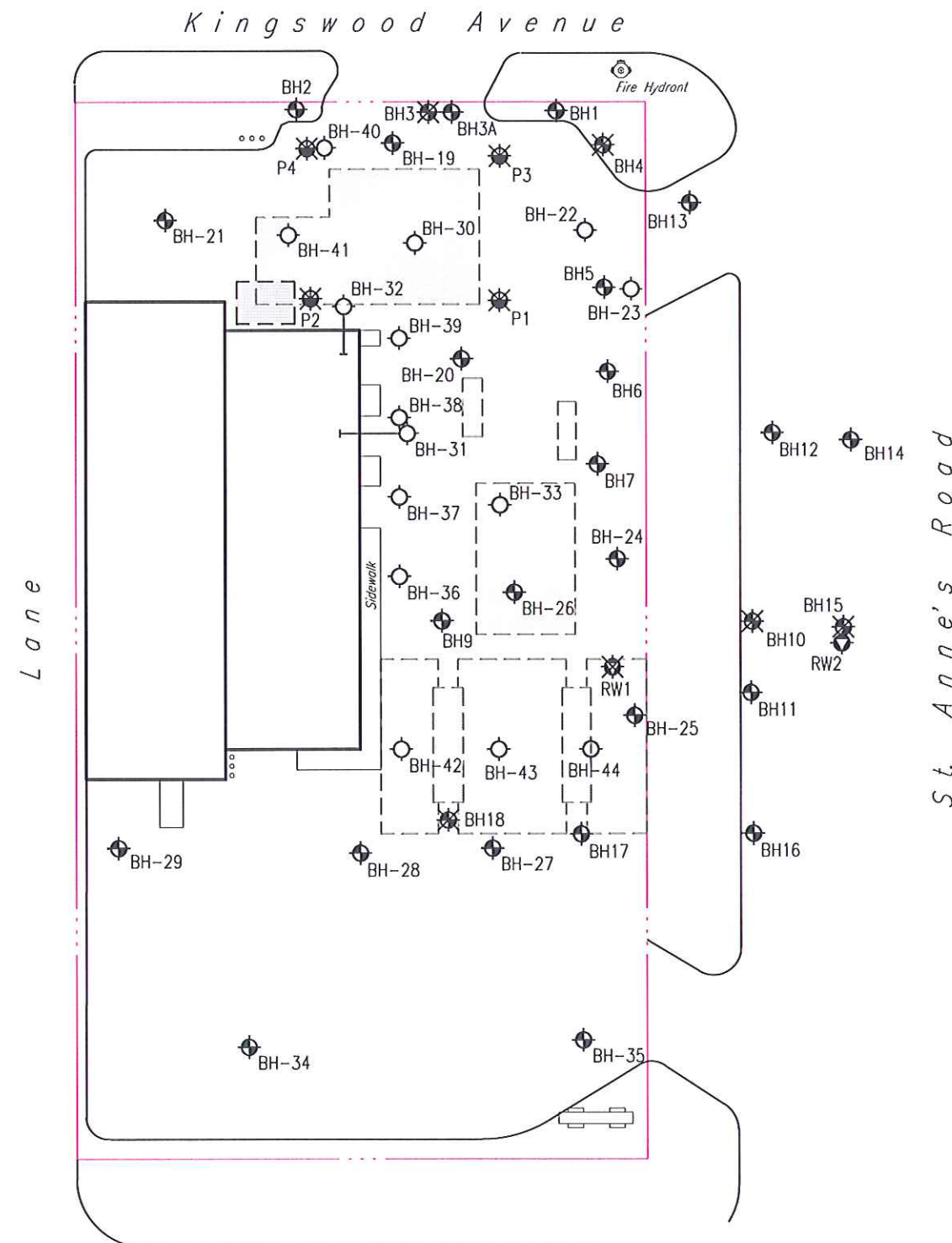
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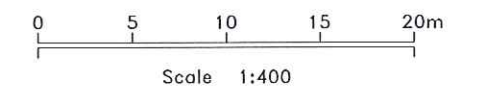


# LEGEND

- Former Feature
  - - - Assumed Property Line
  - Borehole  
BH-22 and BH-23 by Parsons, 2012  
BH-30 and BH-33 by Parsons, 2012  
BH-36 to BH-44 by Parsons, 2013
  - Angled Borehole  
BH-31 and BH-32 by Parsons, 2012
  - Monitoring Well  
BH1, BH2, BH5 to BH7, BH9, BH11  
to BH14, BH16 and BH17, Unknown  
BH3A, BH-19 to BH-21 and BH-24 to BH-29  
by Parsons, 2012  
BH-34 and BH-35 by Parsons, 2013
  - Recovery Well
  - ✱ Destroyed Monitoring Well
  - ✱ Destroyed Recovery Well
  - ✱ Destroyed Piezometer
- 2010/12/31 Date Format: yyyy/mm/dd



NOTE: All features are approximate.

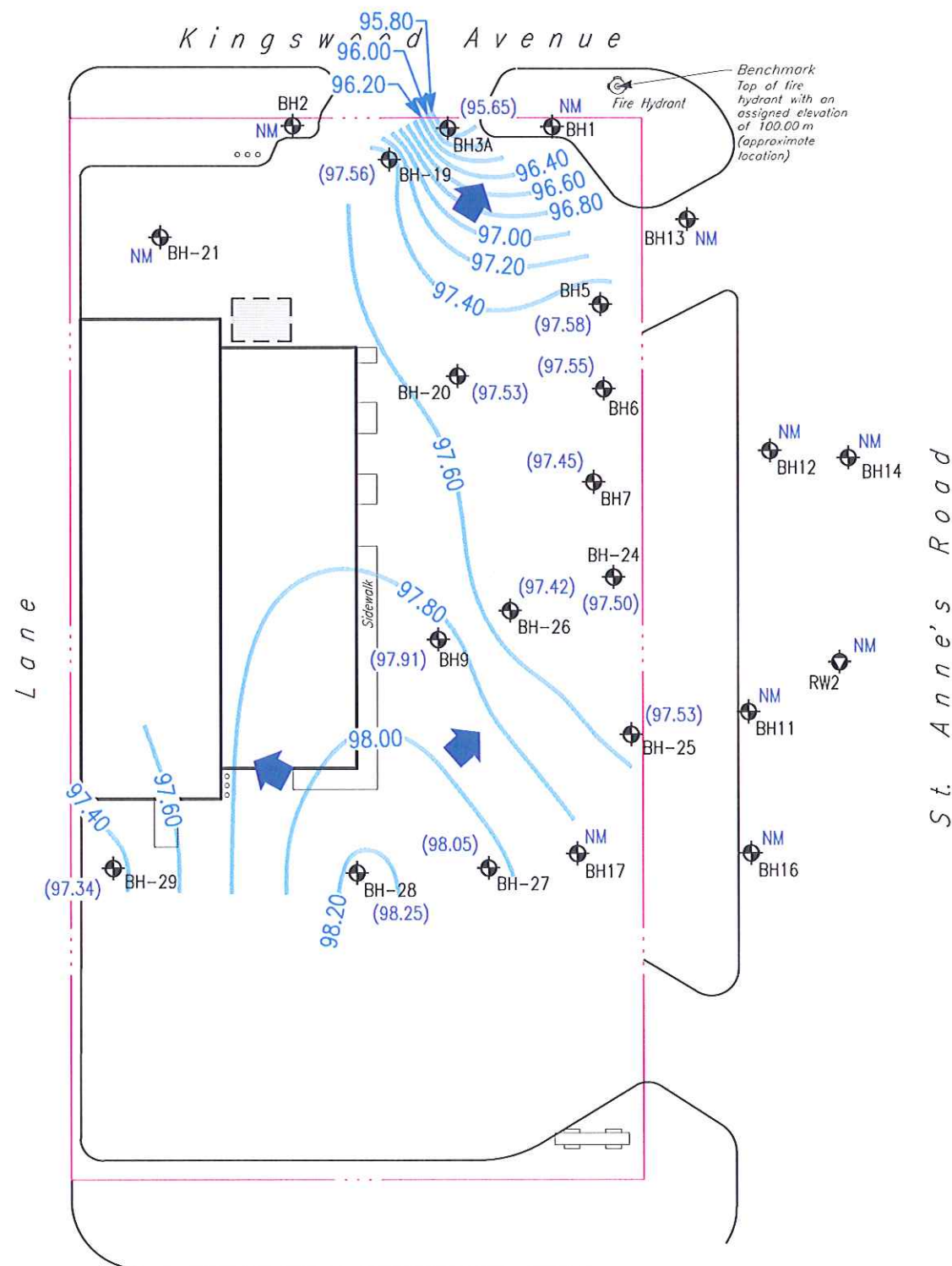


## Borehole and Monitoring Well Location Plan

Suncor Energy  
208 St. Anne's Road, Winnipeg, Manitoba

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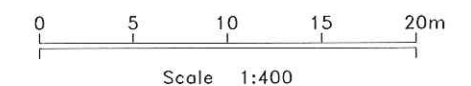


# LEGEND

- Assumed Property Line
- Monitoring Well
- Recovery Well
- 2010/12/31 Date Format: yyyy/mm/dd
- Inferred Direction of Groundwater Flow
- 49.00 Potentiometric Surface Contour with Elevation, metres
- (49.00) Potentiometric Surface Elevation, metres
- (49.00)\* Value Not Used for Contouring
- NM Well Not Monitored

NOTE: Contouring based on Surfer® linear kriging computer modelling.

NOTE: All features are approximate.



## Elevation of the Groundwater Potentiometric Surface 2012/06/13

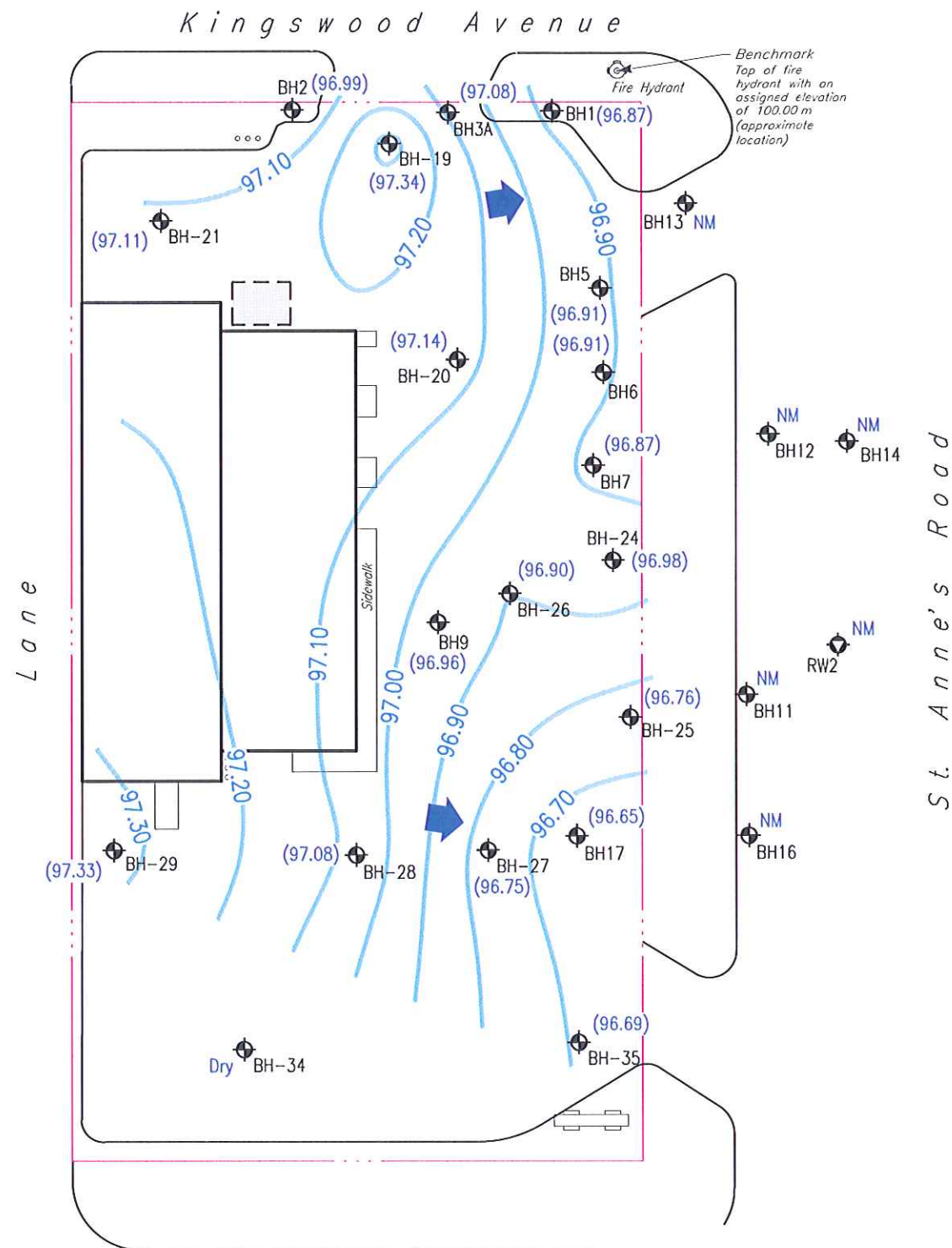
Suncor Energy  
208 St. Anne's Road, Winnipeg, Manitoba

Drawn: MLM	Page Size: 11 x 17 in	Ref. No.: 10-1177.100
Reviewed: AMR	File No.: 1177M031	Date: 2013/03/27

**PARSONS**

Drawing No.: 4



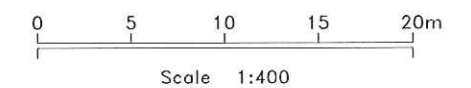


## LEGEND

- Assumed Property Line
- ⊕ Monitoring Well
- ⊕ Recovery Well
- 2010/12/31 Date Format: yyyy/mm/dd
- ➔ Inferred Direction of Groundwater Flow
- 49.00 Potentiometric Surface Contour with Elevation, metres
- (49.00) Potentiometric Surface Elevation, metres
- (49.00)\* Value Not Used for Contouring
- NM Well Not Monitored

NOTE: Contouring based on Surfer® linear kriging computer modelling.

NOTE: All features are approximate.



## Elevation of the Groundwater Potentiometric Surface 2013/03/14

Suncor Energy  
208 St. Anne's Road, Winnipeg, Manitoba

Drawn: MLM	Page Size: 11 x 17 in	Ref. No.: 10-1177.100
Reviewed: AMR	File No.: 1177M032	Date: 2013/03/27

**PARSONS**

Drawing No.: 5



Kingswood Avenue



2012/04/26											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
1.1-1.4	<0.0050	<0.020	<0.010	<0.040	<12	<10	78	110	<0.0020	<0.0020	2
4.1-4.4	0.047	<0.020	<0.010	<0.040	<12	<10	73	46	<0.0020	<0.0020	14

2013/02/22											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.6-1.2	<0.0050	<0.020	<0.010	<0.040	<10	<10	68	42	<0.025	<0.025	2.84
2.4-3.0	<0.0050	<0.020	<0.010	<0.040	<10	<10	170	130	<0.025	<0.025	2.84
4.8-5.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	13	<10	<0.025	<0.025	15.4

2012/04/26											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
2.3-2.6	0.019	<0.020	0.32	<0.040	47	180	67	20	<0.020	0.0215	17
3.5-3.8	<0.0050	<0.020	<0.010	<0.040	<12	<10	73	34	<0.0020	<0.0020	15

2013/02/22											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
2.4-3.0	1.5	0.034	1.2	0.66	61	44	39	12	<0.025	<0.025	15.9
3.0-3.6	1.5	0.033	1.2	0.65	59	40	15	<10	<0.025	<0.025	15.5
3.6-4.2	0.014	<0.020	0.02	<0.040	<10	<10	50	23	<0.025	<0.025	17.2

2012/10/16											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
1.2-1.8	0.075	0.046	0.078	2.9	36	130	310	2100	<0.025	<0.025	19.6
2.4-3.1	<0.0050	<0.020	<0.010	<0.040	<10	<20	<20	<20	<0.025	<0.025	14.4
3.7-4.3	<0.0050	<0.020	<0.010	<0.040	<10	98	<20	<20	<0.025	<0.025	9.57

2013/02/21											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.6-1.2	<0.0050	<0.020	<0.010	<0.040	<10	<10	11	<10	<0.025	<0.025	14.3
1.8-2.4	<0.0050	<0.020	0.062	0.21	23	24	29	10	<0.025	<0.025	14.4
3.0-3.6	<0.0050	<0.020	<0.010	<0.040	<10	<10	12	<10	<0.025	<0.025	16.9
4.8-5.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	22	<10	<0.025	<0.025	16.1

2013/02/21											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.6-1.2	0.0093	<0.020	0.03	<0.040	15	<10	<10	<10	<0.025	<0.025	14.4
1.8-2.4	0.0099	<0.020	0.018	<0.040	<10	<10	<10	<10	<0.025	<0.025	4.18
3.0-3.6	<0.0050	<0.020	<0.010	<0.040	<10	<10	10	<10	<0.025	<0.025	12.8
3.0-3.8 Dup	<0.0050	<0.020	<0.010	<0.040	<10	<10	23	<10	<0.025	<0.025	14.5
4.8-5.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	46	12	<0.025	<0.025	15.7

2012/10/16											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.6-1.2	0.039	<0.020	0.040	<0.040	12	<20	<20	<20	<0.025	<0.025	21.1
1.8-2.4	<0.0050	<0.020	<0.010	<0.040	<10	<20	<20	<20	<0.025	<0.025	13.0
3.1-3.7	<0.0050	<0.020	<0.010	<0.040	27	110	<20	<20	<0.025	<0.025	13.3
4.3-4.9	<0.0050	<0.020	<0.010	<0.040	<10	72	<20	<20	<0.025	<0.025	12.7
4.3-4.9 DUP	<0.0050	<0.020	<0.010	<0.040	25	160	37	<20	<0.025	<0.025	11.5

2013/02/21											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.0-0.6	0.57	0.04	0.34	0.33	<10	<10	100	73	<0.025	<0.025	27.0
1.8-2.4	<0.0050	<0.020	<0.010	<0.040	<10	190	55	<10	<0.025	<0.025	5.94
3.0-3.6	<0.0050	<0.020	<0.010	<0.040	<10	<10	<10	<10	<0.025	<0.025	15.3
4.2-4.8	<0.0050	<0.020	<0.010	<0.040	<10	<10	17	<10	<0.025	<0.025	16.4

2012/04/27											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
1.1-1.4	<0.0050	<0.020	<0.010	<0.040	<12	<10	<10	<10	<0.0020	<0.0020	7.8
2.3-2.6	<0.0050	<0.020	<0.010	<0.040	<12	<10	17	10	<0.0020	<0.0020	18

2013/02/21											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.6-1.2	<0.0050	<0.020	<0.010	<0.040	<10	<10	<10	<10	<0.025	<0.025	15.1
2.4-3.0	<0.0050	<0.020	<0.010	<0.040	<10	<10	52	33	<0.025	<0.025	14.8
3.6-4.2	<0.0050	<0.020	<0.010	<0.040	<10	<10	30	<10	<0.025	<0.025	15.6
5.4-6.0	<0.0050	<0.020	<0.010	<0.040	<10	<10	25	<10	<0.025	<0.025	15.9
5.4-6.0 Dup	<0.0050	<0.020	<0.010	<0.040	<10	<10	<10	<10	<0.025	<0.025	13.8

2013/02/22											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.6-1.2	<0.0050	<0.020	<0.010	<0.040	<10	<10	<10	<10	<0.025	<0.025	1.63
1.8-2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	31	<10	<0.025	<0.025	13.6
3.0-3.6	<0.0050	<0.020	<0.010	<0.040	<10	<10	45	10	<0.025	<0.025	16

2013/02/21											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.6-1.2	<0.0050	<0.020	<0.010	<0.040	<10	<10	<10	<10	<0.025	<0.025	5.58
1.8-2.4	<0.0050	<0.020	<0.010	<0.040	<10	<10	23	<10	<0.025	<0.025	17
3.0-3.6	<0.0050	<0.020	<0.010	<0.040	<10	<10	53	12	<0.025	<0.025	16.6
4.2-4.8	<0.0050	<0.020	<0.010	<0.040	<10	<10	36	<10	<0.025	<0.025	16.2

2012/04/27											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
0.5-0.8	<0.0050	<0.020	0.19	0.57	43	90	1900	3000	<0.020	<0.0020	36
2.3-2.6	<0.0050	<0.020	<0.010	<0.040	<12	<10	20	10	<0.0020	<0.0020	16

2012/10/16											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
1.2-1.8	<0.0050	<0.020	<0.010	<0.040	<10	19	420	65	<0.025	<0.025	2.02
2.4-3.1	<0.0050	<0.020	0.011	0.046	<10	<10	85	28	<0.025	<0.025	1.97
3.7-4.3	<0.0050	<0.020	0.13	0.10	<10	<20	<20	<20	<0.025	<0.025	15.8

2012/04/26											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
2.3-2.6	3.6	<0.020	7	8.5	130	40	<10	<10	<0.030	0.0977	11
2.3-2.6 Dup	4.0	<0.020	8.2	10	140	86	11	<10	<0.030	0.129	11
3.5-3.8	<0.0050	<0.020	<0.010	<0.040	<12	<10	62	31	<0.0020	<0.0020	14
4.7-5.0	<0.0050	<0.020	<0.010	<0.040	<12	<10	200	100	<0.0020	<0.0020	13

2012/04/26											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
2.3-2.6	0.31	0.16	7.1	41	230	100	<10	13	<0.040	<0.0020	4.1
2.3-2.6 Dup	0.23	0.084	2.3	13	53	60	10	18	<0.020	<0.0020	5.3
2.9-3.2	<0.0050	<0.020	<0.010	<0.040	<12	<10	16	13	<0.0020	0.121	16
4.7-5.0	<0.0050	<0.020	<0.010	<0.040	<12	<10	39	23	<0.0020	<0.0020	16

2012/04/26											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
2.3-2.6	<0.060	0.11	11	44	860	170	19	<10	<0.060	<0.0020	13
3.5-3.8	<0.0050	<0.020	<0.010	<0.040	<12	<10	46	19	<0.0020	0.0579	13
4.7-5.0	<0.0050	<0.020	<0.010	<0.040	<12	<10	20	<10	<0.0020	<0.0020	14

2012/10/16											
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	DBA	DCA	Pb
1.2-1.8	0.17	<0.020	0.18	0.30	11	<20	24	<20	<0.025	<0.025	7.01
1.2-1.8 DUP	0.29	<0.020	0.26	0.49	<10	<20	<20	<20	<0.025	<0.025	6.40
2.4-3.1	0.013	<0.020	<0.010	<0.040	<10	<20	<20	<20	<0.025	<0.025	16.1
3.7-4.3	<0.0050	<0.020	<0.010	<0.040	<10	<20	<20	<20	<0.025	<0.025	15.5



BH3A Screen Interval: 0.9 - 4.0 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	<0.00040	<0.00040	<0.00040	<0.00080	<0.100	<0.10	<0.00050	0.0025	<0.00020	
2013/03/14	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	<0.0028	<0.00020	

BH2 Screen Interval: Unknown										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/07/19	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	<0.00050	<0.00050	

BH-19 Screen Interval: 0.6 - 3.7 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	0.00082	0.0009	<0.00040	<0.00080	<0.100	<0.10	<0.00050	<0.00050	<0.00020	
2013/03/14	0.0031	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	<0.00050	<0.00020	

BH-21 Screen Interval: 0.9 - 4.0 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/07/19	0.0008	<0.0004	0.0013	<0.0008	<0.3	0.25	<0.00020	<0.0018	<0.00020	
2012/07/19 Dup	0.0015	0.0006	0.0044	<0.0008	<0.3	<0.15	<0.00020	<0.0028	<0.00020	
2013/03/14	0.0028	<0.0004	0.0007	<0.0008	<0.3	0.31	<0.00020	<0.0097	<0.00040	

BH-20 Screen Interval: 0.9 - 4.0 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	0.34	0.014	0.0063	4.0	5.6	<b>4.8</b>	<0.00050	0.035	0.0015	
2013/03/14	1.2	0.002	0.45	0.91	2.8	1.2	<0.00020	<0.180	0.00086	

BH-24 Screen Interval: 0.9 - 4.0 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	<b>22</b>	30	2.6	14	7.5	2.9	<0.00050	0.036	0.0018	
2013/03/14	14	11	2.2	9.5	4.0	1.3	<0.00020	<0.00050	0.00101	

BH-26 Screen Interval: 0.9 - 4.0 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	<0.00040	<0.00040	<0.00040	<0.00080	<0.100	<0.10	<0.00050	<0.00050	<0.00020	
2013/03/14	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	<0.00050	<0.00020	

BH9 Screen Interval: Unknown										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	<0.00040	<0.00040	<0.00040	<0.00080	<0.100	<0.10	<0.00050	<0.00050	<0.00020	
2013/03/15	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	<0.00050	<0.00020	

BH-28 Screen Interval: 0.9 - 4.0 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	<0.00040	<0.00040	<0.00040	<0.00080	<0.100	<0.10	<0.00050	<0.00050	<0.00020	
2013/03/14	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	<0.00050	<0.00040	

BH-29 Screen Interval: 0.9 - 4.0 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	<0.00040	<0.00040	<0.00040	<0.00080	<0.100	<0.10	<0.00050	<0.00050	0.00021	
2013/03/14	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	<0.00050	<0.00020	

BH1 Screen Interval: Unknown										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/07/19	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	0.002	<0.00050	
2013/03/15	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	0.0039	0.00021	

BH5 Screen Interval: Unknown										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	0.44	0.1	2.0	11	8.8	2.1	<0.00050	0.0019	0.00059	
2012/06/13 Dup	0.36	0.081	1.8	9.8	<b>13</b>	2.1	<0.00050	0.0015	0.00049	
2013/03/15	0.76	0.12	2.1	11	5.3	2.9	<0.00020	<0.031	0.00061	
2013/03/15 Dup	0.71	0.12	2.1	12	2.5	2.9	<0.00020	<0.027	0.00061	

BH6 Screen Interval: Unknown										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	0.36	0.03	0.83	3.7	2.5	1.1	-	-	-	
2013/03/15	0.4	0.022	0.76	2.4	1.1	1.1	<0.00020	<0.023	0.00025	

BH7 Screen Interval: Unknown										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	4.8	0.2	0.29	2.3	4.0	<b>4.3</b>	<0.00050	0.024	<0.00020	
2012/06/13 Dup	4.9	0.23	0.29	2.4	6.1	3.1	<0.00050	0.027	<0.00020	
2013/03/15	3.6	0.069	0.56	2.0	3.6	2.7	<0.00020	<0.086	<0.00020	
2013/03/15 Dup	3.4	0.072	0.58	2.1	3.8	2.9	<0.00020	<0.00050	<0.00020	

BH-25 Screen Interval: 0.9 - 3.1 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	2.9	0.15	1.5	3.0	9.7	2.3	<0.00050	0.01	<0.00020	
2012/07/19	3.0	0.066	1.3	2.6	<0.3	2.3	<0.00020	<0.00050	<0.00020	
2013/03/14	0.53	0.0065	0.23	0.43	0.6	0.8	<0.00020	<0.00050	<0.00020	

BH17 Screen Interval: Unknown										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/08/16	0.0021	0.0006	0.011	0.01	<0.300	0.52	<0.00020	<0.00050	<0.00020	
2013/03/15	0.027	0.0008	0.065	<0.0008	0.4	0.82	<0.00020	<0.00050	<0.00020	

BH-27 Screen Interval: 0.9 - 4.0 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2012/06/13	0.016	0.0016	0.099	0.86	8.1	<b>5.6</b>	<0.00050	<0.00050	<0.00020	
2013/03/14	0.003	0.0006	0.35	0.61	7.1	<b>3.8</b>	<0.00020	<0.00023	-	

BH-35 Screen Interval: 0.6 - 3.7 mbgs										
Sample Date	B	T	E	X	F1	F2	DBA	DCA	Pb	
2013/03/14	<0.0004	<0.0004	<0.0004	<0.0008	<0.3	<0.15	<0.00020	<0.00050	<0.00020	

## LEGEND

- Former Feature
- - - Assumed Property Line
- Monitoring Well
- Recovery Well
- Destroyed Monitoring Well
- Destroyed Recovery Well
- Destroyed Piezometer
- 2010/12/31 Date Format: yyyy/mm/dd
- mbgs Metres Below Ground Surface
- mg/L Milligrams Per Litre

## Analytical Results

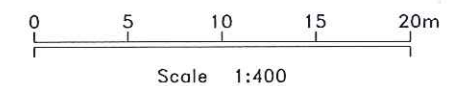
- All Results Reported in mg/L
- Location Where Most Recent Groundwater Sample Met Applicable Criteria for All Parameters that Were Analyzed, Shown in Green
- Location Where Most Recent Groundwater Sample Exceeded Applicable Criteria for At Least One Parameter that Was Analyzed, Shown in Red
- Location Where No Groundwater Sample Was Submitted From the Most Recent Sampling Event, Shown in Black
- Location Where Measurable Free Product or Sheen Was Observed From Most Recent Sampling Event, Shown in Purple
- 1234** Exceedances of Applicable Criteria, Shown in Red and Bold
- 1234, Sheen** Free Product Apparent Thickness (in millimetres), or Sheen, Shown in Purple and Bold
- DUP Field Duplicate Sample
- Not Analyzed
- < Result Less Than Reportable Detection Limit

## Criteria

Parameter	B	T	E	X	F1	F2	DBA	DCA	Pb
Criterion* mg/L	19	240	150	74	9.9	3.1	NV	1.2	0.025
B-Benzene T-Toluene E-Ethylbenzene X-Xylenes F1-F2-CGME CWS Petroleum Hydrocarbon Fractions DBA-1,2-Dibromoethane DCA-1,2-Dichloroethane Pb-Lead									

\*BTEX, F1-F2, DCA  
Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);  
Groundwater Remediation Guideline Values for Commercial/Industrial (fine grained soils)  
\*Lead  
Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;  
(Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)

NV - No Value



Groundwater Analytical Results Petroleum Hydrocarbon Parameters, Lead and Lead Scavengers Suncor Energy 208 St. Anne's Road, Winnipeg, Manitoba		
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Reviewed: AMR	File No.: 1177G033	Date: 2013/04/08
<b>PARSONS</b>		Drawing No.: 7

NOTE: All features are approximate.



## GROUNDWATER MONITORING RESULTS

ASSESSMENT LOCATION	TOP OF PIPE ELEVATION <sup>1</sup> (m)	GROUND SURFACE ELEVATION <sup>1</sup> (m)	SCREEN INTERVAL (mbgs)	DATE (yyyy/mm/dd)	SUBSURFACE VAPOUR CONCENTRATIONS <sup>2</sup>	FREE PRODUCT THICKNESSES (mm)	POTENTIOMETRIC DEPTH <sup>3</sup> (mbgs)	POTENTIOMETRIC ELEVATION <sup>1,3</sup> (m)
BH1	99.17	99.29	unknown	2012/04/25	5	ND	1.38	97.92
				2012/06/13	NM	NM	NM	NM
				2012/07/19	<5	ND	1.72	97.57
				2013/02/28	45	ND	2.39	96.90
				2013/03/14	15	ND	2.42	96.87
BH2	99.25	99.28	unknown	2012/04/25	40	ND	ND	ND
				2012/06/13	NM	NM	NM	NM
				2012/07/19	<5	ND	1.67	97.61
				2013/02/28	45	ND	2.24	97.04
				2013/03/14	<5	ND	2.28	96.99
BH3A	99.25	99.31	0.9 - 4.0	2012/06/13	70	ND	3.67	95.65
				2013/02/28	NM	NM	NM	NM
				2013/03/14	65	ND	2.23	97.08
BH5	99.27	99.32	unknown	2012/04/25	30	<1	1.81	97.51
				2012/06/13	70	ND	1.74	97.58
				2013/02/28	>100%	ND	2.40	96.92
				2013/03/14	>100%	ND	2.41	96.91
BH6	99.28	99.35	unknown	2012/04/25	20	ND	1.89	97.46
				2012/06/13	75	ND	1.80	97.55
				2013/02/28	29%	ND	2.39	96.96
				2013/03/14	180	ND	2.44	96.91
BH7	99.32	99.40	unknown	2012/04/25	68%	<1	2.03	97.37
				2012/06/13	>100%	ND	1.95	97.45
				2013/02/28	>100%	ND	2.49	96.91
				2013/03/14	>100%	ND	2.53	96.87

1 - Relative to local benchmark (fire hydrant at northeast corner of Site) having an assigned elevation of 100.00 m

2 - ppmv if not indicated, or % LEL if indicated

3 - Calculated using product thicknesses corrected by a specific gravity of 0.75 g/cm<sup>3</sup>

m - metres

mbgs - metres below ground surface

mm - millimetres

ND - Not detected

NM - Not monitored



## GROUNDWATER MONITORING RESULTS

ASSESSMENT LOCATION	TOP OF PIPE ELEVATION <sup>1</sup> (m)	GROUND SURFACE ELEVATION <sup>1</sup> (m)	SCREEN INTERVAL (mbgs)	DATE (yyyy/mm/dd)	SUBSURFACE VAPOUR CONCENTRATIONS <sup>2</sup>	FREE PRODUCT THICKNESSES (mm)	POTENTIOMETRIC DEPTH <sup>3</sup> (mbgs)	POTENTIOMETRIC ELEVATION <sup>1,3</sup> (m)
BH9	99.63	99.72	unknown	2012/04/25	<5	ND	2.31	97.41
				2012/06/13	55	ND	1.81	97.91
				2013/02/28	60	ND	2.70	97.02
				2013/03/14	45	ND	2.75	96.96
BH17	99.39	99.50	unknown	2012/04/25	180	ND	2.05	97.44
				2012/06/13	NM	NM	NM	NM
				2012/08/16	120	ND	1.98	97.51
				2013/02/28	NM	NM	NM	NM
				2013/03/14	310	ND	2.85	96.65
BH-19	99.28	99.38	0.6 - 3.7	2012/06/13	60	ND	1.82	97.56
				2013/02/28	NM	NM	NM	NM
				2013/03/14	<5	ND	2.04	97.34
BH-20	99.52	99.60	0.9 - 4.0	2012/06/13	50	ND	2.07	97.53
				2013/02/28	470	ND	2.44	97.16
				2013/03/14	6%	ND	2.46	97.14
BH-21	99.62	99.70	0.9 - 4.0	2012/06/13	NM	NM	NM	NM
				2012/07/19	70	ND	1.81	97.89
				2013/02/28	80	ND	2.56	97.14
				2013/03/14	60	ND	2.59	97.11
BH-24	99.51	99.60	0.9 - 4.0	2012/06/13	15%	ND	2.10	97.50
				2013/02/28	>100%	ND	2.62	96.97
				2013/03/14	25%	ND	2.61	96.98

1 - Relative to local benchmark (fire hydrant at northeast corner of Site) having an assigned elevation of 100.00 m

2 - ppmv if not indicated, or % LEL if indicated

3 - Calculated using product thicknesses corrected by a specific gravity of 0.75 g/cm<sup>3</sup>

m - metres

mbgs - metres below ground surface

mm - millimetres

ND - Not detected

NM - Not monitored



## GROUNDWATER MONITORING RESULTS

ASSESSMENT LOCATION	TOP OF PIPE ELEVATION <sup>1</sup> (m)	GROUND SURFACE ELEVATION <sup>1</sup> (m)	SCREEN INTERVAL (mbgs)	DATE (yyyy/mm/dd)	SUBSURFACE VAPOUR CONCENTRATIONS <sup>2</sup>	FREE PRODUCT THICKNESSES (mm)	POTENTIOMETRIC DEPTH <sup>3</sup> (mbgs)	POTENTIOMETRIC ELEVATION <sup>1,3</sup> (m)
BH-25	99.52	99.60	0.9 - 3.1	2012/06/13	30	ND	2.07	97.53
				2012/07/19	25	ND	2.20	97.40
				2013/02/28	5%	ND	2.80	96.79
				2013/03/14	4%	ND	2.84	96.76
BH-26	99.51	99.59	0.9 - 4.0	2012/06/13	35	ND	2.17	97.42
				2013/02/28	240	ND	2.65	96.94
				2013/03/14	45	ND	2.68	96.90
BH-27	99.53	99.59	0.9 - 4.0	2012/06/13	180	ND	1.53	98.05
				2013/02/28	87%	ND	2.81	96.78
				2013/03/14	53%	ND	2.84	96.75
BH-28	99.60	99.70	0.9 - 4.0	2012/06/13	100	ND	1.45	98.25
				2013/02/28	15	ND	2.50	97.19
				2013/03/14	65	ND	2.62	97.08
BH-29	99.81	99.90	0.9 - 4.0	2012/06/13	180	ND	2.56	97.34
				2013/02/28	25	ND	2.46	97.44
				2013/03/14	45	ND	2.57	97.33
BH-34	99.63	99.75	0.6 - 3.7	2013/02/28	<5	ND	ND	ND
				2013/03/14	60	ND	ND	ND
BH-35	99.23	99.37	0.6 - 3.7	2013/02/28	80	ND	2.64	96.72
				2013/03/14	15	ND	2.68	96.69

1 - Relative to local benchmark (fire hydrant at northeast corner of Site) having an assigned elevation of 100.00 m

2 - ppmv if not indicated, or % LEL if indicated

3 - Calculated using product thicknesses corrected by a specific gravity of 0.75 g/cm<sup>3</sup>

m - metres

mbgs - metres below ground surface

mm - millimetres

ND - Not detected

NM - Not monitored



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - APRIL 2012**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-19	BH-19	BH-20	BH-20	BH-20	BH-21	BH-21	CRITERIA	
Maxxam Sample ID	DH0728	DH0729	DH0730	DH0731	DH0732	DH0733	DH0734		
Sample Depth (mbgs)	1.1-1.4	4.1-4.4	2.3-2.6	3.5-3.8	4.7-5.0	2.3-2.6	3.5-3.8	0 - 1.5 mbgs	>1.5 mbgs
Date Sampled (yyyy/mm/dd)	2012/04/26	2012/04/26	2012/04/26	2012/04/26	2012/04/26	2012/04/26	2012/04/26		
<b>PARAMETERS</b>									
Benzene	<0.0050	0.047	<0.060	<0.0050	<0.0050	0.019	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	0.11	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	<0.010	<0.010	11	<0.010	<0.010	0.32	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	<0.040	44	<0.040	<0.040	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<12	<12	<b>860</b>	<12	<12	47	<12	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	<10	170	<10	<10	180	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	78	73	19	46	20	67	73	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	110	46	<10	19	<10	20	34	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.0020	<0.0020	<0.060	<0.0020	<0.0020	<0.020	<0.0020	NV	NV
1,2-Dichloroethane	<0.0020	<0.0020	<0.0020	0.0579	<0.0020	0.0215	<0.0020	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	2.0	14	13	13	14	17	15	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - APRIL 2012**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-22	DUP-22 FIELD DUPLICATE BH-22	BH-22	BH-22	CRITERIA	
	DH0735	DH0736	DH0737	DH0738		
	2.3-2.6	2.3-2.6	3.5-3.8	4.7-5.0	0 - 1.5 mbgs	>1.5 mbgs
Date Sampled (yyyy/mm/dd)	2012/04/26	2012/04/26	2012/04/26	2012/04/26		
PARAMETERS						
Benzene	<b>3.6</b>	<b>4.0</b>	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	7.0	8.2	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	8.5	10	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	130	140	<12	<12	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	40	86	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	<10	11	62	200	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	<10	<10	31	100	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.030	<0.030	<0.0020	<0.0020	NV	NV
1,2-Dichloroethane	0.0977	0.129	<0.0020	<0.0020	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	11	11	14	13	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values - 10<sup>-5</sup> incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - APRIL 2012**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-23	DUP-23 FIELD DUPLICATE BH-23	BH-23	BH-23	CRITERIA	
Maxxam Sample ID	DH0621	DH0622	DH0623	DH0722		
Sample Depth (mbgs)	2.3-2.6	2.3-2.6	2.9-3.2	4.7-5.0		
Date Sampled (yyyy/mm/dd)	2012/04/26	2012/04/26	2012/04/26	2012/04/26	0 - 1.5 mbgs	>1.5 mbgs
<b>PARAMETERS</b>						
Benzene	0.31	0.23	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	0.16	0.084	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	7.1	2.3	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	41	13	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	230	53	<12	<12	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	100	60	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	<10	10	16	39	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	13	18	13	23	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.040	<0.020	<0.0020	<0.0020	NV	NV
1,2-Dichloroethane	<0.0020	<0.0020	0.121	<0.0020	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	4.1	5.3	16	16	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values - 10<sup>-5</sup> incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - APRIL 2012**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-24	BH-24	BH-24	BH-25	DUP-25 FIELD DUPLICATE BH-25	CRITERIA	
	DH0739	DH0740	DH0741	DH0742	DH0743		
	2.3-2.6	3.5-3.8	4.7-5.0	1.7-2.0	1.7-2.0	0 - 1.5 mbgs	>1.5 mbgs
Date Sampled (yyyy/mm/dd)	2012/04/26	2012/04/26	2012/04/26	2012/04/26	2012/04/26		
PARAMETERS							
Benzene	<b>7.0</b>	0.031	<0.0050	0.62	1.8	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	20	0.071	<0.020	0.056	0.091	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	8.4	<0.010	<0.010	2.9	4.2	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	44	<0.040	<0.040	3.9	5.5	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	110	<12	<12	140	170	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	130	<10	<10	170	89	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	29	74	41	16	13	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	<10	41	27	<10	<10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.0040	<0.0020	<0.0020	<0.030	<0.030	NV	NV
1,2-Dichloroethane	<0.0020	0.0113	<0.0020	<0.0020	<0.0020	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	3.4	13	11	8.8	9.8	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - APRIL 2012**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-25	BH-25	BH-26	BH-26	BH-27	BH-27	CRITERIA	
Maxxam Sample ID	DH0744	DH0745	DH0746	DH0747	DH0723	DH0724		
Sample Depth (mbgs)	3.5-3.8	4.7-5.0	1.7-2.0	2.3-2.6	1.7-2.0	2.3-2.6	0 - 1.5 mbgs	>1.5 mbgs
Date Sampled (yyyy/mm/dd)	2012/04/26	2012/04/26	2012/04/26	2012/04/26	2012/04/27	2012/04/27		
<b>PARAMETERS</b>								
Benzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	<0.010	<0.010	<0.010	<0.010	8.2	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	<0.040	<0.040	<0.040	12	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<12	<12	<12	<12	660	<12	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	<10	<10	<10	200	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	72	70	42	50	<10	24	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	39	35	19	24	11	<10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.0020	<0.0020	<0.0020	<0.0020	0.0402	<0.0020	NV	NV
1,2-Dichloroethane	0.0346	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	13	12	12	12	2.9	15	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - APRIL 2012**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-28	BH-28	BH-29	BH-29	CRITERIA	
Maxxam Sample ID	DH0725	DH0726	DH0748	DH0752		
Sample Depth (mbgs)	0.5-0.8	2.3-2.6	1.1-1.4	2.3-2.6		
Date Sampled (yyyy/mm/dd)	2012/04/27	2012/04/27	2012/04/27	2012/04/27	0 - 1.5 mbgs	>1.5 mbgs
<b>PARAMETERS</b>						
Benzene	<0.0050	<0.0050	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	0.19	<0.010	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	0.57	<0.040	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	43	<12	<12	<12	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	90	<10	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	1900	20	<10	17	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	3000	10	<10	10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.020	<0.0020	<0.0020	<0.0020	NV	NV
1,2-Dichloroethane	<0.0020	<0.0020	<0.0020	<0.0020	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	36	16	7.8	18	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - OCTOBER 2012 - VERTICAL BOREHOLES  
PETEROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-30	BH-30	BH-30	BH-33	DUP-33 FIELD DUPLICATE BH-33	BH-33	BH-33	CRITERIA	
Maxxam Sample ID	ET5009	ET5010	ET5011	ET5071	ET5072	ET5073	ET5074		
Sample Depth (mbgs)	1.2-1.8	2.4-3.1	3.7-4.3	1.2-1.8	1.2-1.8	2.4-3.1	3.7-4.3		
Date Sampled (yyyy/mm/dd)	2012/10/16	2012/10/16	2012/10/16	2012/10/16	2012/10/16	2012/10/16	2012/10/16	0 - 1.5 mbgs	>1.5 mbgs
<b>PARAMETERS</b>									
Benzene	<0.0050	<0.0050	<0.0050	0.17	0.29	0.013	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	<0.010	0.011	0.13	0.18	0.26	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	0.046	0.10	0.30	0.49	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<10	<10	<10	11	<10	<10	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	19	<10	<20	<20	<20	<20	<20	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	420	85	<20	24	<20	<20	<20	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	65	28	<20	<20	<20	<20	<20	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	2.02	1.97	15.8	7.01	6.40	16.1	15.5	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values - 10<sup>-5</sup> incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - OCTOBER 2012 - ANGLED BOREHOLES (45 degrees)  
PETEROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-31	BH-31	BH-31	BH-31	DUP-31 FIELD DUPLICATE BH-31	BH-32	BH-32	BH-32	CRITERIA	
Maxxam Sample ID	ET5012	ET5013	ET5014	ET5015	ET5016	ET5068	ET5069	ET5070		
Sample Down Hole Depth (mbgs)	0.6-1.2	1.8-2.4	3.1-3.7	4.3-4.9	4.3-4.9	1.2-1.8	2.4-3.1	3.7-4.3		
Date Sampled (yyyy/mm/dd)	2012/10/16	2012/10/16	2012/10/16	2012/10/16	2012/10/16	2012/10/16	2012/10/16	2012/10/16	0 - 1.5 mbgs	>1.5 mbgs
<b>PARAMETERS</b>										
Benzene	0.039	<0.0050	<0.0050	<0.0050	<0.0050	0.075	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	<0.020	0.046	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	0.040	<0.010	<0.010	<0.010	<0.010	0.078	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	<0.040	<0.040	<0.040	<0.040	2.9	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	12	<10	27	<10	25	36	<10	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<20	<20	110	72	160	130	<20	98	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	<20	26	<20	<20	37	310	<20	<20	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	<20	<20	<20	<20	<20	2100	<20	<20	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	21.1	13.0	13.3	12.7	11.5	19.6	14.4	9.57	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values - 10<sup>-5</sup> incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-34	BH-34	BH-34	BH-34	BH-35	BH-35	BH-35	CRITERIA	
Maxxam Sample ID	FS0783	FS0785	FS0787	FS0789	FS0841	FS0843	FS0845		
Sample Depth (mbgs)	0.6-1.2	1.8-2.4	3.0-3.6	4.2-4.8	0.6-1.2	2.4-3.0	4.2-4.8	0 - 1.5 mbgs	>1.5 mbgs
Date Sampled (yyyy/mm/dd)	2013/02/21	2013/02/21	2013/02/21	2013/02/21	2013/02/21	2013/02/21	2013/02/21		
<b>PARAMETERS</b>									
Benzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<10	<10	<10	<10	<10	<10	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	<10	<10	<10	<10	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	<10	23	53	36	<10	<10	11	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	<10	<10	12	<10	<10	<10	<10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	5.58	17.0	16.6	16.2	14.8	4.06	14.3	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-36	BH-36	BH-36	BH-36	DUP-36 FIELD DUPLICATE BH-36	CRITERIA	
Maxxam Sample ID	FS0579	FS0580	FS0581	FS0582	FS0583		
Sample Depth (mbgs)	0.6-1.2	2.4-3.0	3.6-4.2	5.4-6.0	5.4-6.0		
Date Sampled (yyyy/mm/dd)	2013/02/21	2013/02/21	2013/02/21	2013/02/21	2013/02/21	0 - 1.5 mbgs	>1.5 mbgs
PARAMETERS							
Benzene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	<0.010	<0.010	<0.010	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	<0.040	<0.040	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<10	<10	<10	<10	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	<10	<10	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	<10	52	30	25	<10	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	<10	33	<10	<10	<10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	15.1	14.8	15.6	15.9	13.8	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values - 10<sup>-5</sup> incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-37	BH-37	BH-37	BH-37	CRITERIA	
Maxxam Sample ID	FS0847	FS0848	FS0849	FS0850		
Sample Depth (mbgs)	0.0-0.6	1.8-2.4	3.0-3.6	4.2-4.8		
Date Sampled (yyyy/mm/dd)	2013/02/21	2013/02/21	2013/02/21	2013/02/21	0 - 1.5 mbgs	>1.5 mbgs
<b>PARAMETERS</b>						
Benzene	0.57	<0.0050	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	0.040	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	0.34	<0.010	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	0.33	<0.040	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<10	<10	<10	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	190	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	100	55	<10	17	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	73	<10	<10	<10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	<b>270</b>	5.94	15.3	16.4	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values - 10<sup>-5</sup> incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-38	BH-38	BH-38	DUP-38 FIELD DUPLICATE BH-38	BH-38	CRITERIA	
Maxxam Sample ID	FS0584	FS0585	FS0586	FS0587	FS0588		
Sample Depth (mbgs)	0.6-1.2	1.8-2.4	3.0-3.6	3.0-3.8	4.8-5.4		
Date Sampled (yyyy/mm/dd)	2013/02/21	2013/02/21	2013/02/21	2013/02/21	2013/02/21	0 - 1.5 mbgs	>1.5 mbgs
PARAMETERS							
Benzene	0.0093	0.0099	<0.0050	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	0.030	0.018	<0.010	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	<0.040	<0.040	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	15	<10	<10	<10	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	<10	<10	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	<10	<10	10	23	46	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	<10	<10	<10	<10	12	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	14.4	4.18	12.8	14.5	15.7	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values - 10<sup>-5</sup> incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-39	BH-39	BH-39	BH-39	CRITERIA	
	FS0791	FS0792	FS0793	FS0794		
	0.6-1.2	1.8-2.4	3.0-3.6	4.8-5.4	0 - 1.5 mbgs	>1.5 mbgs
Date Sampled (yyyy/mm/dd)	2013/02/21	2013/02/21	2013/02/21	2013/02/21		
PARAMETERS						
Benzene	<0.0050	<0.0050	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	<0.010	0.062	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	0.21	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<10	23	<10	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	24	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	11	29	12	22	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	<10	10	<10	<10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	14.3	14.4	16.9	16.1	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-40	BH-40	BH-40	BH-41	BH-41	BH-41	CRITERIA	
Maxxam Sample ID	FS2846	FS2847	FS2848	FS2849	FS2850	FS2851		
Sample Depth (mbgs)	0.6-1.2	2.4-3.0	4.8-5.4	2.4-3.0	3.0-3.6	3.6-4.2	0 - 1.5 mbgs	>1.5 mbgs
Date Sampled (yyyy/mm/dd)	2013/02/22	2013/02/22	2013/02/22	2013/02/22	2013/02/22	2013/02/22		
<b>PARAMETERS</b>								
Benzene	<0.0050	<0.0050	<0.0050	1.5	1.5	0.014	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	0.034	0.033	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	<0.010	<0.010	<0.010	1.2	1.2	0.020	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	<0.040	<0.040	0.66	0.65	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<10	<10	<10	61	59	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	<10	<10	44	40	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	68	170	13	39	15	50	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	42	130	<10	12	<10	23	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	2.84	2.84	15.4	15.9	15.5	17.2	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-42	BH-42	BH-42	CRITERIA	
	FS2852	FS2853	FS2854		
	0.6-1.2	1.8-2.4	3.0-3.6		
	2013/02/22	2013/02/22	2013/02/22	0 - 1.5 mbgs	>1.5 mbgs
<b>PARAMETERS</b>					
Benzene	<0.0050	<0.0050	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	<0.020	<0.020	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	<0.010	<0.010	<0.010	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	<0.040	<0.040	<0.040	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	<10	<10	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	<10	<10	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	<10	31	45	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	<10	<10	10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	1.63	13.6	16.0	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values - 10<sup>-5</sup> incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-43	BH-43	DUP-43 FIELD DUPLICATE BH-43	BH-43	BH-43	CRITERIA	
Maxxam Sample ID	FS2967	FS2968	FS2969	FS2970	FS2971		
Sample Depth (mbgs)	0.0-0.6	1.8-2.4	1.8-2.4	2.4-3.0	3.0-3.6		
Date Sampled (yyyy/mm/dd)	2013/02/22	2013/02/22	2013/02/22	2013/02/22	2013/02/22	0 - 1.5 mbgs	>1.5 mbgs
<b>PARAMETERS</b>							
Benzene	0.29	0.97	2.5	1.5	<0.0050	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	0.076	2.2	4.9	<0.029	<0.020	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	0.85	20	22	6.1	0.032	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	2.0	77	100	7.4	0.059	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	54	<b>840</b>	550	140	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	200	260	82	64	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	350	17	24	13	33	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	270	<10	<10	<10	<10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	49.2	15.5	13.7	17.7	16.3	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - FEBRUARY 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS	BH-44	BH-44	BH-44	DUP-44 FIELD DUPLICATE BH-44	BH-44	BH-44	CRITERIA	
Maxxam Sample ID	FS2972	FS2973	FS2974	FS2975	FS2976	FS2977		
Sample Depth (mbgs)	0.0-0.6	1.2-1.8	1.8-2.4	1.8-2.4	2.4-3.0	3.0-3.6		
Date Sampled (yyyy/mm/dd)	2013/02/22	2013/02/22	2013/02/22	2013/02/22	2013/02/22	2013/02/22	0 - 1.5 mbgs	>1.5 mbgs
<b>PARAMETERS</b>								
Benzene	1.6	<b>3.1</b>	<b>6.5</b>	<b>5.3</b>	1.1	<0.017	2.8 <sup>a,c</sup>	2.9 <sup>b,c</sup>
Toluene	0.59	19	28	20	1.1	0.043	330 <sup>a</sup>	660 <sup>b</sup>
Ethylbenzene	5.9	17	19	15	8.4	0.041	430 <sup>a</sup>	860 <sup>b</sup>
Total Xylenes	49	160	110	81	23	0.15	230 <sup>a</sup>	460 <sup>b</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>h</sup>	160	<b>1500</b>	550	460	250	<10	320 <sup>d</sup>	800 <sup>e</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>i</sup>	110	<b>520</b>	130	170	84	<10	260 <sup>d</sup>	1000 <sup>e</sup>
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>j</sup>	170	<10	<10	<10	<10	18	2500 <sup>d</sup>	5000 <sup>e</sup>
Petroleum Hydrocarbons F4 (>C34 - C50)	64	<10	<10	<10	<10	10	6600 <sup>d</sup>	10 000 <sup>e</sup>
1,2-Dibromoethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	NV	NV
1,2-Dichloroethane	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.37 <sup>f</sup>	0.37 <sup>f</sup>
Lead	56.8	18.1	6.87	6.75	6.58	15.1	260 <sup>g</sup>	260 <sup>g</sup>

a - Canadian Council of Ministers of the Environment (CCME); Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in surface soil (fine-grained soils, commercial land use)

b - CCME; Canadian Environmental Quality Guidelines (2012);

Soil quality guidelines and check values in subsoil (fine-grained soils, commercial land use)

c - Human health guidelines/check values -  $10^{-5}$  incremental risk

d - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained surface soils (commercial land use)

e - CCME; Canada Wide Standards for Petroleum Hydrocarbons in Soil (2008);

Tier 1 levels for PHCs for fine grained subsoils (commercial land use)

f - Alberta Soil and Groundwater Remediation Guidelines (2010);

Surface Soil Remediation Guideline Values for Commercial Land Use (fine-grained soils)

g - CCME; Canadian Environmental Quality Guidelines (2012); Soil quality guidelines and check values (commercial land use)

h - BTEX have been subtracted from the fraction

i - Naphthalene has not been subtracted from the fraction

j - PAHs have not been subtracted from the fraction

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilogram (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL ANALYSES AND APPLICABLE CRITERIA - APRIL 2012**  
**SELECTED POLYCYCLIC AROMATIC HYDROCARBONS**

SAMPLE LOCATIONS	BH-21	BH-21	BH-29	BH-29	CRITERIA <sup>a</sup>
Maxxam Sample ID	DH0733	DH0734	DH0748	DH0752	
Sample Depth (mbgs)	2.3-2.6	3.5-3.8	1.1-1.4	2.3-2.6	
Date Sampled (yyyy/mm/dd)	2012/04/26	2012/04/26	2012/04/27	2012/04/27	
PARAMETERS					
Benzo(a)pyrene	<0.0050	<0.0050	<0.0050	<0.0050	72
Benzo[a]pyrene equivalency	<0.10	<0.10	<0.10	<0.10	5.3 <sup>b</sup>
Naphthalene	<0.041	<0.0050	<0.0050	<0.0050	22

a - Canadian Council of Ministers of the Environment (CCME);  
 Canadian Environmental Quality Guidelines (2012);  
 Soil Quality Guidelines for Carcinogenic and Other PAHs (commercial land use)

b - Human health guidelines/check values -  $10^{-5}$  incremental risk

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilograms (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF SOIL CHEMICAL ANALYSES AND APPLICABLE CRITERIA - APRIL 2012**  
**SELECTED METALS AND SELECTED GLYCOLS**

SAMPLE LOCATIONS	BH-21	BH-21	BH-29	BH-29	CRITERIA <sup>a</sup>
Maxxam Sample ID	DH0733	DH0734	DH0748	DH0752	
Sample Depth (mbgs)	2.3-2.6	3.5-3.8	1.1-1.4	2.3-2.6	
Date Sampled (yyyy/mm/dd)	2012/04/26	2012/04/26	2012/04/27	2012/04/27	
PARAMETERS					
Arsenic	11	<b>13</b>	4.5	11	12
Barium	260	210	120	220	2000
Chromium (Total)	60	49	21	58	87
Copper	41	38	14	41	91
Zinc	100	98	32	100	360
Ethylene Glycol	<10	<10	<10	<10	960
Propylene Glycol	<10	<10	<10	<10	NV

a - Canadian Council of Ministers of the Environment (CCME);

Canadian Environmental Quality Guidelines (2012)

Soil quality guidelines and check values (commercial land use)

NV - No Value

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilograms (mg/kg) on a dry weight basis

**BOLD** - Exceeds applicable criterion



**RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - JUNE, JULY AND AUGUST 2012**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS**

SAMPLE LOCATIONS	BH1	BH2	BH3A	BH5	DUP-2 FIELD DUPLICATE BH-5	BH6	CRITERIA
Maxxam Sample ID	DZ4277	DZ4278	DR8185	DR8266	DR8267	DR8270	
Date Sampled (yyyy/mm/dd)	2012/07/19	2012/07/19	2012/06/13	2012/06/13	2012/06/13	2012/06/13	
<b>PARAMETERS</b>							
Benzene	<0.0004	<0.0004	<0.00040	0.440	0.360	0.360	19 <sup>a</sup>
Toluene	<0.0004	<0.0004	<0.00040	0.100	0.081	0.030	240 <sup>a</sup>
Ethylbenzene	<0.0004	<0.0004	<0.00040	2.000	1.800	0.830	150 <sup>a</sup>
Total Xylenes	<0.0008	<0.0008	<0.00080	11.000	9.800	3.700	74 <sup>a</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>c</sup>	<0.3	<0.3	<0.100	8.800	<b>13.000</b>	2.500	9.9 <sup>a</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>d</sup>	<0.15	<0.15	<0.10	2.1	2.1	1.1	3.1 <sup>a</sup>
1,2-Dibromoethane	<0.00020	<0.00020	<0.00050	<0.00050	<0.00050	-	NV
1,2-Dichloroethane	0.0020	<0.00050	0.0025	0.0019	0.0015	-	1.2 <sup>a</sup>
Dissolved Lead (Pb)	<0.00050	<0.00050	<0.00020	0.00059	0.00049	-	0.025 <sup>b</sup>

a - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);

Groundwater Remediation Guideline Values for Commercial/Industrial (fine grained soils)

b - Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act; (Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)

c - BTEX have been subtracted from the fraction

d - Naphthalene has not been subtracted from the fraction

Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

"-" - Not analyzed

**BOLD** - Exceeds applicable criterion



RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - JUNE, JULY AND AUGUST 2012  
PETEROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS

SAMPLE LOCATIONS	BH7	DUP-1 FIELD DUPLICATE BH-7	BH9	BH17	BH-19	BH-20	CRITERIA
Maxxam Sample ID	DR8264	DR8265	DR8218	EF2286	DR8187	DR8186	
Date Sampled (yyyy/mm/dd)	2012/06/13	2012/06/13	2012/06/13	2012/08/16	2012/06/13	2012/06/13	
PARAMETERS							
Benzene	4.800	4.900	<0.00040	0.0021	0.00082	0.340	19 <sup>a</sup>
Toluene	0.200	0.230	<0.00040	0.0006	0.00090	0.014	240 <sup>a</sup>
Ethylbenzene	0.290	0.290	<0.00040	0.011	<0.00040	0.0063	150 <sup>a</sup>
Total Xylenes	2.300	2.400	<0.00080	0.010	<0.00080	4.000	74 <sup>a</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>c</sup>	4.000	6.100	<0.100	<0.300	<0.100	5.600	9.9 <sup>a</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>d</sup>	<b>4.3</b>	3.1	<0.10	0.52	<0.10	<b>4.8</b>	3.1 <sup>a</sup>
1,2-Dibromoethane	<0.00050	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050	NV
1,2-Dichloroethane	0.024	0.027	<0.00050	<0.00050	<0.00050	0.035	1.2 <sup>a</sup>
Dissolved Lead (Pb)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0.0015	0.025 <sup>b</sup>

a - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);

Groundwater Remediation Guideline Values for Commercial/Industrial (fine grained soils)

b - Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;  
(Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)

c - BTEX have been subtracted from the fraction

d - Naphthalene has not been subtracted from the fraction

Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

"-" - Not analyzed

**BOLD** - Exceeds applicable criterion



RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - JUNE, JULY AND AUGUST 2012  
PETEROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS

SAMPLE LOCATIONS	BH-21	DUP-1 FIELD DUPLICATE BH-21	BH-24	BH-25	BH-25	CRITERIA
Maxxam Sample ID	DZ4280	DZ4281	DR8188	DR8189	DZ4279	
Date Sampled (yyyy/mm/dd)	2012/07/19	2012/07/19	2012/06/13	2012/06/13	2012/07/19	
PARAMETERS						
Benzene	0.0008	0.0015	<b>22.000</b>	2.900	3.000	19 <sup>a</sup>
Toluene	<0.0004	0.0006	30.000	0.150	0.066	240 <sup>a</sup>
Ethylbenzene	0.0013	0.0044	2.600	1.500	1.300	150 <sup>a</sup>
Total Xylenes	<0.0008	<0.0008	14.000	3.000	2.600	74 <sup>a</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>c</sup>	<0.3	<0.3	7.500	9.700	<0.300	9.9 <sup>a</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>d</sup>	0.25	<0.15	2.9	2.3	2.3	3.1 <sup>a</sup>
1,2-Dibromoethane	<0.00020	<0.00020	<0.00050	<0.00050	<0.00020	NV
1,2-Dichloroethane	<0.0018	<0.0028	0.036	0.010	<0.00050	1.2 <sup>a</sup>
Dissolved Lead (Pb)	<0.00020	<0.00020	0.0018	<0.00020	<0.00020	0.025 <sup>b</sup>

a - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);

Groundwater Remediation Guideline Values for Commercial/Industrial (fine grained soils)

b - Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act; (Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)

c - BTEX have been subtracted from the fraction

d - Naphthalene has not been subtracted from the fraction

Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

"-" - Not analyzed

**BOLD** - Exceeds applicable criterion



RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - JUNE, JULY AND AUGUST 2012  
PETEROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS

SAMPLE LOCATIONS	BH-26	BH-27	BH-28	BH-29	CRITERIA
Maxxam Sample ID	DR8214	DR8215	DR8216	DR8217	
Date Sampled (yyyy/mm/dd)	2012/06/13	2012/06/13	2012/06/13	2012/06/13	
PARAMETERS					
Benzene	<0.00040	0.016	<0.00040	<0.00040	19 <sup>a</sup>
Toluene	<0.00040	0.0016	<0.00040	<0.00040	240 <sup>a</sup>
Ethylbenzene	<0.00040	0.099	<0.00040	<0.00040	150 <sup>a</sup>
Total Xylenes	<0.00080	0.860	<0.00080	<0.00080	74 <sup>a</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>c</sup>	<0.100	8.100	<0.100	<0.100	9.9 <sup>a</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>d</sup>	<0.10	<b>5.6</b>	<0.10	<0.10	3.1 <sup>a</sup>
1,2-Dibromoethane	<0.00050	<0.00050	<0.00050	<0.00050	NV
1,2-Dichloroethane	<0.00050	<0.00050	<0.00050	<0.00050	1.2 <sup>a</sup>
Dissolved Lead (Pb)	<0.00020	<0.00020	<0.00020	0.00021	0.025 <sup>b</sup>

a - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);

Groundwater Remediation Guideline Values for Commercial/Industrial (fine grained soils)

b - Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act; (Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)

c - BTEX have been subtracted from the fraction

d - Naphthalene has not been subtracted from the fraction

Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

"-" - Not analyzed

**BOLD** - Exceeds applicable criterion



**RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - MARCH 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS**

SAMPLE LOCATIONS	BH1	BH3A	BH5	DUP-1 FIELD DUPLICATE BH5	BH6	BH7	DUP-2 FIELD DUPLICATE BH7	CRITERIA
Maxxam Sample ID	FW9339	FW9465	FW9341	FW9343	FW9345	FW9549	FW9550	
Date Sampled (yyyy/mm/dd)	2013/03/15	2013/03/14	2013/03/15	2013/03/15	2013/03/15	2013/03/15	2013/03/15	
<b>PARAMETERS</b>								
Benzene	<0.0004	<0.0004	0.76	0.71	0.40	3.6	3.4	19 <sup>a</sup>
Toluene	<0.0004	<0.0004	0.12	0.12	0.022	0.069	0.072	240 <sup>a</sup>
Ethylbenzene	<0.0004	<0.0004	2.1	2.1	0.76	0.56	0.58	150 <sup>a</sup>
Total Xylenes	<0.0008	<0.0008	11	12	2.4	2.0	2.1	74 <sup>a</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>c</sup>	<0.3	<0.3	5.3	2.5	1.1	3.6	3.8	9.9 <sup>a</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>d</sup>	<0.15	<0.15	2.9	2.9	1.1	2.7	2.9	3.1 <sup>a</sup>
1,2-Dibromoethane	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	NV
1,2-Dichloroethane	0.0039	<0.0028	<0.031	<0.027	<0.023	<0.086	<0.00050	1.2 <sup>a</sup>
Dissolved Lead (Pb)	0.00021	<0.00020	0.00061	0.00061	0.00025	<0.00020	<0.00020	0.025 <sup>b</sup>

a - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);

Groundwater Remediation Guideline Values for Commercial/Industrial (fine grained soils)

b - Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act;  
(Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)

c - BTEX have been subtracted from the fraction

d - Naphthalene has not been subtracted from the fraction

Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

**BOLD** - Exceeds applicable criterion



**RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - MARCH 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS**

SAMPLE LOCATIONS	BH9	BH17	BH-19	BH-20	BH-21	BH-24	CRITERIA
Maxxam Sample ID	FW9551	FW9552	FW9308	FW9305	FW9467	FW9307	
Date Sampled (yyyy/mm/dd)	2013/03/15	2013/03/15	2013/03/14	2013/03/14	2013/03/14	2013/03/14	
<b>PARAMETERS</b>							
Benzene	<0.0004	0.027	0.0031	1.2	0.0028	14	19 <sup>a</sup>
Toluene	<0.0004	0.0008	<0.0004	0.0020	<0.0004	11	240 <sup>a</sup>
Ethylbenzene	<0.0004	0.065	<0.0004	0.45	0.0007	2.2	150 <sup>a</sup>
Total Xylenes	<0.0008	<0.0008	<0.0008	0.91	<0.0008	9.5	74 <sup>a</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>c</sup>	<0.3	0.4	<0.3	2.8	<0.3	4.0	9.9 <sup>a</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>d</sup>	<0.15	0.82	<0.15	1.2	0.31	1.3	3.1 <sup>a</sup>
1,2-Dibromoethane	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	NV
1,2-Dichloroethane	<0.00050	<0.00050	<0.00050	<0.180	<0.0097	<0.00050	1.2 <sup>a</sup>
Dissolved Lead (Pb)	<0.00020	<0.00020	<0.00020	0.00086	<0.00040	0.00101	0.025 <sup>b</sup>

a - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);

Groundwater Remediation Guideline Values for Commercial/Industrial (fine grained soils)

b - Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act; (Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)

c - BTEX have been subtracted from the fraction

d - Naphthalene has not been subtracted from the fraction

Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

**BOLD** - Exceeds applicable criterion



**RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - MARCH 2013**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS**

SAMPLE LOCATIONS	BH-25	BH-26	BH-27	BH-28	BH-29	BH-35	CRITERIA
Maxxam Sample ID	FW9268	FW9466	FW9468	FW9306	FW9475	FW9474	
Date Sampled (yyyy/mm/dd)	2013/03/14	2013/03/14	2013/03/14	2013/03/14	2013/03/14	2013/03/14	
<b>PARAMETERS</b>							
Benzene	0.53	<0.0004	0.0030	<0.0004	<0.0004	<0.0004	19 <sup>a</sup>
Toluene	0.0065	<0.0004	0.0006	<0.0004	<0.0004	<0.0004	240 <sup>a</sup>
Ethylbenzene	0.23	<0.0004	0.35	<0.0004	<0.0004	<0.0004	150 <sup>a</sup>
Total Xylenes	0.43	<0.0008	0.61	<0.0008	<0.0008	<0.0008	74 <sup>a</sup>
Petroleum Hydrocarbons F1 (C6 - C10) <sup>c</sup>	0.6	<0.3	7.1	<0.3	<0.3	<0.3	9.9 <sup>a</sup>
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>d</sup>	0.80	<0.15	<b>3.8</b>	<0.15	<0.15	<0.15	3.1 <sup>a</sup>
1,2-Dibromoethane	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	NV
1,2-Dichloroethane	<0.00050	<0.00050	<0.0023	<0.00050	<0.00050	<0.00050	1.2 <sup>a</sup>
Dissolved Lead (Pb)	<0.00020	<0.00020	-	<0.00040	<0.00020	<0.00020	0.025 <sup>b</sup>

a - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);

Groundwater Remediation Guideline Values for Commercial/Industrial (fine grained soils)

b - Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act; (Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)

c - BTEX have been subtracted from the fraction

d - Naphthalene has not been subtracted from the fraction

Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

**BOLD** - Exceeds applicable criterion



**RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - JUNE AND JULY 2012**  
**SELECTED POLYCYCLIC AROMATIC HYDROCARBONS**

SAMPLE LOCATIONS	BH-21	DUP-1 FIELD DUPLICATE BH-21	BH-29	CRITERIA <sup>a</sup>
Maxxam Sample ID	DZ4280	DZ4281	DR8217	
Date Sampled (yyyy/mm/dd)	2012/07/19	2012/07/19	2012/06/13	
PARAMETERS				
Acenaphthene	<0.000080	<0.00016	<0.00010	NV
Anthracene	<0.000010	<0.000010	<0.000010	0.32
Benzo(a)anthracene	<0.000010	<0.000010	<0.0000085	NV
Benzo(a)Pyrene	<0.0000090	<0.0000090	<0.0000075	0.0066
Benzo[a]pyrene equivalency	-	-	<0.000010	NV
Fluoranthene	<0.000020	<0.000020	<0.000040	0.86
Fluorene	<0.000050	<0.000078	<0.000050	NV
Naphthalene	<0.00030	<0.00046	<0.00010	NV
Phenanthrene	<0.000050	<0.000050	<0.000050	NV
Pyrene	<0.000020	<0.000020	<0.000020	NV

<sup>a</sup> - Alberta Tier 1 Soil and Groundwater Remediation Guidelines (2010);

Groundwater Remediation Guideline Values for Commercial/Industrial (fine-grained soils)

Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

"-" - Not analyzed

**BOLD** - Exceeds applicable criterion



**RESULTS OF HYDROCHEMICAL ANALYSES AND APPLICABLE CRITERIA - JUNE AND JULY 2012  
SELECTED METALS AND SELECTED GLYCOLS**

<b>SAMPLE LOCATIONS</b>	<b>BH-21</b>	<b>DUP-1 FIELD DUPLICATE BH-21</b>	<b>BH-29</b>	<b>CRITERIA<sup>a</sup></b>
<b>Maxxam Sample ID</b>	<b>DZ4280</b>	<b>DZ4281</b>	<b>DR8217</b>	
<b>Date Sampled (yyyy/mm/dd)</b>	<b>2012/07/19</b>	<b>2012/07/19</b>	<b>2012/06/13</b>	
<b>PARAMETERS</b>				
Dissolved Arsenic (As)	0.00204	0.00250	0.0014	1.9
Dissolved Barium (Ba)	0.155	0.214	0.027	29
Dissolved Chromium (Cr)	<0.0010	<0.0010	<0.010	0.81
Dissolved Copper (Cu)	0.00353	0.00267	0.0048	0.087
Dissolved Zinc (Zn)	0.0079	0.0062	0.010	1.1
Ethylene Glycol	<10	<10	<10	NV
Propylene Glycol	<10	<10	<10	NV

a - Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act; (Ontario Ministry of Environment and Energy, 2011); (non-potable groundwater criteria; all property uses)  
Results for all parameters are reported in milligrams per litre (mg/L)

NV - No Value

**BOLD** - Exceeds applicable criterion



**APPENDIX A**

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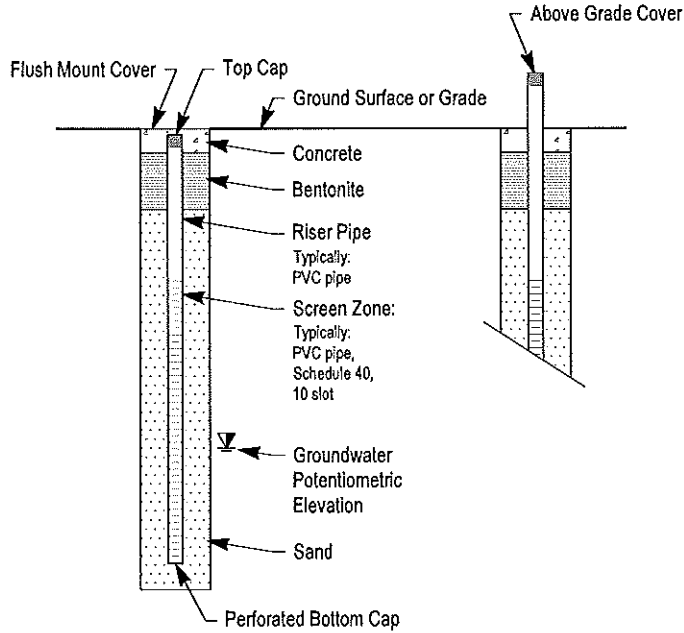
**BOREHOLE LOGS**



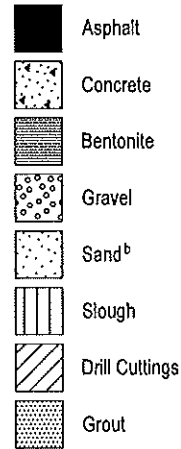
# BOREHOLE LOG LEGEND

## Overburden

### Monitoring Well Details <sup>a</sup>



### Backfill Legend



### Notes

- a A generalized representation to show the well construction depicted on logs. Refer to log for specific well construction and backfill details.
- b #2 well pack silica sand

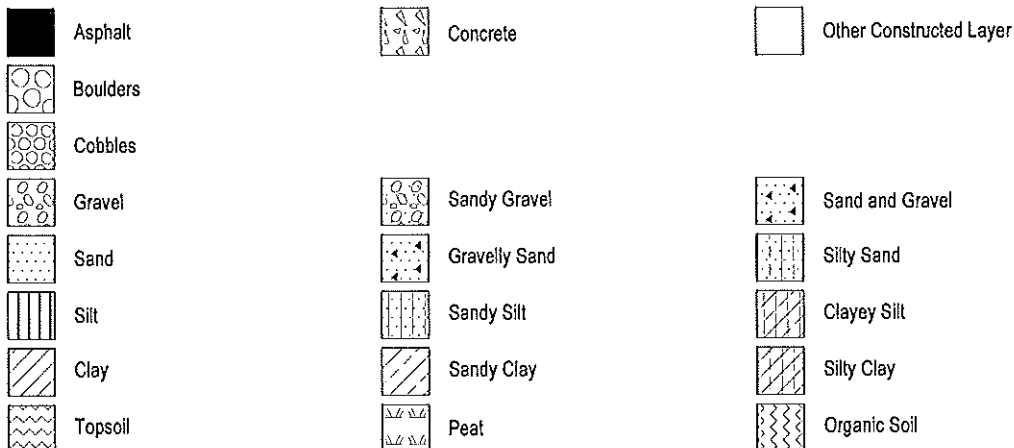
### Sample Type

- DC Drill Cutting  
G Grab  
SL Sleeved Tube  
SS Split Spoon  
ST Shelby Tube  
OS Other

Grab Samples are obtained by a stainless steel spoon, side wall sampler, hand auger or other sampling tool.

'N' Value is determined from a Standard Penetration Test. R represents a blow count of 50 or greater for a drive distance of 150 mm or less.




### Stratigraphy Legend





# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH3A
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: 99.25 m	START DATE: 2012/04/25
CLIENT: Suncor Energy Inc.	GRADE ELEV.: 99.31 m	COMPLETION DATE: 2012/04/25
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

Depth (m) Water Level	DESCRIPTION		SAMPLING				SOIL VAPOUR CONCENTRATION (ppmv)	SOIL VAPOUR CONCENTRATION (%LEL)	COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level	
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N° VALUE	RECOVERY %						SAMPLE NAME/ LAB ANALYSES
0	ASPHALT											
	GRAVEL (Fill) - light brown, trace sand, damp											
	CLAY - black, some silt, trace gravel and sand, damp											
-1	- olive, gray and orange mottling, white inclusions below 1.1 m											
	- moist below 1.5 m											
-2												
-3												
-4												
-5	END OF BOREHOLE AT 4.6 m											
-6												
-7												
-8												
-9												
-10												

Groundwater  
 Potentiometric Surface  
 on 2012/06/13  
 Monitoring Well Installed,  
 Screened from 0.9 m to  
 4.0 m, Well Dia. 51 mm

START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: Rkl Eagle
0.0 m	254 mm	B-40; Hollow Stem Auger	Maple Leaf Drilling Limited	LOGGED: GWC   REVIEW: RAB   DRAFTED: EHC

PARSONS



# BOREHOLE LOG

PROJECT: Environmental Site Assessment							REF. NO: 10-1177.100				BOREHOLE NO: BH-19							
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba							TPC ELEV.: 99.28 m				START DATE: 2012/04/25							
CLIENT: Suncor Energy Inc.							GRADE ELEV.: 99.38 m				COMPLETION DATE: 2012/04/25							
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)											PAGE 1 of 1							
		DESCRIPTION			SAMPLING													
Depth (m) Water Level	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	'N' VALUE	RECOVERY %	SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)				◆ SOIL VAPOUR CONCENTRATION (%LEL)				COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level
								100	200	300	400	20	40	60	80			
0	ASPHALT																	
-1	SAND (Fill) - light brown, medium to fine grained, gravelly, some silt, trace clay, damp		1	G	-	-	BH-19-1.1-1.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA											
	GRAVEL (Fill) - light brown, fine grained, sandy, damp		2	G	-	-												
-2	- wet below 1.8 m		3	SS	-	-												
	- gray, petroleum odour from 2.1 m to 4.0 m		4	SS	-	-												
-3			5	SS	-	-												
			6	SS	-	-												
-4	CLAY - olive, trace sand and silt, damp		7	SS	-	-	BH-19-4.1-4.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA											
-5			8	SS	-	-												
-6	- gray, orange and gray mottling, white inclusions		9	SS	-	-												
	END OF BOREHOLE AT 6.1 m		10	SS	-	-												
-7																		
-8																		
-9																		
-10																		
START DEPTH	HOLE SIZE	EQUIPMENT						CONTRACTOR				GAS METER TYPE: Rkl Eagle						
0.0 m	127 mm	B-40; Solid Stem Auger						Maple Leaf Drilling Limited				LOGGED: GWC REVIEW: RAB DRAFTED: EHC						
1.2 m	254 mm	B-40; Hollow Stem Auger						Maple Leaf Drilling Limited										



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH-20
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: 99.57 m	START DATE: 2012/04/25
CLIENT: Suncor Energy Inc.	GRADE ELEV.: 99.61 m	COMPLETION DATE: 2012/04/25
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

Depth (m) Water Level	DESCRIPTION		SAMPLING				COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %	SAMPLE NAME/ LAB ANALYSES		
0	ASPHALT								
	SAND (Fill) - light brown, trace gravel, damp								
	CLAY - black, some sand, damp, petroleum odour from 0.3 m to 0.9 m		1	G	-	-			
-1	- some silt below 0.9 m		2	G	-	-			
									5
-2	SILT - gray, clayey, trace sand, moist, petroleum odour from 1.7 m to 2.6 m		3	SS	-	-			
			4	SS	-	-	BH-20-2.3-2.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA	Groundwater Potentiometric Surface on 2012/06/13	
-3	CLAY - olive, trace sand and silt, damp		5	SS	-	-			10
	- gray, orange and gray mottling, white inclusions		6	SS	-	-	BH-20-3.5-3.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA		
-4			7	SS	-	-		Monitoring Well Installed, Screened from 0.9 m to 4.0 m, Well Dia. 51 mm	15
-5			8	SS	-	-	BH-20-4.7-5.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA		
-6			9	SS	-	-			20
	END OF BOREHOLE AT 6.1 m		10	SS	-	-			25
-7									30
-8									
-9									
-10									

START DEPTH 0.0 m	HOLE SIZE 127 mm	EQUIPMENT B-40; Solid Stem Auger	CONTRACTOR Maple Leaf Drilling Limited	GAS METER TYPE: RKI Eagle
				LOGGED: GWC REVIEW: RAB DRAFTED: EHC
				<b>PARSONS</b>

1177.100.GPJ PEIACES REPORT LOG 30 BH-20 PEIACON DATA.DOT PEIACON LIBRARY QUL 002912



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH-21
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: 99.62 m	START DATE: 2012/04/26
CLIENT: Suncor Energy Inc.	GRADE ELEV.: 99.70 m	COMPLETION DATE: 2012/04/26
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

Depth (m) Water Level	DESCRIPTION		SAMPLING				COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N VALUE	RECOVERY %			
0	ASPHALT								
	SAND (Fill) - light brown, medium to fine grained, trace gravel, damp		1	G	-	-			
-1	CLAY - gray, silty, trace sand, damp, petroleum odour from 0.8 m to 1.4 m		2	G	-	-			
	SILT - gray, clayey, damp		3	SS	-	-			
-2									
	CLAY - olive, trace sand and silt, damp, gray and orange mottling, white inclusions, petroleum odour from 2.3 m to 2.7 m		4	SS	-	-	BH-21-2.3-2.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA, PAHs, Sel-Metals, Sel-Glycols		
-3			5	SS	-	-			
			6	SS	-	-	BH-21-3.5-3.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA, PAHs, Sel-Metals, Sel-Glycols		
-4			7	SS	-	-			
-5			8	SS	-	-			
-6			9	SS	-	-			
-7			10	SS	-	-			
-8	END OF BOREHOLE AT 6.1 m								
-9									
-10									

START DEPTH 0.0 m	HOLE SIZE 127 mm	EQUIPMENT B-40; Solid Stem Auger	CONTRACTOR Maple Leaf Drilling Limited	GAS METER TYPE: RKI Eagle
				LOGGED: GWC REVIEW: RAB DRAFTED: EHC
				<b>PARSONS</b>



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH-22
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: n/a	START DATE: 2012/04/26
CLIENT: Suncor Energy Inc.	GRADE ELEV.: n/a	COMPLETION DATE: 2012/04/26
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

DESCRIPTION			SAMPLING						COMMENTS	BACKFILL	Depth (ft)
Depth (m)	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %	SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)			
								100 200 300 400	20 40 60 80		
0	ASPHALT										
	SAND (Fill) - light brown, medium to fine grained, gravelly, damp										
	CLAY - black, silty, trace sand, damp, mottling at 0.2 m		1	G	-	-					
-1	SILT - gray, clayey, trace sand, damp		2	G	-	-					
	CLAY - gray, some silt, trace sand, damp		3	SS	-	-					5
-2											
	SILT - medium brown, damp, some clay, trace sand, petroleum odour from 2.4 m to 2.5 m		4	SS	-	-	BH-22-2.3-2.6 (DUP-22) / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA				
-3	CLAY - olive, some silt, trace sand, damp, gray and orange mottling, white inclusions		5	SS	-	-					10
			6	SS	-	-	BH-22-3.5-3.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA				
-4			7	SS	-	-					
			8	SS	-	-	BH-22-4.7-5.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA				15
-5			9	SS	-	-					
-6			10	SS	-	-					20
	END OF BOREHOLE AT 6.1 m									No Monitoring Well Installed	
-7											
-8											25
-9											
-10											30
START DEPTH			HOLE SIZE		EQUIPMENT		CONTRACTOR		GAS METER TYPE: Rkl Eagle		
0.0 m			127 mm		B-40; Solid Stem Auger		Maple Leaf Drilling Limited		LOGGED: GWC REVIEW: RAB DRAFTED: EHC		
PARSONS											



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH-23
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: n/a	START DATE: 2012/04/26
CLIENT: Suncor Energy Inc.	GRADE ELEV.: n/a	COMPLETION DATE: 2012/04/26
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

Depth (m)	DESCRIPTION		SAMPLING				COMMENTS	BACKFILL	Depth (ft)
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N° VALUE	RECOVERY %			
0	ASPHALT								
	SAND (Fill) - light brown, medium grained, gravelly, damp								
	SILT - black, clayey, some gravel and sand, damp, gray mottling and organics		1	G	-	-			
1	CLAY - black, silty, trace sand, damp, gray mottling		2	G	-	-			5
	- petroleum odour from 1.8 m to 2.1 m		3	SS	-	-			
2	SILT - black, clayey, trace sand, damp, petroleum odour from 2.1 m to 2.7 m		4	SS	-	-	BH-23-2.3-2.6 (DUP-23) / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA		
3	CLAY - black, trace sand and silt, damp		5	SS	-	-	BH-23-2.9-3.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA		10
			6	SS	-	-			
4			7	SS	-	-			15
5			8	SS	-	-	BH-23-4.7-5.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA		
			9	SS	-	-			
6	END OF BOREHOLE AT 6.1 m		10	SS	-	-		No Monitoring Well Installed	20
7									25
8									
9									30
10									

START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
0.0 m	152 mm	B-40; Solid Stem Auger	Maple Leaf Drilling Limited	LOGGED: GWC   REVIEW: RAB   DRAFTED: EHC
<div style="text-align: right; font-size: 2em; font-weight: bold;">PARSONS</div>				



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH-24
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: 99.51 m	START DATE: 2012/04/26
CLIENT: Suncor Energy Inc.	GRADE ELEV.: 99.60 m	COMPLETION DATE: 2012/04/26
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

Depth (m) Water Level	DESCRIPTION		SAMPLING				COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %			
0	ASPHALT								
	SAND (Fill) - light brown, medium to fine grained, trace gravel, damp								
	CLAY - black, silty, some sand, trace gravel, damp, petroleum odour from 0.3 m to 0.9 m		1	G	-	-			
1			2	G	-	-			
2	SILT - gray, clayey, damp, trace sand, petroleum odour from 1.8 m to 2.7 m		3	SS	-	-			
	- moist below 2.4 m		4	SS	-	-	BH-24-2.3-2.6 / BTEX, PHC F1-F4, 1,2-DCA, 1,2-DBA		
3	CLAY - olive, some silt, trace sand, moist, gray and orange mottling		5	SS	-	-			
			6	SS	-	-	BH-24-3.5-3.8 / BTEX, PHC F1-F4, 1,2-DCA, 1,2-DBA		
4			7	SS	-	-			
5			8	SS	-	-	BH-24-4.7-5.0 / BTEX, PHC F1-F4, 1,2-DCA, 1,2-DBA		
6			9	SS	-	-			
			10	SS	-	-			
6.1	END OF BOREHOLE AT 6.1 m								
7									
8									
9									
10									

START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: Rkl Eagle
0.0 m	127 mm	B-40; Solid Stem Auger	Maple Leaf Drilling Limited	LOGGED: GWC REVIEW: RAB DRAFTED: EHC
<div style="text-align: right; font-size: 2em; font-weight: bold;">PARSONS</div>				

1:177.100.DPJ PEACIES REPORT LOG 30 BH-08 PEACON DATA.DDT PEACON LIBRARY.QLB 04/26/2012



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH-25
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: 99.52 m	START DATE: 2012/04/26
CLIENT: Suncor Energy Inc.	GRADE ELEV.: 99.60 m	COMPLETION DATE: 2012/04/26
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

Depth (m) Water Level	DESCRIPTION		SAMPLING				COMMENTS AND MONITORING NOTES	MONITORING WELL	Depth (ft) Water Level
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	'N' VALUE	RECOVERY %			
0	ASPHALT CONCRETE SAND (Fill) - light brown, medium to fine grained, gravelly, damp CLAY - black, silty, some sand, trace gravel, damp - organics from 0.5 m to 0.9 m - olive below 1.4 m		1	G	-	-	▲ SOIL VAPOUR CONCENTRATION (ppmv) 100 200 300 400	◆ SOIL VAPOUR CONCENTRATION (%LEL) 20 40 60 80	
1			2	G	-	-			
2	SILT - gray, clayey, trace sand, moist, petroleum odour from 1.7 m to 2.7 m		3	SS	-	-			
			4	SS	-	-			
3	CLAY - olive, trace sand and silt, moist, gray and orange mottling with white inclusions at 2.7 m		5	SS	-	-			
			6	SS	-	-			
4			7	SS	-	-			
5			8	SS	-	-			
			9	SS	-	-			
6	END OF BOREHOLE AT 6.1 m		10	SS	-	-			
7									
8									
9									
10									

START DEPTH 0.0 m	HOLE SIZE 127 mm	EQUIPMENT B-40, Solid Stem Auger	CONTRACTOR Maple Leaf Drilling Limited	GAS METER TYPE: RKI Eagle
				LOGGED: GWC REVIEW: RAB DRAFTED: EHC
				<b>PARSONS</b>

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# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH-26
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: 99.51 m	START DATE: 2012/04/26
CLIENT: Suncor Energy Inc.	GRADE ELEV.: 99.59 m	COMPLETION DATE: 2012/04/26
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

DESCRIPTION			SAMPLING						COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level	
Depth (m) Water Level	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N VALUE	RECOVERY %	SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv) 100 200 300 400				◆ SOIL VAPOUR CONCENTRATION (%LEL) 20 40 60 80
0	ASPHALT											
	SAND (Fill) - light brown, medium to fine grained, gravelly, damp		1	G	-	-						
1	CLAY (Fill) - black, silty, some sand, damp		2	G	-	-						
	SILT - gray, damp, trace sand and clay, damp, petroleum odour from 1.5 m to 2.0 m		3	SS	-	-	BH-26-1.7-2.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBP					5
2	CLAY - olive, trace silt, damp - gray and orange mottling at 2.1 m		4	SS	-	-	BH-26-2.3-2.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBP					
			5	SS	-	-						10
			6	SS	-	-						
			7	SS	-	-						
			8	SS	-	-						15
5	- dark gray below 5.3 m		9	SS	-	-						
6	END OF BOREHOLE AT 6.1 m		10	SS	-	-						20
7												
8												25
9												
10												30
START DEPTH		HOLE SIZE		EQUIPMENT		CONTRACTOR		GAS METER TYPE: RKI Eagle				
0.0 m		127 mm		B-40; Solid Stem Auger		Maple Leaf Drilling Limited		LOGGED: GWC REVIEW: RAB DRAFTED: EHC				
PARSONS												



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: BH-27
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: 99.53 m	START DATE: 2012/04/27
CLIENT: Suncor Energy Inc.	GRADE ELEV.: 99.59 m	COMPLETION DATE: 2012/04/27
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)		PAGE 1 of 1

Depth (m) Water Level	DESCRIPTION		SAMPLING				▲ SOIL VAPOUR CONCENTRATION (ppmv)	◆ SOIL VAPOUR CONCENTRATION (%LEL)	COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %	100 200 300 400	20 40 60 80			
0	ASPHALT										
	SAND (Fill) - medium brown, medium to fine grained, gravelly, damp										
	CLAY - black, silty, some sand, trace gravel, damp		1	G	-	-					
	- organics below 0.8 m		2	G	-	-					
1											
	SILT - black, clayey, trace sand, moist, petroleum odour from 1.5 m to 2.4 m		3	SS	-	-					5
2											
	CLAY - olive, some silt, damp, gray and orange mottling		4	SS	-	-					
3			5	SS	-	-					10
4			6	SS	-	-					
			7	SS	-	-					
5			8	SS	-	-					
			9	SS	-	-					
6			10	SS	-	-					
	END OF BOREHOLE AT 6.1 m										20
7											
8											
9											
10											

START DEPTH 0.0 m	HOLE SIZE 127 mm	EQUIPMENT B-40; Solid Stem Auger	CONTRACTOR Maple Leaf Drilling Limited	GAS METER TYPE: Rkt Eagle
				LOGGED: GWC REVIEW: RAB DRAFTED: EHC
<div>PARSONS</div>				



# BOREHOLE LOG

PROJECT: Environmental Site Assessment					REF. NO: 10-1177.100		BOREHOLE NO: BH-28					
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba					TPC ELEV.: 99.60 m		START DATE: 2012/04/27					
CLIENT: Suncor Energy Inc.					GRADE ELEV.: 99.70 m		COMPLETION DATE: 2012/04/27					
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)					PAGE 1 of 1							
Depth (m) Water Level	DESCRIPTION		SAMPLING				SOIL VAPOUR CONCENTRATION (ppmv)	SOIL VAPOUR CONCENTRATION (%LEL)	COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level	
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	'N' VALUE	RECOVERY %						SAMPLE NAME/ LAB ANALYSES
0	ASPHALT	[Symbol]										
	SAND (Fill) - medium brown, medium to fine grained, gravelly, damp	[Symbol]										
	CLAY - black, silty, some sand, damp, petroleum odour from 0.5 m to 1.2 m	[Symbol]	1	G	-		BH-28-0.5-0.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
-1	- gray below 1.2 m	[Symbol]	2	G	-							
	SILT - gray, clayey, trace sand and clay, moist	[Symbol]	3	SS	-							
-2	CLAY - olive, some silt, damp, gray and orange mottling, white inclusions	[Symbol]	4	SS	-		BH-28-2.3-2.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
-3		[Symbol]	5	SS	-							
-4		[Symbol]	6	SS	-							
-5		[Symbol]	7	SS	-							
-6		[Symbol]	8	SS	-							
		[Symbol]	9	SS	-							
-6	END OF BOREHOLE AT 6.1 m	[Symbol]	10	SS	-							
-7												
-8												
-9												
-10												

START DEPTH: 0.0 m

HOLE SIZE: 127 mm

EQUIPMENT: B-40; Solid Stem Auger

CONTRACTOR: Maple Leaf Drilling Limited

GAS METER TYPE: RKI Eagle

LOGGED: GWC | REVIEW: RAB | DRAFTED: EHC

177.100.GPJ PE&amp;CES REPORT LOG 30 04-08 PE&amp;CDN DATA.GDT PE&amp;CDN LIBRARY.QLA 8/3/2012



# BOREHOLE LOG

PROJECT: Environmental Site Assessment						REF. NO: 10-1177.100		BOREHOLE NO: BH-29				
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba						TPC ELEV.: 99.81 m		START DATE: 2012/04/27				
CLIENT: Suncor Energy Inc.						GRADE ELEV.: 99.90 m		COMPLETION DATE: 2012/04/27				
BENCHMARK: Fire hydrant located at the northeast corner of the Site ASSIGNED ELEVATION: 100.00m (Refer to Site Plan for location)								PAGE 1 of 1				
Depth (m) Water Level	DESCRIPTION		SAMPLING				SOIL VAPOUR CONCENTRATION (ppmv)	SOIL VAPOUR CONCENTRATION (%LEL)	COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level	
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N° VALUE	RECOVERY %						SAMPLE NAME/ LAB ANALYSES
0	ASPHALT	[Symbol]										
	SAND (Fill) - medium brown, medium to fine grained, gravelly, some silt, trace clay, damp	[Symbol]	1	G	-	-						
-1	CLAY - black, some silt, damp	[Symbol]										
	SILT - gray, clayey, trace sand, moist	[Symbol]	2	G	-	-	BH-29-1.1-1.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA, PAHs, Sel-Metals, Sel-Glycols					
-2	CLAY - olive, silty, trace sand, damp	[Symbol]	3	SS	-	-						
	- trace silt	[Symbol]										
		[Symbol]	4	SS	-	-	BH-29-2.3-2.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA, PAHs, Sel-Metals, Sel-Glycols					
		[Symbol]	5	SS	-	-						
		[Symbol]	6	SS	-	-						
		[Symbol]	7	SS	-	-						
		[Symbol]	8	SS	-	-						
		[Symbol]	9	SS	-	-						
		[Symbol]	10	SS	-	-						
	END OF BOREHOLE AT 6.1 m											

**PARSONS**



# BOREHOLE LOG

PROJECT: Environmental Site Assessment						REF. NO: 10-1177.100		BOREHOLE NO: BH-30		
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba								START DATE: 2012/10/16		
CLIENT: Suncor Energy Inc.								COMPLETION DATE: 2012/10/16		
								PAGE 1 of 1		
DESCRIPTION		SAMPLING						COMMENTS	BACKFILL	
STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	'N' VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv) <small>100    200    300    400</small>			◆ SOIL VAPOUR CONCENTRATION (%LEL) <small>20    40    60    80</small>
<b>GROUND SURFACE</b>	[Symbol]									
<b>ASPHALT</b>	[Symbol]									
GRAVEL (Fill) - light brown, fine grained, some sand and silt, damp, petroleum odour from 0.1 m to 3.8 m	[Pattern A]	1	DC	-	-	BH-30-1.2-1.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA				
	[Pattern A]	2	DC	-	-					
	[Pattern A]	3	DC	-	-					
	[Pattern A]	4	DC	-	-					
	[Pattern A]	5	DC	-	-	BH-30-2.4-3.1 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA				
	[Pattern A]	6	DC	-	-					
- gray, fine grained, trace clay below 3.4 m	[Pattern B]	7	DC	-	-	BH-30-3.7-4.3 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA				
CLAY - light brown, trace silt, moist	[Pattern C]	8	DC	-	-					
<b>END OF BOREHOLE AT 4.6 m</b>									No Monitoring Well Installed	
No Daylighting Performed										
START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR			GAS METER TYPE: RKI Eagle			
2012/10/16	0.0 m	127 mm	B40, Solid Stem Auger	Maple Leaf Drilling Limited			LOGGED: ATK	REVIEW: ARN	DRAFTED: EFC	



PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: <b>BH-31</b>
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba		START DATE: 2012/10/16
CLIENT: Suncor Energy Inc.		COMPLETION DATE: 2012/10/16
		PAGE 1 of 1

Depth (m)	DESCRIPTION		SAMPLING						COMMENTS	BACKFILL	Depth (ft)		
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)				◆ SOIL VAPOUR CONCENTRATION (%LEL)	
								100				200	300
0	GROUND SURFACE									This borehole was drilled on a 45 degree angle, all depths shown are down-hole depths.		0	
	ASPHALT		1	DC	-	-							
	GRAVEL (Fill) - light brown, fine grained, sandy, some silt, damp		2	DC	-	-	BH-31-0.6-1.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA						
1	CLAY - black, some silt, trace gravel, damp		3	DC	-	-							5
			4	DC	-	-	BH-31-1.8-2.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA						
2			5	DC	-	-							
			6	DC	-	-	BH-31-3.1-3.7 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA						10
3			7	DC	-	-							
	light brown, silty, moist, petroleum odour from 4.5 m to 5.8 m		8	DC	-	-	BH-31-4.3-4.9 (DUP-31) / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA						15
5			9	DC	-	-							
	gray, trace silt, damp		10	DC	-	-							
6	END OF BOREHOLE AT 6.1 m										No Monitoring Well Installed	20	
	No Daylighting Performed												
7													
8													
9													
START DATE		START DEPTH	HOLE SIZE	EQUIPMENT		CONTRACTOR		GAS METER TYPE: RKI Eagle					
2012/10/16		0.0 m	127 mm	B40, Solid Stem Auger		Maple Leaf Drilling Limited		LOGGED: ATK REVIEW: ARN DRAFTED: EFC					
PARSONS													



## BOREHOLE LOG

PROJECT: Environmental Site Assessment					REF. NO: 10-1177.100					BOREHOLE NO: BH-32								
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba										START DATE: 2012/10/16								
CLIENT: Suncor Energy Inc.										COMPLETION DATE: 2012/10/16								
										PAGE 1 of 1								
Depth (m)	DESCRIPTION		SAMPLING									COMMENTS	BACKFILL	Depth (ft)				
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)							◆ SOIL VAPOUR CONCENTRATION (%LEL)			
								100	200	300	400				20	40	60	80
0	GROUND SURFACE															0		
	ASPHALT																	
	GRAVEL (Fill) - light brown, fine grained, sandy, some silt, damp		1	DC	-	-												
			2	DC	-	-												
			3	DC	-	-	BH-32-1.2-1.8/BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA											
-1			4	DC	-	-												
-2	CLAY - black, some silt, moist, orange staining from 1.7 m to 2.7 m																	
			5	DC	-	-	BH-32-2.4-3.1/BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA											
-3	- dark gray, trace silt, moist below 2.7 m		6	DC	-	-												
			7	DC	-	-	BH-32-3.7-4.3/BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA											
-4	- brown, petroleum odour from 3.7 m to 4.3 m																	
	Refusal at 4.3 m																	
	END OF BOREHOLE AT 4.3 m																	
	No Daylighting Performed																	
-5																		
-6																		
-7																		
-8																		
-9																		

This borehole was drilled  
on a 45 degree angle, all  
depths shown are  
down-hole depths.

No Monitoring Well  
Installed

1177.100 BHO-BH44.CPJ PEACIES REPORT LOG 43 PEACON DATA.GDT PEACIES LIBRARY.GDT 4/26/13

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2012/10/16	0.0 m	127 mm	B40, Solid Stem Auger	Maple Leaf Drilling Limited	LOGGED: ATK REVIEW: ARN DRAFTED: EFO

PARSONS



# BOREHOLE LOG

PROJECT: Environmental Site Assessment					REF. NO: 10-1177.100		BOREHOLE NO: BH-33					
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba							START DATE: 2012/10/16					
CLIENT: Suncor Energy Inc.							COMPLETION DATE: 2012/10/16					
							PAGE 1 of 1					
Depth (m)	DESCRIPTION		SAMPLING						COMMENTS	BACKFILL	Depth (ft)	
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	'N' VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv) 100 200 300 400				◆ SOIL VAPOUR CONCENTRATION (%LEL) 20 40 60 80
0	GROUND SURFACE											0
	ASPHALT		1	DC	-	-						
	GRAVEL (Fill) - light brown, fine grained, sandy, some silt, damp		2	DC	-	-						
-1	CLAY - black, some silt, damp, petroleum odour from 0.9 m to 2.3 m		3	DC	-	-	BH-33-1.2-1.8/ BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					5
	light gray, silty, moist		4	DC	-	-						
-2	light brown, trace silt, damp		5	DC	-	-	BH-33-2.4-3.1/ BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					10
			6	DC	-	-						
-4			7	DC	-	-	BH-33-3.7-4.3/ BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					15
	END OF BOREHOLE AT 4.6 m											
-5	No Daylighting Performed										No Monitoring Well Installed	
-6												20
-7												25
-8												
-9												

START DATE

2012/10/16

START DEPTH

0.0m

HOLE SIZE

127 mm

EQUIPMENT

B40, Solid Stem Auger

CONTRACTOR

Maple Leaf Drilling Limited

GAS METER TYPE: Rkl Eagle

LOGGED: ATK

REVIEW: ARN

DRAFTED: EFO



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: <b>BH-34</b>
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba	TPC ELEV.: 99.63 m	START DATE: 2013/02/21
CLIENT: Suncor Energy Inc.	GRADE ELEV.: 99.75 m	COMPLETION DATE: 2013/02/21
BENCHMARK: ASSIGNED ELEVATION: 100.00 m (Refer to Drawings for location)	PAGE 1 of 1	

Depth (m)	DESCRIPTION		SAMPLING						COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft)	
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N° VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION				◆ SOIL VAPOUR CONCENTRATION
								(ppmv)				(%LEL)
								100 200 300 400	20 40 60 80			
0	GROUND SURFACE										0	
	ASPHALT											
	GRAVEL (Fill) - light brown, coarse grained, sandy, frozen		1	DC	-	100						
	SILT - dark gray, clayey, trace gravel and sand, frozen											
-1	- moist below 0.9 m		2	DC	-	100	BH-34-0.6-1.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
	grayish brown, some clay, moist											
			3	SS	-	100	BH-34-1.2-1.8 / Grain size				5	
-2	CLAY - brown, trace gravel, sand and silt, moist											
			4	SS	-	100	BH-34-1.8-2.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
			5	SS	-	100	BH-34-2.4-3.0 / Grain size				10	
-3			6	SS	-	100	BH-34-3.0-3.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
			7	SS	-	100	BH-34-3.6-4.2 / Grain size					
-4			8	SS	-	100	BH-34-4.2-4.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA				15	
-5			9	SS	-	100						
			10	SS	-	100	BH-34-5.4-6.0 / Grain size				20	
-6	END OF BOREHOLE AT 6.1 m											
	No Daylighting Performed											
-7												
-8												
-9												

Monitoring Well  
Installed, 51 mm Dia.  
PVC Pipe, 10 Slot,  
Screened from 0.6 m to  
3.7 m  
  
Well Dry on 2013/03/14





START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2013/02/21	0.0 m	203 mm	B40; Hollow Stem Auger	Maple Leaf Drilling Limited	LOGGED: ATK REVIEW: ARN DRAFTED: EFO
					<b>PARSONS</b>



# BOREHOLE LOG

PROJECT: Environmental Site Assessment					REF. NO: 10-1177.100		BOREHOLE NO: <b>BH-35</b>	
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba					TPC ELEV.: 99.23 m		START DATE: 2013/02/21	
CLIENT: Suncor Energy Inc.					GRADE ELEV.: 99.37 m		COMPLETION DATE: 2013/02/21	
BENCHMARK: ASSIGNED ELEVATION: 100.00 m (Refer to Drawings for location)					PAGE 1 of 1			

Depth (m) Water Level	DESCRIPTION		SAMPLING					LAB SAMPLE NAME/ LAB ANALYSES	SOIL VAPOUR CONCENTRATION (ppmv)				SOIL VAPOUR CONCENTRATION (%LEL)				COMMENTS AND MONITORING WELL NOTES	MONITORING WELL	Depth (ft) Water Level
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %													
							100		200	300	400	20	40	60	80				
0	GROUND SURFACE																		
	ASPHALT		1	DC	-	100	BH-35-0.0-0.6 / Grain size												
	GRAVEL (Fill) - light brown, coarse grained, sandy, frozen		2	DC	-	100	BH-35-0.6-1.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA												
-1	SILT - dark gray, clayey, trace gravel and sand, frozen		3	SS	-	100													
	- damp below 0.9 m																		
-2	CLAY - grayish brown, silty, trace gravel and sand, damp		4	SS	-	100	BH-35-1.8-2.4 / Grain size												
	light yellowish brown, sandy, some silt		5	SS	-	100	BH-35-2.4-3.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA												
-3	dark grayish brown		6	SS	-	100	BH-35-3.0-3.6 / Grain size												
			7	SS	-	100													
-4			8	SS	-	100	BH-35-4.2-4.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA												
-5			9	SS	-	100	BH-35-4.8-5.4 / Grain size												
-6	END OF BOREHOLE AT 6.1 m		10	SS	-	100													
	No Daylighting Performed																		
-7																			
-8																			
-9																			

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: Rkl Eagle
2013/02/21	0.0 m	203 mm	B40, Hollow Stem Auger	Maple Leaf Drilling Limited	LOGGED: ATK   REVIEW: ARN   DRAFTED: EFO

PARSONS



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: <b>BH-36</b>
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba		START DATE: 2013/02/21
CLIENT: Suncor Energy Inc.		COMPLETION DATE: 2013/02/21
		PAGE 1 of 1

Depth (m)	DESCRIPTION		SAMPLING				LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)				◆ SOIL VAPOUR CONCENTRATION (%LEL)				COMMENTS	BACKFILL	Depth (ft)
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N° VALUE	RECOVERY %		100	200	300	400	20	40	60	80			
0	GROUND SURFACE																0	
	ASPHALT																	
	GRAVEL (Fill) - light brown, coarse grained, sandy, frozen		1	DC	-	100												
	SILT - dark gray, clayey, trace gravel and sand, frozen		2	DC	-	100	BH-36-0.6-1.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA											
-1	- damp below 0.9 m		3	SS	-	100											5	
	CLAY - grayish brown, some silt, trace gravel and sand, damp		4	SS	-	100												
-2	- dark grayish brown below 2.4 m		5	SS	-	100	BH-36-2.4-3.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA										10	
			6	SS	-	100												
-3			7	SS	-	100	BH-36-3.6-4.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA										15	
-4			8	SS	-	100												
-5	- gray below 4.9 m		9	SS	-	100												
-6	- dark grayish brown below 5.6 m		10	SS	-	100	BH-36-5.4-6.0 (DUP-36) / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA										20	
	END OF BOREHOLE AT 6.1 m															No Monitoring Well Installed		
	No Daylighting Performed																	
-7																		
-8																	25	
-9																		

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2013/02/21	0.0 m	127 mm	B40; Solid Stem Auger	Maple Leaf Drilling Limited	LOGGED: ATK   REVIEW: ARN   DRAFTED: EFO
					<b>PARSONS</b>



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: <b>BH-37</b>
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba		START DATE: 2013/02/21
CLIENT: Suncor Energy Inc.		COMPLETION DATE: 2013/02/21
		PAGE 1 of 1

Depth (m)	DESCRIPTION		SAMPLING						COMMENTS	BACKFILL	Depth (ft)	
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)				◆ SOIL VAPOUR CONCENTRATION (%LEL)
								100				200
0	GROUND SURFACE											0
	ASPHALT											
	GRAVEL (Fill) - light brown, coarse grained, sandy, frozen		1	DC	-	100	BH-37-0.0-0.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA	▲				
	SILT - black, clayey, trace gravel and sand, frozen											
-1	- damp below 0.9 m		2	DC	-	100		▲				
			3	SS	-	0						5
-2	yellowish brown, some clay, moist, petroleum odour from 2.1 m to 3.2 m		4	SS	-	100	BH-37-1.8-2.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA	▲				
			5	SS	-	100		▲				
-3	CLAY - dark grayish brown, some silt, trace gravel and sand, damp		6	SS	-	100	BH-37-3.0-3.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA	▲				10
-4			7	SS	-	100		▲				
			8	SS	-	100	BH-37-4.2-4.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA	▲				15
-5			9	SS	-	100		▲				
-6	END OF BOREHOLE AT 6.1 m		10	SS	-	100		▲				20
	No Daylighting Performed									No Monitoring Well Installed		
-7												
-8												25
-9												

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle		
2013/02/21	0.0 m	127 mm	B40; Solid Stem Auger	Maple Leaf Drilling Limited	LOGGED: ATK	REVIEW: ARN	DRAFTED: EFO
<b>PARSONS</b>							

1177.100 BHC-BH4.GPJ PEALCEN REPORT LOG 43 PEALCEN DATA.GDT PEALCEN LIBRARY.CLB 4/4/2013



PROJECT: Environmental Site Assessment					REF. NO: 10-1177.100					BOREHOLE NO: BH-38																			
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba										START DATE: 2013/02/21																			
CLIENT: Suncor Energy Inc.										COMPLETION DATE: 2013/02/21																			
										PAGE 1 of 1																			
Depth (m)	DESCRIPTION		SAMPLING								COMMENTS	BACKFILL	Depth (ft)																
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	TV VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)						◆ SOIL VAPOUR CONCENTRATION (%LEL)															
								100	200	300				400	20	40	60	80											
0	GROUND SURFACE													0															
	ASPHALT																												
	GRAVEL (Fill) - light brown, coarse grained, sandy, frozen		1	DC	-	100																							
	SILT - dark gray, some clay, trace gravel and sand, frozen, odour from 0.5 m to 0.9 m		2	DC	-	100	BH-38-0.6-1.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA																						
-1	- damp, petroleum odour from 0.9 m to 2.0 m																												
	- grayish brown below 1.5 m		3	SS	-	100								5															
-2			4	SS	-	100	BH-38-1.8-2.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA																						
			5	SS	-	100																							
-3	CLAY - brown, some silt, trace gravel and sand, damp		6	SS	-	100	BH-38-3.0-3.6 (DUP-38) / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA							10															
	SILT - brownish yellow, clayey, trace gravel and sand, damp		7	SS	-	100																							
	CLAY - dark grayish brown, trace gravel and sand, damp		8	SS	-	100								15															
-4			9	SS	-	100	BH-38-4.8-5.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA																						
-5			10	SS	-	100								20															
-6	END OF BOREHOLE AT 6.1 m																												
-7	No Daylighting Performed																												
-8																													
-9																													
START DATE					START DEPTH					HOLE SIZE					EQUIPMENT					CONTRACTOR					GAS METER TYPE: Rkl Eagle				
2013/02/21					0.0 m					127 mm					B40; Solid Stem Auger					Maple Leaf Drilling Limited					LOGGED: ATK REVIEW: ARN DRAFTED: EFO				
<b>PARSONS</b>																													



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: <b>BH-39</b>
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba		START DATE: 2013/02/21
CLIENT: Suncor Energy Inc.		COMPLETION DATE: 2013/02/21
		PAGE 1 of 1

Depth (m)	DESCRIPTION		SAMPLING							COMMENTS	BACKFILL	Depth (ft)			
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	TV VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION	◆ SOIL VAPOUR CONCENTRATION						
								(ppmv)	(%LEL)						
								100 200 300 400	20 40 60 80						
0	GROUND SURFACE												0		
	ASPHALT														
	GRAVEL (Fill) - light brown, coarse grained, sandy, frozen														
	SILT - black, some clay, trace gravel and sand, frozen														
-1	- damp below 0.9 m														
			1	DC	-	100									
			2	DC	-	100	BH-39-0.6-1.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA								
			3	SS	-	0						5			
-2	- grayish brown below 2.1 m, petroleum odour from 2.1 m to 3.0 m														
			4	SS	-	100	BH-39-1.8-2.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA								
			5	SS	-	100									
-3	- yellowish brown below 3.0 m														10
	CLAY - dark grayish brown, trace gravel and sand, damp														
			6	SS	-	100	BH-39-3.0-3.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA								
-4			7	SS	-	100									
			8	SS	-	100						15			
-5			9	SS	-	100	BH-39-4.8-5.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA								
			10	SS	-	100						20			
-6	END OF BOREHOLE AT 6.1 m														
	No Daylighting Performed													No Monitoring Well Installed	
-7															
-8															
-9															

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2013/02/21	0.0 m	127 mm	B40; Solid Stem Auger	Maple Leaf Drilling Limited	LOGGED: ATK REVIEW: ARN DRAFTED: EFO
					<b>PARSONS</b>



# BOREHOLE LOG

177.100 BH30-BH44.GPJ PE&L-CES REPORT LOG 43 PE&L-CDN DATA.GDT PE&L-CES LIBRARY.GLB 4/4/2013



PROJECT: Environmental Site Assessment					REF. NO: 10-1177.100					BOREHOLE NO: BH-41					
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba										START DATE: 2013/02/22					
CLIENT: Suncor Energy Inc.										COMPLETION DATE: 2013/02/22					
										PAGE 1 of 1					
Depth (m)	DESCRIPTION		SAMPLING								COMMENTS	BACKFILL	Depth (ft)		
	STRATIGRAPHY	SAMPLE TYPE	NUMBER	'N' VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	SOIL VAPOUR CONCENTRATION (ppmv)							SOIL VAPOUR CONCENTRATION (%LEL)	
							100	200	300	400	20	40	60	80	
0	GROUND SURFACE														
	ASPHALT														
	GRAVEL (Fill) - light brown, coarse grained, some sand, trace silt, frozen		1	G	-	0									
			2	G	-	0									
-1															
	- wet below 1.2 m		3	G	-	100									
			4	G	-	100									
-2															
	CLAY (Till) - light brown, trace gravel, sand and silt, moist		5	DC	-	100	BH-41-2.4-3.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA								
-3			6	DC	-	100	BH-41-3.0-3.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA								
			7	DC	-	100	BH-41-3.6-4.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA								
-4			8	DC	-	100									
-5			9	DC	-	100									
-6			10	DC	-	100									
-6.1	END OF BOREHOLE AT 6.1 m														
	Borehole Daylighted to 2.4 m														
-7															
-8															
-9															



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: <b>BH-42</b>
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba		START DATE: 2013/02/22
CLIENT: Suncor Energy Inc.		COMPLETION DATE: 2013/02/22
		PAGE 1 of 1

Depth (m)	DESCRIPTION		SAMPLING						COMMENTS	BACKFILL	Depth (ft)	
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N' VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION				◆ SOIL VAPOUR CONCENTRATION
								(ppmv)				(%LEL)
								100 200 300 400	20 40 60 80			
0	GROUND SURFACE											0
	ASPHALT		1	DC	-	100						
	SAND (Fill) - light brown, coarse grained, some gravel, trace silt, frozen		2	DC	-	100	BH-42-0.6-1.2 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
-1			3	DC	-	100						5
	SILT - dark gray, clayey, trace gravel and sand, damp		4	DC	-	100	BH-42-1.8-2.4 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
-2			5	DC	-	100						10
	CLAY - dark grayish brown, some silt, trace gravel and sand, damp		6	DC	-	100	BH-42-3.0-3.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
-3			7	DC	-	100						15
	- brown, trace gravel, sand and silt below 3.4 m		8	DC	-	100						
-4			9	DC	-	100						20
			10	DC	-	100						
-6	END OF BOREHOLE AT 6.1 m										No Monitoring Well Installed	20
	No Daylighting Performed											
-7												25
-8												
-9												

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2013/02/22	0.0 m	127 mm	B40, Solid Stem Auger	Maple Leaf Drilling Limited	LOGGED: ATK REVIEW: ARN DRAFTED: EFO
					<b>PARSONS</b>



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: <b>BH-43</b>
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba		START DATE: 2013/02/22
CLIENT: Suncor Energy Inc.		COMPLETION DATE: 2013/02/22
		PAGE 1 of 1

Depth (m)	DESCRIPTION		SAMPLING							COMMENTS	BACKFILL	Depth (ft)
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	'N' VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)	◆ SOIL VAPOUR CONCENTRATION (%LEL)			
								100 200 300 400	20 40 60 80			
0	GROUND SURFACE											0
	ASPHALT											
	SILT - dark gray, some clay, frozen		1	DC	-	100	BH-43-0.0-0.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
-1	- damp below 0.9 m		2	DC	-	100						
			3	DC	-	100						
-2	CLAY - grayish brown, silty, trace gravel and sand, damp, petroleum odour from 1.8 m to 3.0 m		4	DC	-	100	BH-43-1.8-2.4 (DUP-43) / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
			5	DC	-	100	BH-43-2.4-3.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
-3	- light olive brown below 3.0 m		6	DC	-	100	BH-43-3.0-3.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
	grayish brown, some silt		7	DC	-	100						
-4			8	DC	-	100						
-5			9	DC	-	100						
-6			10	DC	-	100						
-6	END OF BOREHOLE AT 6.1 m											20
	No Daylighting Performed									No Monitoring Well Installed		
-7												
-8												
-9												
START DATE								CONTRACTOR		GAS METER TYPE: RKI Eagle		
2013/02/22								Maple Leaf Drilling Limited		LOGGED: ATK REVIEW: ARN DRAFTED: EFO		
START DEPTH										PARSONS		
HOLE SIZE												
EQUIPMENT												
B40, Solid Stem Auger												



# BOREHOLE LOG

PROJECT: Environmental Site Assessment	REF. NO: 10-1177.100	BOREHOLE NO: <b>BH-44</b>
LOCATION: 208 St. Anne's Road, Winnipeg, Manitoba		START DATE: 2013/02/22
CLIENT: Suncor Energy Inc.		COMPLETION DATE: 2013/02/22
		PAGE 1 of 1

Depth (m)	DESCRIPTION		SAMPLING							COMMENTS	BACKFILL	Depth (ft)
	STRATIGRAPHY	SYMBOL	NUMBER	SAMPLE TYPE	N° VALUE	RECOVERY %	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv)	◆ SOIL VAPOUR CONCENTRATION (%LEL)			
								100	200			
0	GROUND SURFACE											0
	ASPHALT											
	GRAVEL (Fill) - light brown, coarse grained, sandy, frozen		1	DC	-	100	BH-44-0-0.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
	SILT - dark gray, some clay, frozen, petroleum odour from 0.3 m to 1.8 m		2	DC	-	100						
-1	- moist below 1.2 m		3	DC	-	100	BH-44-1.2-1.8 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					5
-2	SILT - grayish, trace gravel, sand and silt, moist, petroleum odour from 1.8 m to 3.0 m		4	DC	-	100	BH-44-1.8-2.4 (DUP-44) / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
			5	DC	-	100	BH-44-2.4-3.0 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					10
-3	CLAY - grayish brown, some silt, trace gravel and sand, damp		6	DC	-	100	BH-44-3.0-3.6 / BTEX, PHC F1-F4, Pb, 1,2-DCA, 1,2-DBA					
-4			7	DC	-	100						
			8	DC	-	100						15
-5			9	DC	-	100						
			10	DC	-	100						20
-6	END OF BOREHOLE AT 6.1 m											
	No Daylighting Performed										No Monitoring Well Installed	
-7												
-8												25
-9												
START DATE		START DEPTH	HOLE SIZE	EQUIPMENT		CONTRACTOR		GAS METER TYPE: RKI Eagle				
2013/02/22		0.0 m	127 mm	B40, Solid Stem Auger		Maple Leaf Drilling Limited		LOGGED: ATK		REVIEW: ARN	DRAFTED: EFO	
PARSONS												



## **APPENDIX B**

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### **LABORATORY CERTIFICATES OF ANALYSIS – SOIL AND GROUNDWATER**





Your Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA  
Your C.O.C. #: S005955

**Attention: Adam Wickman**  
O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

Report Date: 2012/05/07

### CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B234555**  
**Received: 2012/04/28, 11:57**

Sample Matrix: Soil  
# Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract)	8	2012/04/28	2012/04/30	AB SOP-00039	CCME, EPA 8260C
BTEX/F1 by HS GC/MS (MeOH extract)	2	2012/04/28	2012/05/01	AB SOP-00039	CCME, EPA 8260C
CCME Hydrocarbons (F2-F4 in soil)	10	2012/05/03	2012/05/03	AB SOP-00040	CCME PHC-CWS
				AB SOP-00036	
Glycol in Soil by GC/FID (1)	1	2012/05/01	2012/05/03	CAL SOP-00093	EPA 8015 D
Glycol In Soil by GC/FID (1)	1	2012/05/01	2012/05/04	CAL SOP-00093	EPA 8015 D
Elements by ICPMS - Soils	2	2012/04/30	2012/05/01	AB SOP-00043	EPA 200.8
Moisture	10	N/A	2012/04/29	EENVSOP-00139	Carter SSMA 51.2
Benzo[a]pyrene Equivalency	2	N/A	2012/05/02	AB SOP-00003	EPA 8270D
Polycyclic Aromatic Hydrocarbons in soil	1	2012/04/28	2012/04/30	AB SOP-00003	EPA 3540C/8270D
				AB SOP-00036	
Polycyclic Aromatic Hydrocarbons in soil	1	2012/04/28	2012/05/01	AB SOP-00003	EPA 3540C/8270D
				AB SOP-00036	
Lead	8	2012/04/30	2012/04/30	AB SOP-00043	EPA 200.8
Low Level VOC In Soil	10	2012/04/28	2012/04/30	EENVSOP-00021	EPA SW846, 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental

#### Encryption Key

Desirae Hopkinson

07 May 2012 14:05:33 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Desirae Hopkinson, Project Manager  
Email: DHopkinson@maxxam.ca  
Phone# (780) 577-7104

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section





Your Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA  
Your C.O.C. #: S005955

**Attention: Adam Wickman**  
O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

**Report Date: 2012/05/07**

**CERTIFICATE OF ANALYSIS**

-2-

5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2





Maxxam Job #: B234555  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA  
Sampler Initials: GC

### AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		DH0621	DH0621	DH0622	DH0623		
Sampling Date		2012/04/26 18:15	2012/04/26 18:15	2012/04/26 18:15	2012/04/26 18:30		
COC Number		S005955	S005955	S005955	S005955		
	Units	BH-23-2.3-2.6	BH-23-2.3-2.6 Lab-Dup	DUP-23	BH-23-2.9-3.2	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	18	N/A	18	33	0.30	5799442
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	100	N/A	60	<10	10	5799766
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	N/A	10	16	10	5799766
F4 (C34-C50 Hydrocarbons)	mg/kg	13	N/A	18	13	10	5799766
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	Yes	N/A	5799766
<b>Volatiles</b>							
Benzene	mg/kg	0.31	0.28	0.23	<0.0050	0.0050	5800005
Toluene	mg/kg	0.16	0.11	0.084	<0.020	0.020	5800005
Ethylbenzene	mg/kg	7.1	3.9 (l)	2.3	<0.010	0.010	5800005
Xylenes (Total)	mg/kg	41	23 (l)	13	<0.040	0.040	5800005
m & p-Xylene	mg/kg	29	16 (l)	9.2	<0.040	0.040	5800005
o-Xylene	mg/kg	13	7.0 (l)	4.2	<0.020	0.020	5800005
F1 (C6-C10) - BTEX	mg/kg	230	97 (l)	53	<12	12	5800005
(C6-C10)	mg/kg	280	120 (l)	69	<12	12	5800005
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	108	109	109	116	N/A	5800005
4-BROMOFLUOROBENZENE (sur.)	%	102	99	101	100	N/A	5800005
D10-ETHYLBENZENE (sur.)	%	127	126	130	130	N/A	5800005
D4-1,2-DICHLOROETHANE (sur.)	%	98	97	103	99	N/A	5800005
O-TERPHENYL (sur.)	%	113	N/A	111	95	N/A	5799766

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.



### AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		DH0722	DH0723	DH0724	DH0725		
Sampling Date		2012/04/26 18:45	2012/04/27 08:30	2012/04/27 08:45	2012/04/27 08:00		
COC Number		S005955	S005955	S005955	S005955		
	Units	BH-23-4.7-5.0	BH-27-1.7-2.0	BH-27-2.3-2.6	BH-28-0.5-0.8	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	35	17	31	20	0.30	5799442
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	200	<10	90	10	5799766
F3 (C16-C34 Hydrocarbons)	mg/kg	39	<10	24	1900	10	5799766
F4 (C34-C50 Hydrocarbons)	mg/kg	23	11	<10	3000	10	5799766
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	5799766
<b>Volatiles</b>							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5800005
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	5800005
Ethylbenzene	mg/kg	<0.010	8.2	<0.010	0.19	0.010	5800005
Xylenes (Total)	mg/kg	<0.040	12	<0.040	0.57	0.040	5800005
m & p-Xylene	mg/kg	<0.040	12	<0.040	0.33	0.040	5800005
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.24	0.020	5800005
F1 (C6-C10) - BTEX	mg/kg	<12	660	<12	43	12	5800005
(C6-C10)	mg/kg	<12	680	<12	44	12	5800005
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	116	108	116	108	N/A	5800005
4-BROMOFLUOROBENZENE (sur.)	%	100	100	101	100	N/A	5800005
D10-ETHYLBENZENE (sur.)	%	127	151 (1)	115	127	N/A	5800005
D4-1,2-DICHLOROETHANE (sur.)	%	99	97	99	102	N/A	5800005
O-TERPHENYL (sur.)	%	97	104	107	102	N/A	5799766

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Surrogate recovery exceeds acceptance criteria due to matrix interference.Reanalysis yields similar results.





Maxxam Job #: B234555  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA  
Sampler Initials: GC

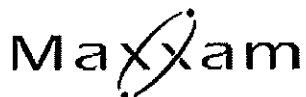
### AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		DH0726	DH0748	DH0752	DH0752		
Sampling Date		2012/04/27 09:15	2012/04/27 09:30	2012/04/27 10:00	2012/04/27 10:00		
COC Number		S005955	S005955	S005955	S005955		
	Units	BH-2.8-2.3-2.6	BH-29-1.1-1.4	BH-29-2.3-2.6	BH-29-2.3-2.6 Lab-Dup	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	31	22	33	32	0.30	5799442
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	N/A	10	5799766
F3 (C16-C34 Hydrocarbons)	mg/kg	20	<10	17	N/A	10	5799766
F4 (C34-C50 Hydrocarbons)	mg/kg	10	<10	10	N/A	10	5799766
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	N/A	N/A	5799766
<b>Volatiles</b>							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	N/A	0.0050	5800005
Toluene	mg/kg	<0.020	<0.020	<0.020	N/A	0.020	5800005
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	N/A	0.010	5800005
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	N/A	0.040	5800005
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	N/A	0.040	5800005
o-Xylene	mg/kg	<0.020	<0.020	<0.020	N/A	0.020	5800005
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	N/A	12	5800005
(C6-C10)	mg/kg	<12	<12	<12	N/A	12	5800005
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	114	107	114	N/A	N/A	5800005
4-BROMOFLUOROBENZENE (sur.)	%	100	99	100	N/A	N/A	5800005
D10-ETHYLBENZENE (sur.)	%	129	124	114	N/A	N/A	5800005
D4-1,2-DICHLOROETHANE (sur.)	%	102	105	103	N/A	N/A	5800005
O-TERPHENYL (sur.)	%	106	107	108	N/A	N/A	5799766

N/A = Not Applicable  
RDL = Reportable Detection Limit





Maxxam Job #: B234555  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA  
Sampler Initials: GC

### GLYCOLS BY GC-FID (SOIL)

Maxxam ID		DH0748	DH0752		
Sampling Date		2012/04/27 09:30	2012/04/27 10:00		
COC Number		S005955	S005955		
	Units	BH-29-1.1-1.4	BH-29-2.3-2.6	RDL	QC Batch

Glycols					
Extractable (Water) Ethylene Glycol	mg/kg	<10	<10	10	5806519
Extractable (Water) Propylene Glycol	mg/kg	<10	<10	10	5806519
Surrogate Recovery (%)					
Extractable (Water) Methyl Sulfone (sur.)	%	59	56	N/A	5806519
N/A = Not Applicable RDL = Reportable Detection Limit					



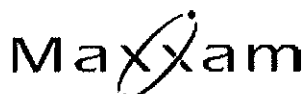
### SEMIVOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DH0748	DH0752		
Sampling Date		2012/04/27 09:30	2012/04/27 10:00		
COC Number		S005955	S005955		
	Units	BH-29-1.1-1.4	BH-29-2.3-2.6	RDL	QC Batch

<b>Polycyclic Aromatics</b>					
Benzo[a]pyrene equivalency	mg/kg	<0.10	<0.10	0.10	5799368
Benzo(a)pyrene	mg/kg	<0.0050	<0.0050	0.0050	5799336
Naphthalene	mg/kg	<0.0050	<0.0050	0.0050	5799336
<b>Surrogate Recovery (%)</b>					
D10-ANTHRACENE (sur.)	%	83	86	N/A	5799336
D12-BENZO(A)PYRENE (sur.)	%	94	100	N/A	5799336
D8-ACENAPHTHYLENE (sur.)	%	87	85	N/A	5799336
TERPHENYL-D14 (sur.)	%	97	97	N/A	5799336

N/A = Not Applicable  
RDL = Reportable Detection Limit





Maxxam Job #: B234555  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA  
Sampler Initials: GC

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		DH0621	DH0622	DH0623	DH0722	DH0723		
Sampling Date		2012/04/26 18:15	2012/04/26 18:15	2012/04/26 18:30	2012/04/26 18:45	2012/04/27 08:30		
COC Number		S005955	S005955	S005955	S005955	S005955		
	Units	BH-23-2.3-2.6	DUP-23	BH-23-2.9-3.2	BH-23-4.7-5.0	BH-27-1.7-2.0	RDL	QC Batch

Elements								
Total Lead (Pb)	mg/kg	4.1	5.3	16	16	2.9	1.0	5801629
RDL = Reportable Detection Limit								

Maxxam ID		DH0724	DH0725	DH0726	DH0748	DH0752		
Sampling Date		2012/04/27 08:45	2012/04/27 08:00	2012/04/27 09:15	2012/04/27 09:30	2012/04/27 10:00		
COC Number		S005955	S005955	S005955	S005955	S005955		
	Units	BH-27-2.3-2.6	BH-28-0.5-0.8	BH-2.8-2.3-2.6	BH-29-1.1-1.4	BH-29-2.3-2.6	RDL	QC Batch

Elements								
Total Arsenic (As)	mg/kg	N/A	N/A	N/A	4.5	11	1.0	5802356
Total Lead (Pb)	mg/kg	15	36	16	N/A	N/A	1.0	5801629
Total Barium (Ba)	mg/kg	N/A	N/A	N/A	120	220	10	5802356
Total Chromium (Cr)	mg/kg	N/A	N/A	N/A	21	58	1.0	5802356
Total Copper (Cu)	mg/kg	N/A	N/A	N/A	14	41	5.0	5802356
Total Lead (Pb)	mg/kg	N/A	N/A	N/A	7.8	18	1.0	5802356
Total Zinc (Zn)	mg/kg	N/A	N/A	N/A	32	100	10	5802356

N/A = Not Applicable  
RDL = Reportable Detection Limit



### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DH0621		DH0621		DH0622		
Sampling Date		2012/04/26 18:15		2012/04/26 18:15		2012/04/26 18:15		
COC Number		S005955		S005955		S005955		
	Units	BH-23-2.3-2.6	RDL	BH-23-2.3-2.6 Lab-Dup	RDL	DUP-23	RDL	QC Batch

<b>Volatiles</b>								
1,2-dibromoethane	mg/kg	<0.040 (1)	0.040	<0.030 (1)	0.030	<0.020 (1)	0.020	5800022
1,2-dichloroethane	mg/kg	<0.0020	0.0020	<0.0020	0.0020	<0.0020	0.0020	5800022
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	101	N/A	103	N/A	103	N/A	5800022
D10-ETHYLBENZENE (sur.)	%	128	N/A	119	N/A	112	N/A	5800022
D4-1,2-DICHLOROETHANE (sur.)	%	93	N/A	95	N/A	96	N/A	5800022
D8-TOLUENE (sur.)	%	100	N/A	100	N/A	99	N/A	5800022

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) Detection limits raised due to matrix interference.

Maxxam ID		DH0623	DH0722	DH0723	DH0724		
Sampling Date		2012/04/26 18:30	2012/04/26 18:45	2012/04/27 08:30	2012/04/27 08:45		
COC Number		S005955	S005955	S005955	S005955		
	Units	BH-23-2.9-3.2	BH-23-4.7-5.0	BH-27-1.7-2.0	BH-27-2.3-2.6	RDL	QC Batch

<b>Volatiles</b>							
1,2-dibromoethane	mg/kg	<0.0020	<0.0020	0.0402	<0.0020	0.0020	5800022
1,2-dichloroethane	mg/kg	0.121	<0.0020	<0.0020	<0.0020	0.0020	5800022
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	102	101	98	105	N/A	5800022
D10-ETHYLBENZENE (sur.)	%	122	122	116	125	N/A	5800022
D4-1,2-DICHLOROETHANE (sur.)	%	97	96	95	95	N/A	5800022
D8-TOLUENE (sur.)	%	97	98	99	99	N/A	5800022

N/A = Not Applicable

RDL = Reportable Detection Limit



## VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DH0725		DH0726	DH0748		
Sampling Date		2012/04/27 08:00		2012/04/27 09:15	2012/04/27 09:30		
COC Number		S005955		S005955	S005955		
	Units	BH-28-0.5-0.8	RDL	BH-2.8-2.3-2.6	BH-29-1.1-1.4	RDL	QC Batch

<b>Volatiles</b>							
1,2-dibromoethane	mg/kg	<0.020 (1)	0.020	<0.0020	<0.0020	0.0020	5800022
1,2-dichloroethane	mg/kg	<0.0020	0.0020	<0.0020	<0.0020	0.0020	5800022
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	103	N/A	106	107	N/A	5800022
D10-ETHYLBENZENE (sur.)	%	114	N/A	126	117	N/A	5800022
D4-1,2-DICHLOROETHANE (sur.)	%	101	N/A	97	97	N/A	5800022
D8-TOLUENE (sur.)	%	100	N/A	99	98	N/A	5800022

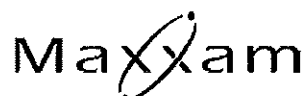
N/A = Not Applicable  
RDL = Reportable Detection Limit  
( 1 ) Detection limits raised due to matrix interference.

Maxxam ID		DH0752		
Sampling Date		2012/04/27 10:00		
COC Number		S005955		
	Units	BH-29-2.3-2.6	RDL	QC Batch

<b>Volatiles</b>				
1,2-dibromoethane	mg/kg	<0.0020	0.0020	5800022
1,2-dichloroethane	mg/kg	<0.0020	0.0020	5800022
<b>Surrogate Recovery (%)</b>				
4-BROMOFLUOROBENZENE (sur.)	%	102	N/A	5800022
D10-ETHYLBENZENE (sur.)	%	125	N/A	5800022
D4-1,2-DICHLOROETHANE (sur.)	%	98	N/A	5800022
D8-TOLUENE (sur.)	%	99	N/A	5800022

N/A = Not Applicable  
RDL = Reportable Detection Limit





Maxxam Job #: B234555  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA  
Sampler Initials: GC

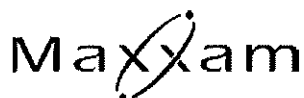
Package 1	1.0°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**





## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

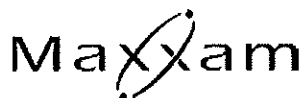
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA

## Quality Assurance Report

Maxxam Job Number: EB234555

QA/QC Batch			Date Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	Units	QC Limits	
5799336 YC1	Matrix Spike	D10-ANTHRACENE (sur.)	2012/04/30		74	%	50 - 130	
		D12-BENZO(A)PYRENE (sur.)	2012/04/30		46 (1)	%	50 - 130	
		D8-ACENAPHTHYLENE (sur.)	2012/04/30		77	%	50 - 130	
		TERPHENYL-D14 (sur.)	2012/04/30		88	%	50 - 130	
	Spiked Blank	Naphthalene	2012/04/30		91	%	50 - 130	
		D10-ANTHRACENE (sur.)	2012/04/30		90	%	50 - 130	
		D12-BENZO(A)PYRENE (sur.)	2012/04/30		99	%	50 - 130	
		D8-ACENAPHTHYLENE (sur.)	2012/04/30		94	%	50 - 130	
	Method Blank	TERPHENYL-D14 (sur.)	2012/04/30		91	%	50 - 130	
		Benzo(a)pyrene	2012/04/30		91	%	50 - 130	
		Naphthalene	2012/04/30		90	%	50 - 130	
		D10-ANTHRACENE (sur.)	2012/04/30		92	%	50 - 130	
	RPD	D12-BENZO(A)PYRENE (sur.)	2012/04/30		99	%	50 - 130	
		D8-ACENAPHTHYLENE (sur.)	2012/04/30		88	%	50 - 130	
		TERPHENYL-D14 (sur.)	2012/04/30		97	%	50 - 130	
		Benzo(a)pyrene	2012/04/30	<0.0050		mg/kg		
	RPD	Naphthalene	2012/04/30	<0.0050		mg/kg		
		Benzo(a)pyrene	2012/04/30	NC		%	50	
	RPD	Naphthalene	2012/04/30	19.9		%	50	
		Moisture	2012/04/29	<0.30		%		
5799442 KH7	Method Blank	Moisture	2012/04/29	0.3		%	20	
5799766 AK8	Matrix Spike	O-TERPHENYL (sur.)	2012/05/03		107	%	50 - 130	
		F2 (C10-C16 Hydrocarbons)	2012/05/03		77	%	50 - 130	
		F3 (C16-C34 Hydrocarbons)	2012/05/03		81	%	50 - 130	
		F4 (C34-C50 Hydrocarbons)	2012/05/03		86	%	50 - 130	
	Spiked Blank	O-TERPHENYL (sur.)	2012/05/03		99	%	50 - 130	
		F2 (C10-C16 Hydrocarbons)	2012/05/03		81	%	70 - 130	
		F3 (C16-C34 Hydrocarbons)	2012/05/03		89	%	70 - 130	
		F4 (C34-C50 Hydrocarbons)	2012/05/03		96	%	70 - 130	
	Method Blank	O-TERPHENYL (sur.)	2012/05/03		116	%	50 - 130	
		F2 (C10-C16 Hydrocarbons)	2012/05/03	<10		mg/kg		
		F3 (C16-C34 Hydrocarbons)	2012/05/03	<10		mg/kg		
		F4 (C34-C50 Hydrocarbons)	2012/05/03	<10		mg/kg		
	RPD	F2 (C10-C16 Hydrocarbons)	2012/05/03	NC		%	50	
		F3 (C16-C34 Hydrocarbons)	2012/05/03	11.6		%	50	
5800005 JCC	Matrix Spike [DH0622-01]	F4 (C34-C50 Hydrocarbons)	2012/05/03	NC		%	50	
		1,4-Difluorobenzene (sur.)	2012/04/30		106	%	60 - 140	
		4-BROMOFLUOROBENZENE (sur.)	2012/04/30		101	%	60 - 140	
		D10-ETHYLBENZENE (sur.)	2012/04/30		126	%	60 - 130	
	Spiked Blank	D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		103	%	60 - 140	
		Benzene	2012/04/30		97	%	60 - 140	
		Toluene	2012/04/30		105	%	60 - 140	
		Ethylbenzene	2012/04/30		NC (2)	%	60 - 140	
	Method Blank	m & p-Xylene	2012/04/30		NC (3)	%	60 - 140	
		o-Xylene	2012/04/30		NC (4)	%	60 - 140	
		(C6-C10)	2012/04/30		96	%	60 - 140	
		1,4-Difluorobenzene (sur.)	2012/05/04		94	%	60 - 140	
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/05/04		101	%	60 - 140	
		D10-ETHYLBENZENE (sur.)	2012/05/04		126	%	60 - 130	
		D4-1,2-DICHLOROETHANE (sur.)	2012/05/04		93	%	60 - 140	
		Benzene	2012/05/04		95	%	60 - 140	
	Method Blank	Toluene	2012/05/04		100	%	60 - 140	
		Ethylbenzene	2012/05/04		97	%	60 - 140	
		m & p-Xylene	2012/05/04		98	%	60 - 140	





O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

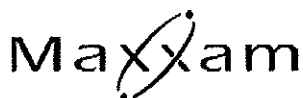
Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA

Quality Assurance Report (Continued)

Maxxam Job Number: EB234555

QA/QC Batch Num Inlt	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
5800005 JCC	Spiked Blank	o-Xylene	2012/05/04		94	%	60 - 140
		(C6-C10)	2012/05/04		107	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2012/04/30		87	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2012/04/30		103	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/04/30		101	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		147 (1)	%	60 - 140
		Benzene	2012/04/30	<0.0050		mg/kg	
		Toluene	2012/04/30	<0.020		mg/kg	
		Ethylbenzene	2012/04/30	<0.010		mg/kg	
		Xylenes (Total)	2012/04/30	<0.040		mg/kg	
		m & p-Xylene	2012/04/30	<0.040		mg/kg	
		o-Xylene	2012/04/30	<0.020		mg/kg	
		F1 (C6-C10) - BTEX	2012/04/30	<12		mg/kg	
		(C6-C10)	2012/04/30	<12		mg/kg	
	RPD [DH0621-01]	Benzene	2012/05/01	12.5		%	50
		Toluene	2012/05/01	34.3		%	50
		Ethylbenzene	2012/05/01	57.5 (5)		%	50
		Xylenes (Total)	2012/05/01	57.8 (5)		%	50
		m & p-Xylene	2012/05/01	57.6 (5)		%	50
		o-Xylene	2012/05/01	58.3 (5)		%	50
		F1 (C6-C10) - BTEX	2012/05/01	81.4 (5)		%	50
		(C6-C10)	2012/05/01	76.9 (5)		%	50
5800022 PS7	Matrix Spike [DH0622-01]	4-BROMOFLUOROBENZENE (sur.)	2012/04/30		98	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/04/30		109	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		106	%	60 - 140
		D8-TOLUENE (sur.)	2012/04/30		100	%	60 - 140
		1,2-dibromoethane	2012/04/30		120	%	60 - 140
		1,2-dichloroethane	2012/04/30		128	%	60 - 140
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/04/30		95	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/04/30		103	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		106	%	60 - 140
		D8-TOLUENE (sur.)	2012/04/30		99	%	60 - 140
		1,2-dibromoethane	2012/04/30		111	%	60 - 140
		1,2-dichloroethane	2012/04/30		123	%	60 - 140
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/04/30		106	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/04/30		109	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		97	%	60 - 140
		D8-TOLUENE (sur.)	2012/04/30		98	%	60 - 140
		1,2-dibromoethane	2012/04/30	<0.0020		mg/kg	
		1,2-dichloroethane	2012/04/30	<0.0020		mg/kg	
	RPD [DH0621-01]	1,2-dibromoethane	2012/04/30	NC (5)		%	50
		1,2-dichloroethane	2012/04/30	NC		%	50
5801629 HM3	Matrix Spike	Total Lead (Pb)	2012/04/30		82	%	75 - 125
	QC Standard	Total Lead (Pb)	2012/04/30		100	%	54 - 146
	Spiked Blank	Total Lead (Pb)	2012/04/30		113	%	75 - 125
	Method Blank	Total Lead (Pb)	2012/04/30	<1.0		mg/kg	
	RPD	Total Lead (Pb)	2012/04/30	NC		%	35
5802356 SG8	Matrix Spike	Total Arsenic (As)	2012/05/01		95	%	75 - 125
		Total Barium (Ba)	2012/05/01		NC	%	75 - 125
		Total Chromium (Cr)	2012/05/01		NC	%	75 - 125
		Total Copper (Cu)	2012/05/01		92	%	75 - 125
		Total Lead (Pb)	2012/05/01		100	%	75 - 125
		Total Zinc (Zn)	2012/05/01		NC	%	75 - 125
	QC Standard	Total Arsenic (As)	2012/05/01		114	%	50 - 150





## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNES ROAD, WINNIPEG, MANITOBA

## Quality Assurance Report (Continued)

Maxxam Job Number: EB234555

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
5802356 SG8	QC Standard	Total Barium (Ba)	2012/05/01		111	%	69 - 131
		Total Chromium (Cr)	2012/05/01		110	%	41 - 159
		Total Copper (Cu)	2012/05/01		104	%	72 - 127
		Total Lead (Pb)	2012/05/01		102	%	54 - 146
		Total Zinc (Zn)	2012/05/01		104	%	72 - 128
	Spiked Blank	Total Arsenic (As)	2012/05/01		95	%	75 - 125
		Total Barium (Ba)	2012/05/01		91	%	75 - 125
		Total Chromium (Cr)	2012/05/01		93	%	75 - 125
		Total Copper (Cu)	2012/05/01		94	%	75 - 125
		Total Lead (Pb)	2012/05/01		114	%	75 - 125
	Method Blank	Total Zinc (Zn)	2012/05/01		94	%	75 - 125
		Total Arsenic (As)	2012/05/01	<1.0		mg/kg	
		Total Barium (Ba)	2012/05/01	<10		mg/kg	
		Total Chromium (Cr)	2012/05/01	<1.0		mg/kg	
		Total Copper (Cu)	2012/05/01	<5.0		mg/kg	
	RPD	Total Lead (Pb)	2012/05/01	<1.0		mg/kg	
		Total Zinc (Zn)	2012/05/01	<10		mg/kg	
		Total Arsenic (As)	2012/05/01	0.3		%	35
		Total Barium (Ba)	2012/05/01	0.8		%	35
		Total Chromium (Cr)	2012/05/01	3.9		%	35
5806519 JW0	Matrix Spike	Total Copper (Cu)	2012/05/01	NC		%	35
		Total Lead (Pb)	2012/05/01	1.9		%	35
		Total Zinc (Zn)	2012/05/01	1.1		%	35
	Spiked Blank	Extractable (Water) Methyl Sulfone (sur.)	2012/05/03		65	%	50 - 130
		Extractable (Water) Ethylene Glycol	2012/05/03		95	%	30 - 130
		Extractable (Water) Propylene Glycol	2012/05/03		72	%	30 - 130
	Method Blank	Extractable (Water) Methyl Sulfone (sur.)	2012/05/03		83	%	50 - 130
		Extractable (Water) Ethylene Glycol	2012/05/03		92	%	30 - 130
		Extractable (Water) Propylene Glycol	2012/05/03		75	%	30 - 130
	RPD	Extractable (Water) Methyl Sulfone (sur.)	2012/05/03		80	%	50 - 130
		Extractable (Water) Ethylene Glycol	2012/05/03	<10		mg/kg	
		Extractable (Water) Propylene Glycol	2012/05/03	<10		mg/kg	
		Extractable (Water) Ethylene Glycol	2012/05/03	NC		%	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) Matrix Spike below acceptance limits for Ethylbenzene, due to matrix interference. Reanalysis yields similar results.

(3) Matrix Spike below acceptance limits for m&p xylene, due to matrix interference. Reanalysis yields similar results.

(4) Matrix Spike below acceptance limits for ortho-xylene, due to matrix interference. Reanalysis yields similar results.

(5) Duplicate exceeds acceptance criteria due to sample non homogeneity. Reanalysis yields similar results.

(6) Detection limits raised due to matrix interference.

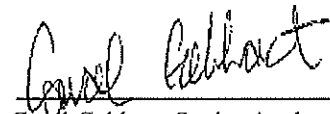


## Validation Signature Page

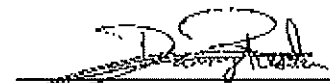
Maxxam Job #: B234555

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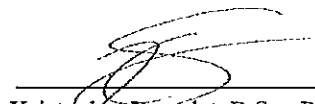
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Carol Gebhart, Senior Analyst



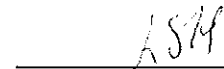
Daniel Reslan, Volatiles Supervisor



Kristopher Beaudet, B.Sc., P.Chem, Scientific Specialist



Karla Offord, Senior Analyst, Organics Department



Luba Shymushovska, Senior Analyst, Organic Department

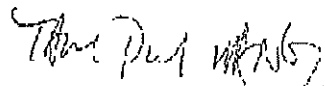


Validation Signature Page

Maxxam Job #: B234555

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Pui Hang Tam, Senior Analyst

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Consulting Company: O'Connor Associates Environmental Inc.  
 Contact: Adam Wickman  
 Address: 7 Terrace Place, Winnipeg, R2J 4B3  
 Prov: Manitoba  
 Contact #s: Ph: 204-489-2964 Cell: N/A  
 Project ID: 10-1177.100  
 Sampled By: Gordon Chamberlain

Report Distribution (E-Mail):  
 c.d.cannon-wickman@oconnor-associates.com

REGULATORY GUIDELINES:  
☐ AT1  
☒ CCME Low  
☐ Regulated Drinking Water  
☐ Other:

SERVICE REQUESTED:  
☐ RUSH (Contact lab to reserve)  
☐ 2 DAY  
☐ 1 DAY  
☐ SAME DAY  
 Date Required:  
☒ REGULAR (5 Days)

DOWNSTREAM ☒  
 Site address: 208 St. Annes Road  
 Site City/Prov: Winnipeg, Manitoba  
 Outlet number: 63955  
 Monitoring: ☒ re / in / m / m / (circle one)  
 Senior Suncor Advisor:  
 Brian Holmes ☐ Rick Lemoine ☒  
 Other:

UPSTREAM ☐  
 LSD#:   
 Site/Field:   
 AFE#:   
 RO# (if applicable):   
 Senior Suncor Advisor:  
 Mike Morden ☐ Ben Parsons ☐  
 Russell Browne ☐ Phil Scalia ☐  
 Other:

Sampled By: Gordon Chamberlain

☐ RUSH (Contact lab to reserve)

☐ 2 DAY

☐ 1 DAY

☐ SAME DAY

SERVICE REQUESTED:

Date Required:

☒ REGULAR (5 Days)

All samples are held for 60 calendar days after sample receipt, unless specified otherwise.

	Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00	BTEX Ft-F4	Sieve (75 micron)	Regulated Metals (CCME / AT1)	Salinity 4	DVOCs	BTEX Ft-F2	BTEX Ft-F4	Regulated Metals (CCME/AT1)	Total Dissolved (CCME/AT1)	Mercury <input type="checkbox"/> Total <input type="checkbox"/> Dissolved	Lead	Benz(a)pyrene, Naphthalene	Ethylene glycol, Propylene glycol	Arsenic, Barium, Chromium, Copper, Lead, Zinc	Other Analysis	HOLD - Do not Analyze	# of Containers Submitted
1	BH-23-2.3-2.6	m	Soil	12/04/27 18:15	X										X						2
2	DUP-23	m	Soil	12/04/27 18:15	X										X						2
3	BH-23-2.9-3.2	m	Soil	12/04/27 18:30	X										X						2
4	BH-23-4.7-5.0	m	Soil	12/04/27 18:45	X										X						2
5	BH-27-1.7-2.0	m	Soil	12/04/27 08:30	X										X						2
6	BH-27-2.3-2.6	m	Soil	12/04/27 08:45	X										X						2
7	BH-28-0.5-0.8	m	Soil	12/04/27 09:00	X										X						2
8	BH-28-2.3-2.6	m	Soil	12/04/27 09:15	X										X						2
9	BH-29-1.1-1.4	m	Soil	12/04/27 09:30	X										X						3
10	BH-29-2.3-2.6	m	Soil	12/04/27 10:00	X										X						3
11																					
12																					

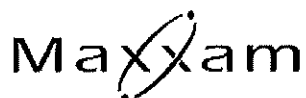
Please indicate Filtered, Preserved or Both (F, P, F/P)

Please indicate Filtered, Preserved or Both (F, P, F/P)

Relinquished By (Signature/Print): *Gordon Chamberlain* Date (YY/MM/DD): 12/04/27 Time (24:00): 1800  
 Relinquished By (Signature/Print): *Adam Wickman* Date (YY/MM/DD): 12/04/27 Time (24:00): 11:57  
 Special Instructions: Handspace may be present, please proceed with analysis.  
 # of Jars Used & Not Staged: 27 of 27

LAB USE ONLY  
 Received By: *Adam Wickman* Date: 2012/04/28 Time: 11:57  
 Maxxam Job #: 6234555  
 Custody Seal: *11:11*  
 Temperature: *11:11*  
 Lab Comments: *Maxxam*



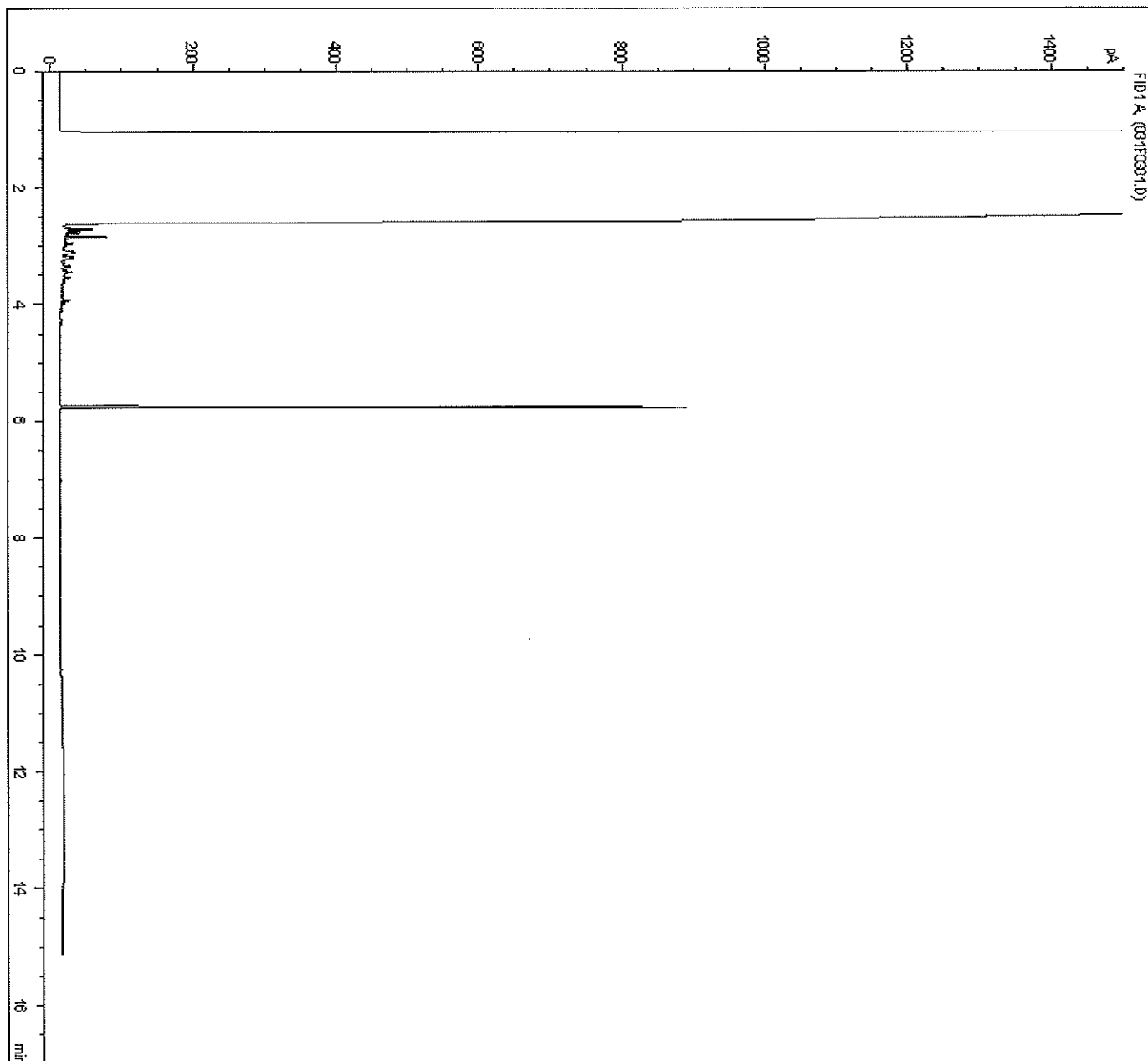


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0621

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-23-2.3-2.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\031F0301.D  
Sample Name: DH0621



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:44:58 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



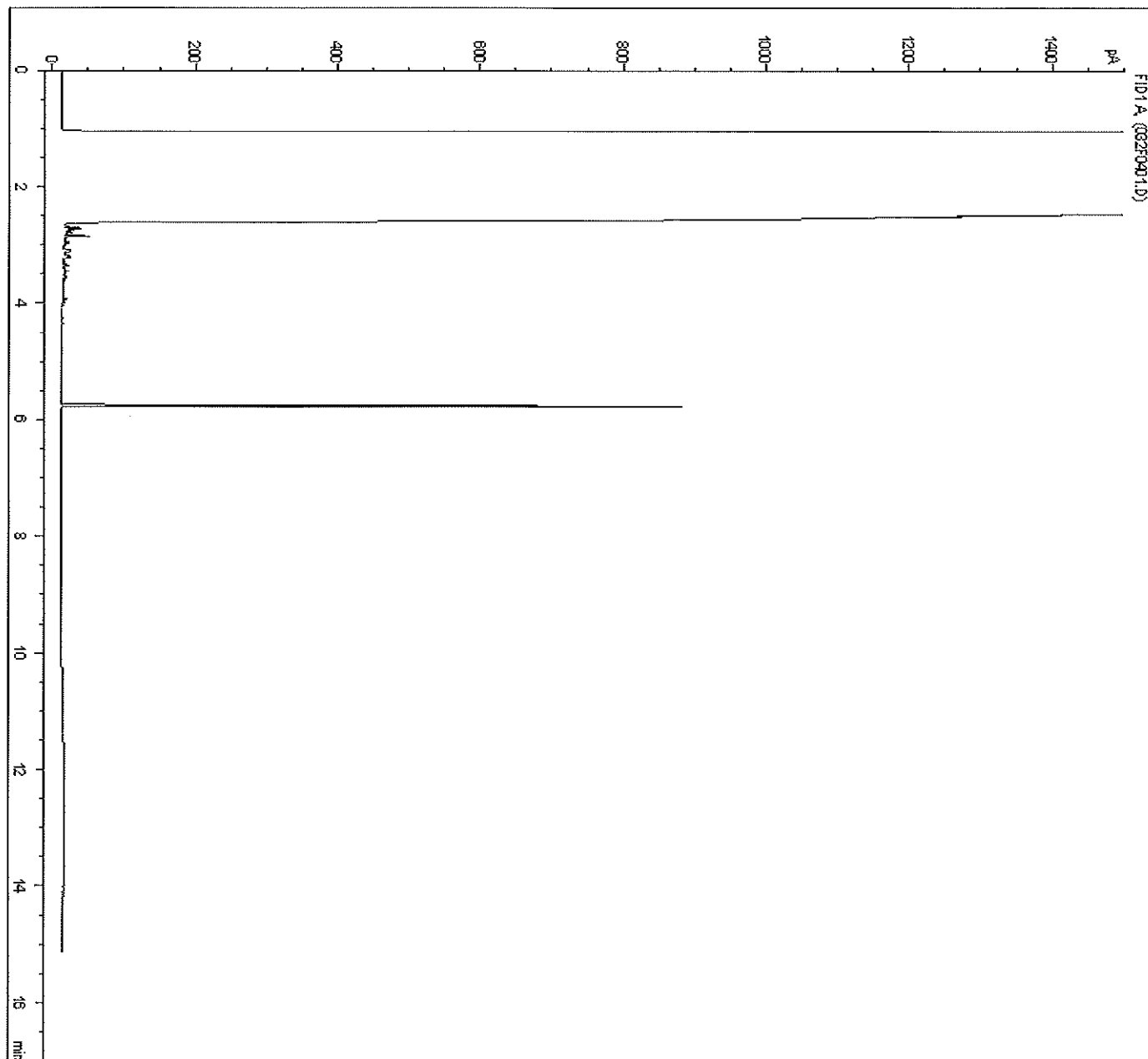


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0622

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: DUP-23

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\032F0401.D  
Sample Name: DH0622



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:00 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



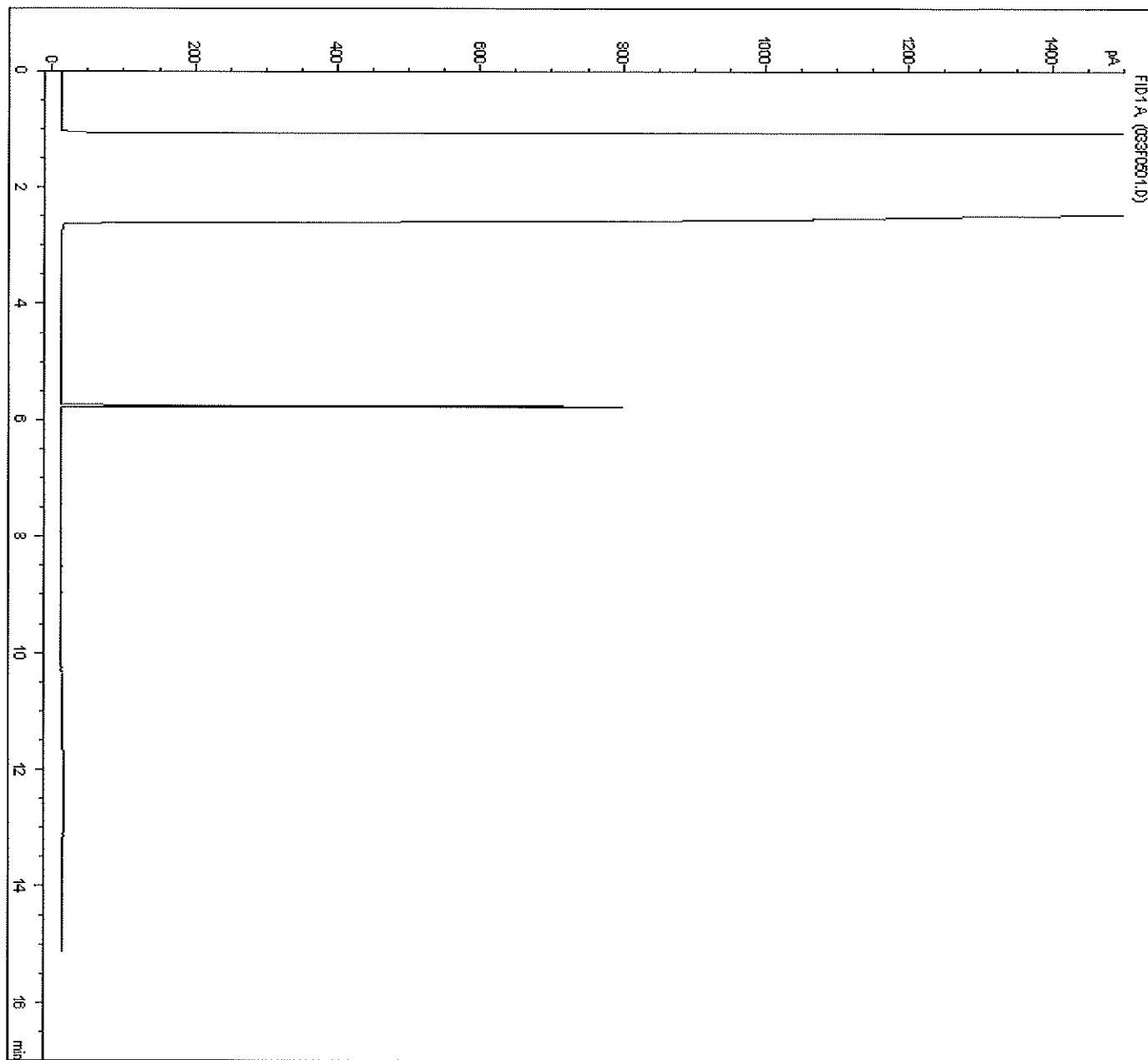


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0623

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-23-2.9-3.2

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\033F0501.D  
Sample Name: DH0623



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:03 AM AK8

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



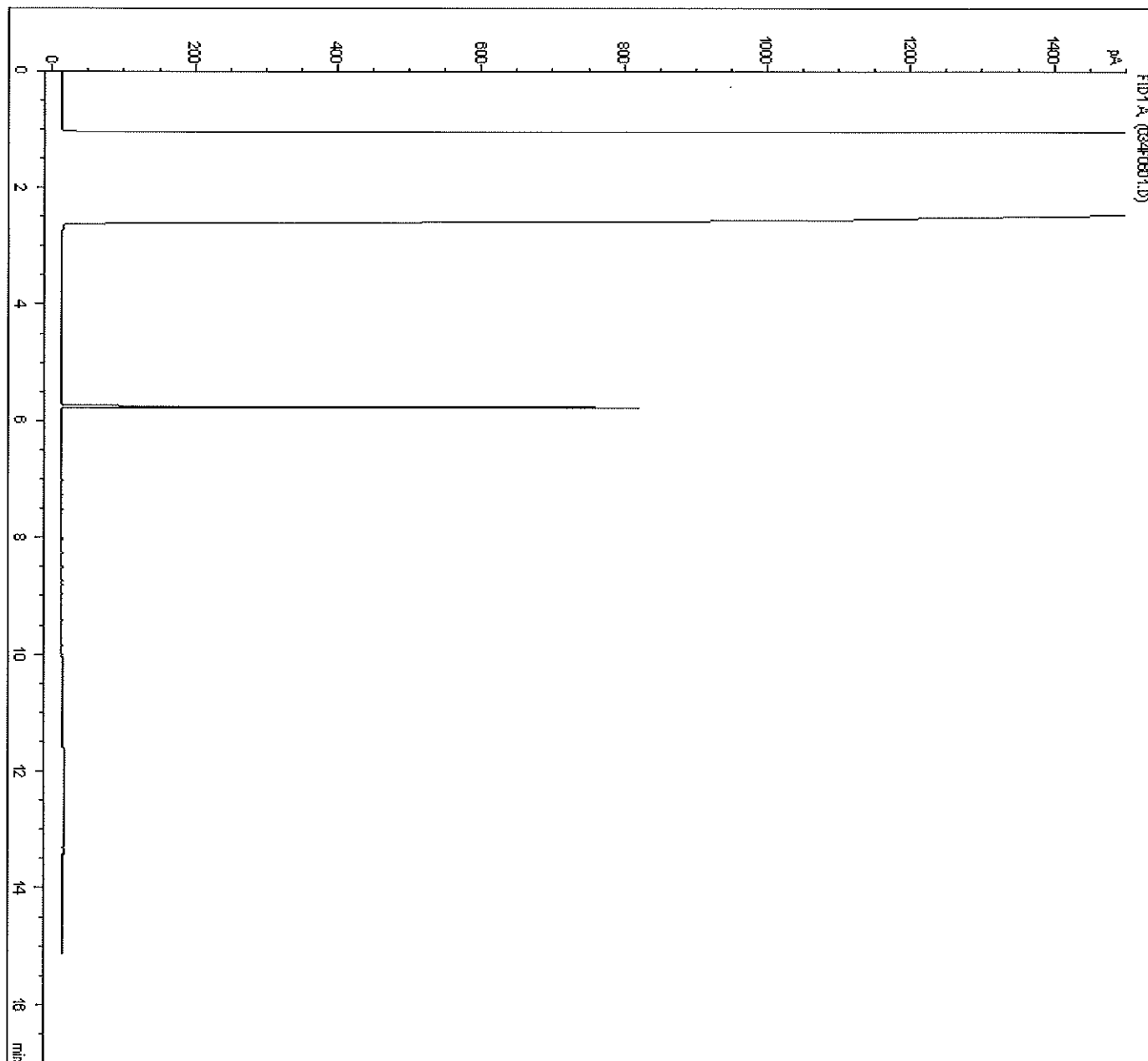


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0722

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-23-4.7-5.0

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\034F0601.D  
Sample Name: DH0722



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:05 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



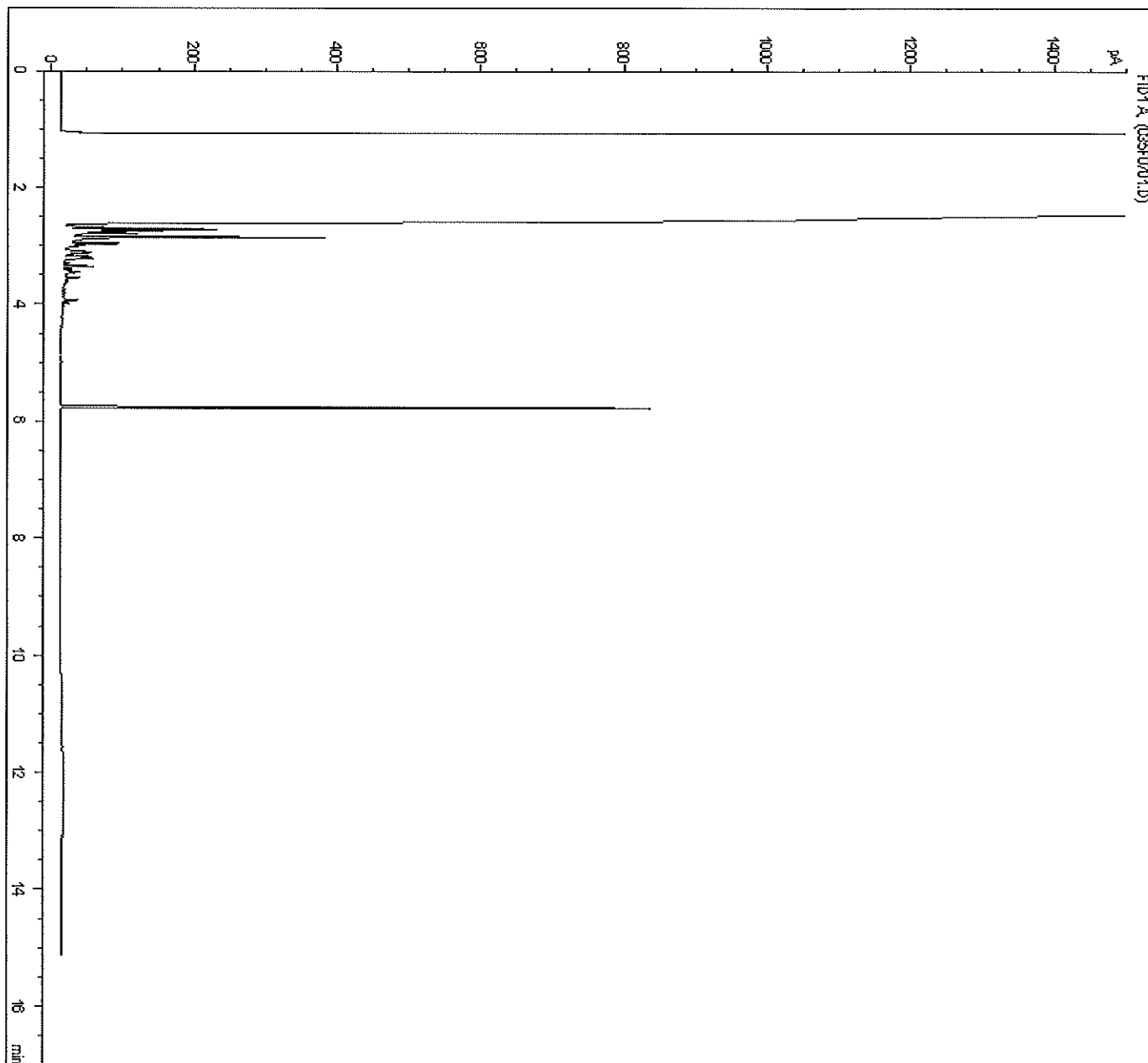


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0723

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-27-1.7-2.0

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\035F0701.D  
Sample Name: DH0723



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:07 AM AK8

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



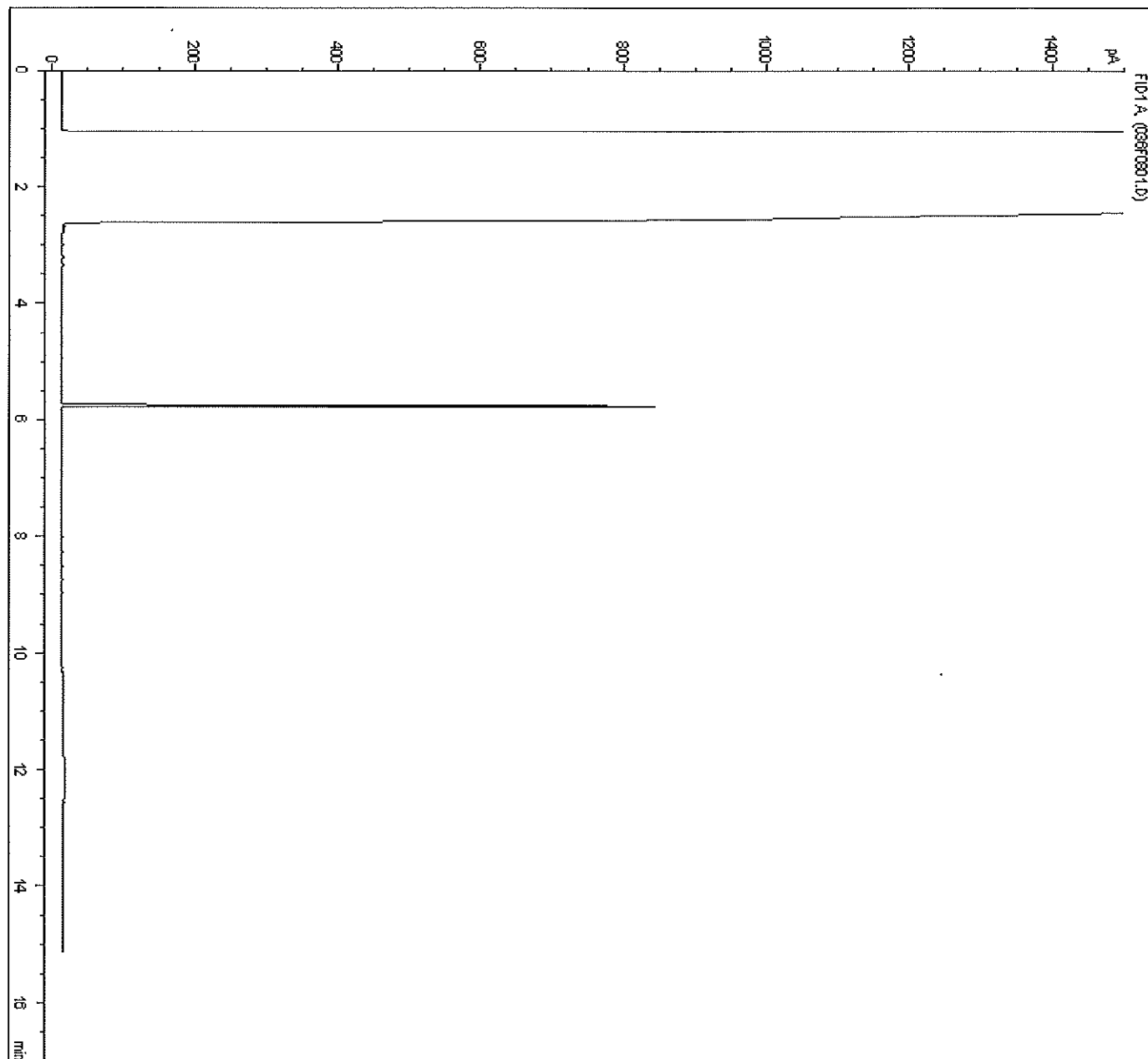


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0724

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-27-2.3-2.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\036F0801.D  
Sample Name: DH0724



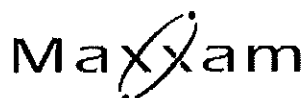
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:09 AM AK8

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



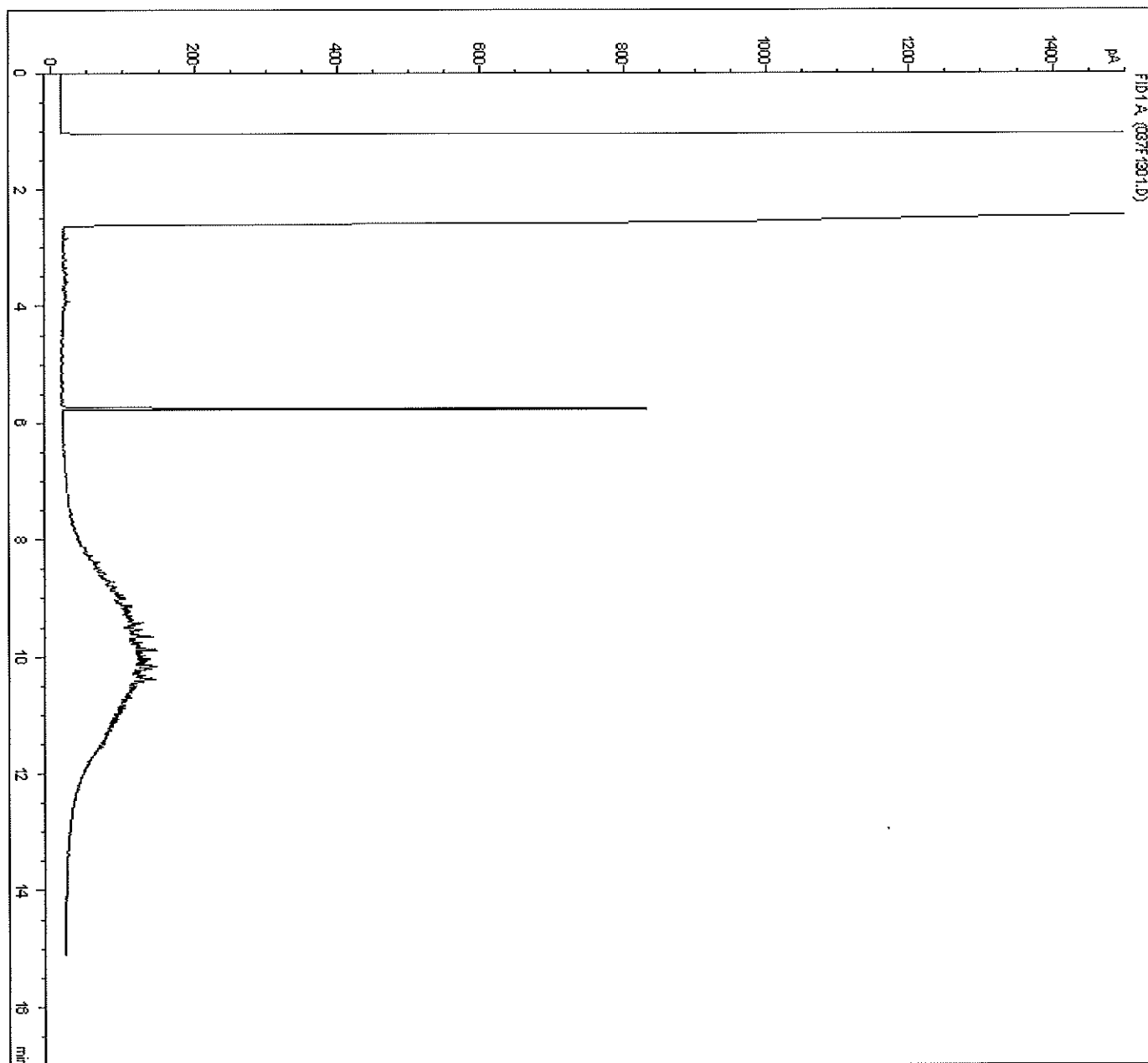


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0725

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-28-0.5-0.8

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\037F1301.D  
Sample Name: DH0725



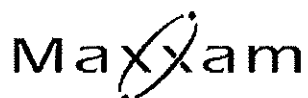
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:20 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



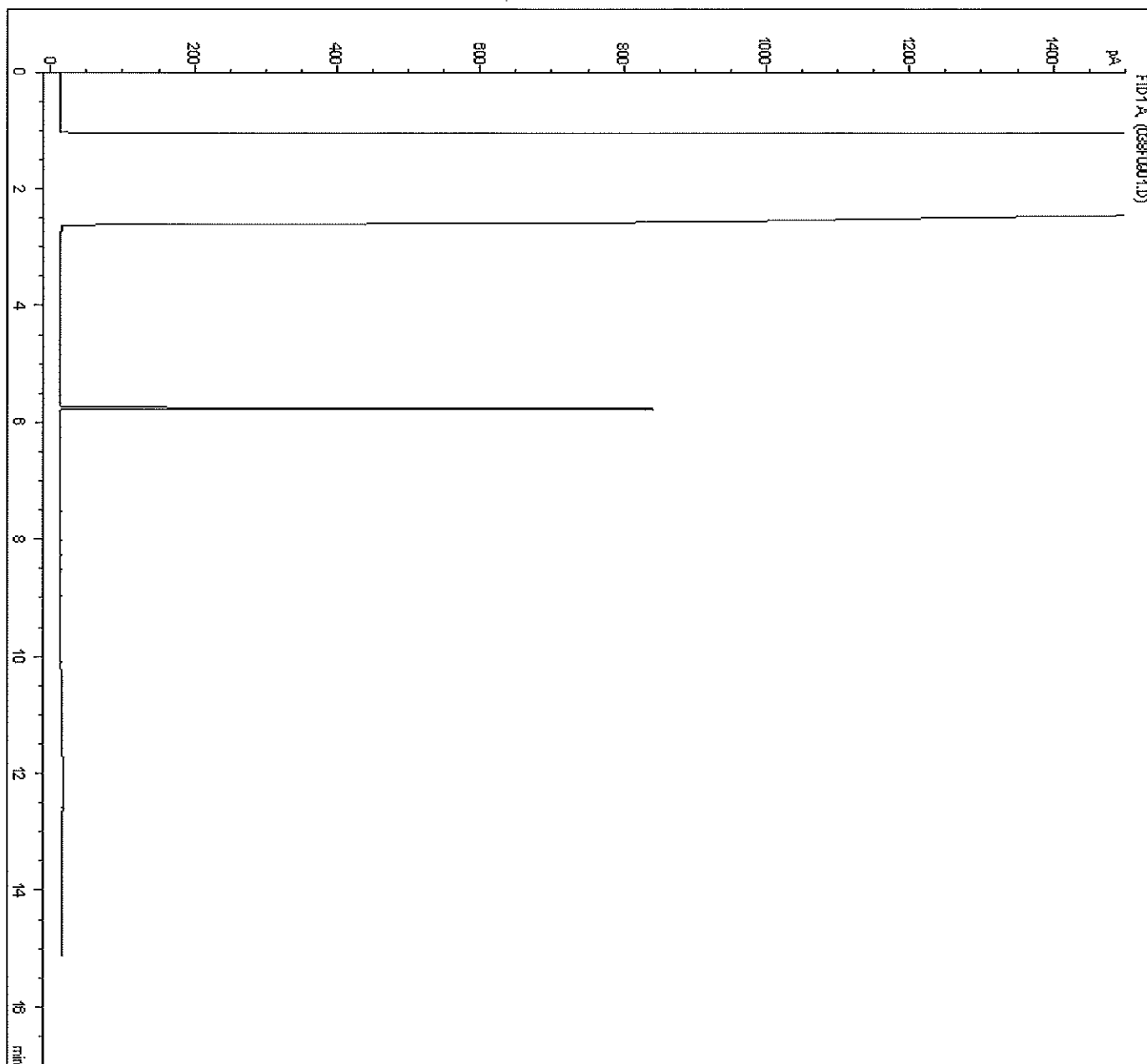


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0726

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-2.8-2.3-2.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\038F0901.D  
Sample Name: DH0726



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:11 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



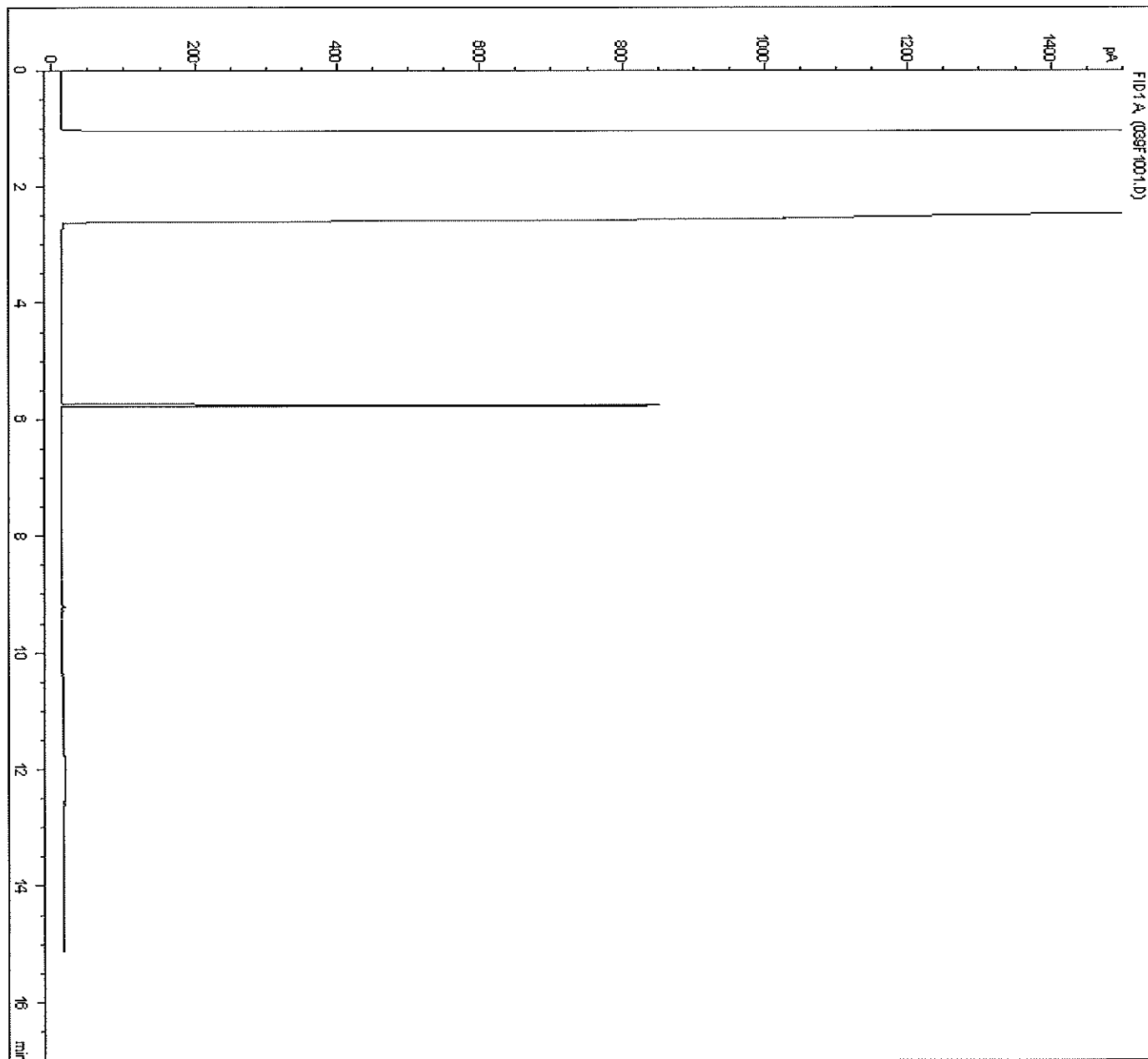


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0748

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-29-1.1-1.4

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\039F1001.D  
Sample Name: DH0748



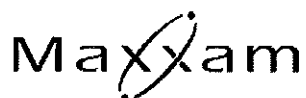
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:13 AM AK8

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



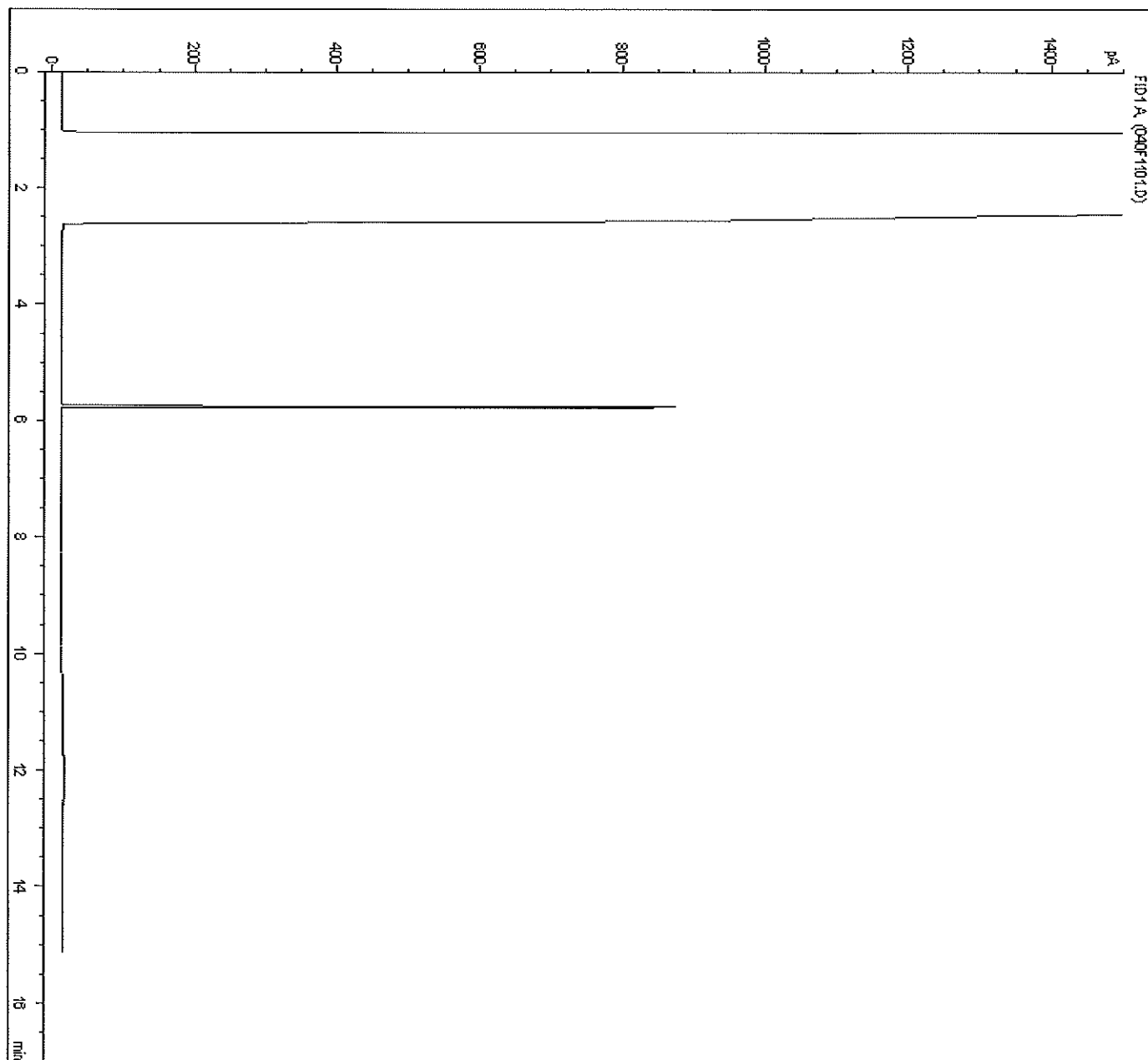


Report Date: 2012/05/07  
Maxxam Job #: B234555  
Maxxam Sample: DH0752

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD, WINNIPEG,  
Client ID: BH-29-2.3-2.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\040F1101.D  
Sample Name: DH0752



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:16 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



# DATA QUALITY REVIEW CHECKLIST

Consultant: Parsons.

Sampling Date: 2012/04/26 and 2012/04/27

Location: 208 St. Anne's Road, Winnipeg, MB

Laboratory : Maxxam Analytics Inc.

Consultant Project Number: 10-1177.100

Sample Submission Number: B234555

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>The matrix duplicate RPD is below the control limit.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration			<i>X</i>	<i>The matrix spike recovery is below the control limit.</i>
Matrix Duplicate RPD		<i>X</i>		
Matrix Spike Recovery		<i>X</i>		
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<i>X</i>	<i>The field duplicate RPD is beyond the acceptable limits.</i>
Trip Blank Concentration			<i>X</i>	
Field Duplicate RPD		<i>X</i>		

Has CoA been signed off (Yes/No)?:

Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?:

Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:

Yes

Were all samples analyzed within hold times (Yes/No)?:

Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:

Yes

Is Chain of Custody completed and signed (Yes/No)?:

Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?:

Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?:

No

Date Issued: \_\_\_\_\_


Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?:

Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-Naurocki

Data Reviewed by (Signature): 

Review Date: 2013/02/21

Revision Date (if applicable): \_\_\_\_\_

Revised by (Signature): \_\_\_\_\_





Your Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA  
Your C.O.C. #: S005952, S005953

**Attention: Adam Wickman**  
O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

**Report Date: 2012/05/07**

### CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B234556**  
**Received: 2012/04/28, 11:57**

Sample Matrix: Soil  
# Samples Received: 20

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract)	20	2012/04/28	2012/04/30	AB SOP-00039	CCME, EPA 8260C
CCME Hydrocarbons (F2-F4 in soil)	19	2012/04/28	2012/05/03	AB SOP-00040	CCME PHC-CWS
				AB SOP-00036	
CCME Hydrocarbons (F2-F4 in soil)	1	2012/05/04	2012/05/04	AB SOP-00040	CCME PHC-CWS
				AB SOP-00036	
Glycol In Soil by GC/FID (t)	2	2012/05/01	2012/05/04	CAL SOP-00093	EPA 8015 D
Elements by ICPMS - Soils	1	2012/05/01	2012/05/01	AB SOP-00043	EPA 200.8
Elements by ICPMS - Soils	1	2012/05/01	2012/05/07	AB SOP-00043	EPA 200.8
Moisture	20	N/A	2012/04/29	EENVSOP-00139	Carter SSMA 51.2
Benzo[a]pyrene Equivalency	2	N/A	2012/05/02	AB SOP-00003	EPA 8270D
Polycyclic Aromatic Hydrocarbons in soil	2	2012/04/28	2012/05/01	AB SOP-00003	EPA 3540C/8270D
				AB SOP-00036	
Lead	16	2012/05/01	2012/05/03	AB SOP-00043	EPA 200.8
Lead	2	2012/05/01	2012/05/04	AB SOP-00043	EPA 200.8
Low Level VOC in Soil	20	2012/04/28	2012/04/30	EENVSOP-00021	EPA SW846, 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental

Encryption Key

Desirae Hopkinson

07 May 2012 16:56:24 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Desirae Hopkinson, Project Manager  
Email: DHopkinson@maxxam.ca  
Phone# (780) 577-7104

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section





Your Project #: 10-1177.100

Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA

Your C.O.C. #: S005952, S005953

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL

7 TERRACON PLACE

WINNIPEG, MB

CANADA R2J 4B3

**Report Date: 2012/05/07**

**CERTIFICATE OF ANALYSIS**

-2-

5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2



**AT1 BTEX AND F1-F4 IN SOIL (SOIL)**

Maxxam ID		DH0728	DH0728	DH0729		
Sampling Date		2012/04/26 09:00	2012/04/26 09:00	2012/04/26 09:15		
COC Number		S005952	S005952	S005952		
	Units	BH-19-1.1-1.4	BH-19-1.1-1.4 Lab-Dup	BH-19-4.1-4.4	RDL	QC Batch

<b>Physical Properties</b>						
Moisture	%	4.1	4.8	33	0.30	5799443
<b>Ext. Pet. Hydrocarbon</b>						
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	N/A	<10	10	5799758
F3 (C16-C34 Hydrocarbons)	mg/kg	78	N/A	73	10	5799758
F4 (C34-C50 Hydrocarbons)	mg/kg	110	N/A	46	10	5799758
Reached Baseline at C50	mg/kg	Yes	N/A	Yes	N/A	5799758
<b>Volatiles</b>						
Benzene	mg/kg	<0.0050	<0.0050	0.047	0.0050	5799989
Toluene	mg/kg	<0.020	<0.020	<0.020	0.020	5799989
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	0.010	5799989
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.040	5799989
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.040	5799989
o-Xylene	mg/kg	<0.020	<0.020	<0.020	0.020	5799989
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	12	5799989
(C6-C10)	mg/kg	<12	<12	<12	12	5799989
<b>Surrogate Recovery (%)</b>						
1,4-Difluorobenzene (sur.)	%	104	103	119	N/A	5799989
4-BROMOFLUOROBENZENE (sur.)	%	99	98	97	N/A	5799989
D10-ETHYLBENZENE (sur.)	%	112	109	113	N/A	5799989
D4-1,2-DICHLOROETHANE (sur.)	%	98	99	98	N/A	5799989
O-TERPHENYL (sur.)	%	113	N/A	117	N/A	5799758

N/A = Not Applicable

RDL = Reportable Detection Limit



**AT1 BTEX AND F1-F4 IN SOIL (SOIL)**

Maxxam ID		DH0730	DH0730		DH0731		
Sampling Date		2012/04/26 10:15	2012/04/26 10:15		2012/04/26 10:30		
COC Number		S005952	S005952		S005952		
	Units	BH-20-2.3-2.6	BH-20-2.3-2.6 Lab-Dup	RDL	BH-20-3.5-3.8	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	19	N/A	0.30	34	0.30	5799443
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	170	230	10	<10	10	5799758
F3 (C16-C34 Hydrocarbons)	mg/kg	19	20	10	46	10	5799758
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	10	19	10	5799758
Reached Baseline at C50	mg/kg	Yes	Yes	N/A	Yes	N/A	5799758
<b>Volatiles</b>							
Benzene	mg/kg	<0.060 (1)	N/A	0.060	<0.0050	0.0050	5799989
Toluene	mg/kg	0.11	N/A	0.020	<0.020	0.020	5799989
Ethylbenzene	mg/kg	11	N/A	0.010	<0.010	0.010	5799989
Xylenes (Total)	mg/kg	44	N/A	0.040	<0.040	0.040	5799989
m & p-Xylene	mg/kg	38	N/A	0.040	<0.040	0.040	5799989
o-Xylene	mg/kg	5.7	N/A	0.020	<0.020	0.020	5799989
F1 (C6-C10) - BTEX	mg/kg	860	N/A	12	<12	12	5799989
(C6-C10)	mg/kg	920	N/A	12	<12	12	5799989
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	115	N/A	N/A	118	N/A	5799989
4-BROMOFLUOROBENZENE (sur.)	%	111	N/A	N/A	99	N/A	5799989
D10-ETHYLBENZENE (sur.)	%	153 (2)	N/A	N/A	115	N/A	5799989
D4-1,2-DICHLOROETHANE (sur.)	%	100	N/A	N/A	100	N/A	5799989
O-TERPHENYL (sur.)	%	109	109	N/A	101	N/A	5799758

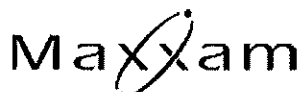
N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Detection limits raised due to matrix interference

( 2 ) Surrogate recovery exceeds acceptance criteria (recovery outside 60-130%) due to matrix interference. Reanalysis yields similar results.





Maxxam Job #: B234556  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA  
Sampler Initials: GC

### AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		DH0732	DH0733	DH0734	DH0735		
Sampling Date		2012/04/26 10:45	2012/04/26 11:45	2012/04/26 12:00	2012/04/26 13:00		
COC Number		S005952	S005952	S005952	S005952		
	Units	BH-20-4.7-5.0	BH-21-2.3-2.6	BH-21-3.5-3.8	BH-22-2.3-2.6	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	35	N/A	N/A	24	0.30	5799443
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	180	<10	40	10	5799758
F3 (C16-C34 Hydrocarbons)	mg/kg	20	67	73	<10	10	5799758
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	20	34	<10	10	5799758
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	5799758
<b>Volatiles</b>							
Benzene	mg/kg	<0.0050	0.019	<0.0050	3.6	0.0050	5799989
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	5799989
Ethylbenzene	mg/kg	<0.010	0.32	<0.010	7.0	0.010	5799989
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	8.5	0.040	5799989
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	8.5	0.040	5799989
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	5799989
F1 (C6-C10) - BTEX	mg/kg	<12	47	<12	130	12	5799989
(C6-C10)	mg/kg	<12	48	<12	150	12	5799989
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	119	118	121	110	N/A	5799989
4-BROMOFLUOROBENZENE (sur.)	%	98	101	101	102	N/A	5799989
D10-ETHYLBENZENE (sur.)	%	113	122	120	121	N/A	5799989
D4-1,2-DICHLOROETHANE (sur.)	%	97	98	99	99	N/A	5799989
O-TERPHENYL (sur.)	%	86	115	124	109	N/A	5799758

N/A = Not Applicable  
RDL = Reportable Detection Limit



### AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		DH0736	DH0737	DH0738	DH0739		
Sampling Date		2012/04/26 13:00	2012/04/26 13:15	2012/04/26 13:30	2012/04/26 14:30		
COC Number		S005952	S005952	S005952	S005953		
	Units	DUP-22	BH-22-3.5-3.8	BH-22-4.7-5.0	BH-24-2.3-2.6	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	33	35	36	19	0.30	5799443
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	86	<10	<10	130	10	5799758
F3 (C16-C34 Hydrocarbons)	mg/kg	11	62	200	29	10	5799758
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	31	100	<10	10	5799758
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	5799758
<b>Volatiles</b>							
Benzene	mg/kg	4.0	<0.0050	<0.0050	7.0	0.0050	5799989
Toluene	mg/kg	<0.020	<0.020	<0.020	20	0.020	5799989
Ethylbenzene	mg/kg	8.2	<0.010	<0.010	8.4	0.010	5799989
Xylenes (Total)	mg/kg	10	<0.040	<0.040	44	0.040	5799989
m & p-Xylene	mg/kg	10	<0.040	<0.040	30	0.040	5799989
o-Xylene	mg/kg	<0.020	<0.020	<0.020	14	0.020	5799989
F1 (C6-C10) - BTEX	mg/kg	140	<12	<12	110	12	5799989
(C6-C10)	mg/kg	160	<12	<12	190	12	5799989
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	114	118	119	107	N/A	5799989
4-BROMOFLUOROBENZENE (sur.)	%	102	100	100	105	N/A	5799989
D10-ETHYLBENZENE (sur.)	%	126	114	113	118	N/A	5799989
D4-1,2-DICHLOROETHANE (sur.)	%	98	99	97	99	N/A	5799989
O-TERPHENYL (sur.)	%	111	96	104	96	N/A	5799758

N/A = Not Applicable  
RDL = Reportable Detection Limit



### AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		DH0740	DH0741	DH0742	DH0743		
Sampling Date		2012/04/26 14:45	2012/04/26 15:00	2012/04/26 16:00	2012/04/26 16:00		
COC Number		S005953	S005953	S005953	S005953		
	Units	BH-24-3.5-3.8	BH-24-4.7-5.0	BH-25-1.7-2.0	DUP-25	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	33	33	24	23	0.30	5799443
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	170	89	10	5799758
F3 (C16-C34 Hydrocarbons)	mg/kg	74	41	16	13	10	5799758
F4 (C34-C50 Hydrocarbons)	mg/kg	41	27	<10	<10	10	5799758
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	5799758
<b>Volatiles</b>							
Benzene	mg/kg	0.031	<0.0050	0.62	1.8	0.0050	5799989
Toluene	mg/kg	0.071	<0.020	0.056	0.091	0.020	5799989
Ethylbenzene	mg/kg	<0.010	<0.010	2.9	4.2	0.010	5799989
Xylenes (Total)	mg/kg	<0.040	<0.040	3.9	5.5	0.040	5799989
m & p-Xylene	mg/kg	<0.040	<0.040	3.9	5.4	0.040	5799989
o-Xylene	mg/kg	<0.020	<0.020	0.061	0.087	0.020	5799989
F1 (C6-C10) - BTEX	mg/kg	<12	<12	140	170	12	5799989
(C6-C10)	mg/kg	<12	<12	150	180	12	5799989
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	117	117	113	112	N/A	5799989
4-BROMOFLUOROBENZENE (sur.)	%	100	100	101	102	N/A	5799989
D10-ETHYLBENZENE (sur.)	%	114	112	124	126	N/A	5799989
D4-1,2-DICHLOROETHANE (sur.)	%	100	100	101	101	N/A	5799989
O-TERPHENYL (sur.)	%	109	102	104	107	N/A	5799758

N/A = Not Applicable  
RDL = Reportable Detection Limit



### AT1 BTEX AND F1-F4 IN SOIL (SOIL)

Maxxam ID		DH0744	DH0745	DH0746	DH0747		
Sampling Date		2012/04/26 16:15	2012/04/26 16:30	2012/04/26 17:30	2012/04/26 17:45		
COC Number		S005953	S005953	S005953	S005953		
	Units	BH-25-3.5-3.8	BH-25-4.7-5.0	BH-26-1.7-2.0	BH-26-2.3-2.6	RDL	QC Batch

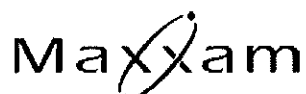
<b>Physical Properties</b>							
Moisture	%	33	34	31	32	0.30	5799443
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	5799758
F3 (C16-C34 Hydrocarbons)	mg/kg	72	70	42	50	10	5799758
F4 (C34-C50 Hydrocarbons)	mg/kg	39	35	19	24	10	5799758
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	5799758
<b>Volatiles</b>							
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	5799989
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	5799989
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	0.010	5799989
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	5799989
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	5799989
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	5799989
F1 (C6-C10) - BTEX	mg/kg	<12	<12	<12	<12	12	5799989
(C6-C10)	mg/kg	<12	<12	<12	<12	12	5799989
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	117	118	115	105	N/A	5799989
4-BROMOFLUOROBENZENE (sur.)	%	101	98	98	105	N/A	5799989
D10-ETHYLBENZENE (sur.)	%	113	114	110	92	N/A	5799989
D4-1,2-DICHLOROETHANE (sur.)	%	99	97	101	146 (f)	N/A	5799989
O-TERPHENYL (sur.)	%	105	93	103	107	N/A	5799758

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.





Maxxam Job #: B234556  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA  
Sampler Initials: GC

### RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		DH0733	DH0734		
Sampling Date		2012/04/26 11:45	2012/04/26 12:00		
COC Number		S005952	S005952		
	Units	BH-21-2.3-2.6	BH-21-3.5-3.8	RDL	QC Batch

Physical Properties					
Moisture	%	30	36	0.30	5799443
RDL = Reportable Detection Limit					





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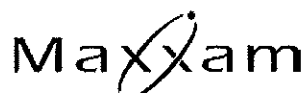
### GLYCOLS BY GC-FID (SOIL)

Maxxam ID		DH0733	DH0734		
Sampling Date		2012/04/26 11:45	2012/04/26 12:00		
COC Number		S005952	S005952		
	Units	BH-21-2.3-2.6	BH-21-3.5-3.8	RDL	QC Batch

Glycols					
Extractable (Water) Ethylene Glycol	mg/kg	<10	<10	10	5806519
Extractable (Water) Propylene Glycol	mg/kg	<10	<10	10	5806519
Surrogate Recovery (%)					
Extractable (Water) Methyl Sulfone (sur.)	%	55	51	N/A	5806519

N/A = Not Applicable  
RDL = Reportable Detection Limit





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O'CONNOR ASSOCIATES ENVIRONMENTAL  
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Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA  
Sampler Initials: GC

### SEMIVOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DH0733		DH0734		
Sampling Date		2012/04/26 11:45		2012/04/26 12:00		
COC Number		S005952		S005952		
	Units	BH-21-2.3-2.6	RDL	BH-21-3.5-3.8	RDL	QC Batch

<b>Polycyclic Aromatics</b>						
Benzo[a]pyrene equivalency	mg/kg	<0.10	0.10	<0.10	0.10	5799368
Benzo(a)pyrene	mg/kg	<0.0050	0.0050	<0.0050	0.0050	5799336
Naphthalene	mg/kg	<0.041 (1)	0.041	<0.0050	0.0050	5799336
<b>Surrogate Recovery (%)</b>						
D10-ANTHRACENE (sur.)	%	82	N/A	83	N/A	5799336
D12-BENZO(A)PYRENE (sur.)	%	92	N/A	92	N/A	5799336
D8-ACENAPHTHYLENE (sur.)	%	78	N/A	85	N/A	5799336
TERPHENYL-D14 (sur.)	%	87	N/A	93	N/A	5799336

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Detection limits raised due to matrix interference



## ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		DH0728	DH0728	DH0729	DH0730	DH0731		
Sampling Date		2012/04/26 09:00	2012/04/26 09:00	2012/04/26 09:15	2012/04/26 10:15	2012/04/26 10:30		
COC Number		S005952	S005952	S005952	S005952	S005952		
	Units	BH-19-1.1-1.4	BH-19-1.1-1.4 Lab-Dup	BH-19-4.1-4.4	BH-20-2.3-2.6	BH-20-3.5-3.8	RDL	QC Batch

Elements								
Total Lead (Pb)	mg/kg	2.0	2.0	14	13	13	1.0	5803921

RDL = Reportable Detection Limit

Maxxam ID		DH0732	DH0733		DH0734	DH0735		
Sampling Date		2012/04/26 10:45	2012/04/26 11:45		2012/04/26 12:00	2012/04/26 13:00		
COC Number		S005952	S005952		S005952	S005952		
	Units	BH-20-4.7-5.0	BH-21-2.3-2.6	QC Batch	BH-21-3.5-3.8	BH-22-2.3-2.6	RDL	QC Batch

Elements								
Total Arsenic (As)	mg/kg	N/A	11	5807874	13	N/A	1.0	5803936
Total Lead (Pb)	mg/kg	14	N/A	5803921	N/A	11	1.0	5803921
Total Barium (Ba)	mg/kg	N/A	260	5807874	210	N/A	10	5803936
Total Chromium (Cr)	mg/kg	N/A	60	5807874	49	N/A	1.0	5803936
Total Copper (Cu)	mg/kg	N/A	41	5807874	38	N/A	5.0	5803936
Total Lead (Pb)	mg/kg	N/A	17	5807874	15	N/A	1.0	5803936
Total Zinc (Zn)	mg/kg	N/A	100	5807874	98	N/A	10	5803936

N/A = Not Applicable

RDL = Reportable Detection Limit

Maxxam ID		DH0736	DH0737	DH0738	DH0739	DH0740		
Sampling Date		2012/04/26 13:00	2012/04/26 13:15	2012/04/26 13:30	2012/04/26 14:30	2012/04/26 14:45		
COC Number		S005952	S005952	S005952	S005953	S005953		
	Units	DUP-22	BH-22-3.5-3.8	BH-22-4.7-5.0	BH-24-2.3-2.6	BH-24-3.5-3.8	RDL	QC Batch

Elements								
Total Lead (Pb)	mg/kg	11	14	13	3.4	13	1.0	5803921

RDL = Reportable Detection Limit





Maxxam Job #: B234556  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
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Sampler Initials: GC

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		DH0741	DH0742	DH0743	DH0744	DH0745		
Sampling Date		2012/04/26 15:00	2012/04/26 16:00	2012/04/26 16:00	2012/04/26 16:15	2012/04/26 16:30		
COC Number		S005953	S005953	S005953	S005953	S005953		
	Units	BH-24-4.7-5.0	BH-25-1.7-2.0	DUP-25	BH-25-3.5-3.8	BH-25-4.7-5.0	RDL	QC Batch

Elements								
Total Lead (Pb)	mg/kg	11	8.8	9.8	13	12	1.0	5803921

RDL = Reportable Detection Limit

Maxxam ID		DH0746	DH0747		
Sampling Date		2012/04/26 17:30	2012/04/26 17:45		
COC Number		S005953	S005953		
	Units	BH-26-1.7-2.0	BH-26-2.3-2.6	RDL	QC Batch

Elements					
Total Lead (Pb)	mg/kg	12	12	1.0	5803921

RDL = Reportable Detection Limit



### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DH0728	DH0728	DH0729		
Sampling Date		2012/04/26 09:00	2012/04/26 09:00	2012/04/26 09:15		
COC Number		S005952	S005952	S005952		
	Units	BH-19-1.1-1.4	BH-19-1.1-1.4 Lab-Dup	BH-19-4.1-4.4	RDL	QC Batch

<b>Volatiles</b>						
1,2-dibromoethane	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	5800011
1,2-dichloroethane	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	5800011
<b>Surrogate Recovery (%)</b>						
4-BROMOFLUOROBENZENE (sur.)	%	100	105	101	N/A	5800011
D10-ETHYLBENZENE (sur.)	%	105	109	121	N/A	5800011
D4-1,2-DICHLOROETHANE (sur.)	%	96	96	97	N/A	5800011
D8-TOLUENE (sur.)	%	99	99	99	N/A	5800011
N/A = Not Applicable RDL = Reportable Detection Limit						

Maxxam ID		DH0730		DH0731	DH0732		
Sampling Date		2012/04/26 10:15		2012/04/26 10:30	2012/04/26 10:45		
COC Number		S005952		S005952	S005952		
	Units	BH-20-2.3-2.6	RDL	BH-20-3.5-3.8	BH-20-4.7-5.0	RDL	QC Batch

<b>Volatiles</b>							
1,2-dibromoethane	mg/kg	<0.060 (1)	0.060	<0.0020	<0.0020	0.0020	5800011
1,2-dichloroethane	mg/kg	<0.0020	0.0020	0.0579	<0.0020	0.0020	5800011
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	103	N/A	104	105	N/A	5800011
D10-ETHYLBENZENE (sur.)	%	124	N/A	121	122	N/A	5800011
D4-1,2-DICHLOROETHANE (sur.)	%	92	N/A	96	97	N/A	5800011
D8-TOLUENE (sur.)	%	98	N/A	100	99	N/A	5800011
N/A = Not Applicable RDL = Reportable Detection Limit ( 1 ) Detection limits raised due to matrix interference.							



### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DH0733		DH0734		DH0735		
Sampling Date		2012/04/26 11:45		2012/04/26 12:00		2012/04/26 13:00		
COC Number		S005952		S005952		S005952		
	Units	BH-21-2.3-2.6	RDL	BH-21-3.5-3.8	RDL	BH-22-2.3-2.6	RDL	QC Batch

<b>Volatiles</b>								
1,2-dibromoethane	mg/kg	<0.020 (1)	0.020	<0.0020	0.0020	<0.030 (1)	0.030	5800011
1,2-dichloroethane	mg/kg	0.0215	0.0020	<0.0020	0.0020	0.0977	0.0020	5800011
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	103	N/A	104	N/A	101	N/A	5800011
D10-ETHYLBENZENE (sur.)	%	127	N/A	122	N/A	122	N/A	5800011
D4-1,2-DICHLOROETHANE (sur.)	%	92	N/A	94	N/A	93	N/A	5800011
D8-TOLUENE (sur.)	%	100	N/A	100	N/A	101	N/A	5800011

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Detection limits raised due to matrix interference.

Maxxam ID		DH0736		DH0737		DH0738		
Sampling Date		2012/04/26 13:00		2012/04/26 13:15		2012/04/26 13:30		
COC Number		S005952		S005952		S005952		
	Units	DUP-22	RDL	BH-22-3.5-3.8	RDL	BH-22-4.7-5.0	RDL	QC Batch

<b>Volatiles</b>								
1,2-dibromoethane	mg/kg	<0.030 (1)	0.030	<0.0020	<0.0020	0.0020	5800011	
1,2-dichloroethane	mg/kg	0.129	0.0020	<0.0020	<0.0020	0.0020	5800011	
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	105	N/A	102	100	N/A	5800011	
D10-ETHYLBENZENE (sur.)	%	99	N/A	123	122	N/A	5800011	
D4-1,2-DICHLOROETHANE (sur.)	%	91	N/A	96	95	N/A	5800011	
D8-TOLUENE (sur.)	%	100	N/A	99	98	N/A	5800011	

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Detection limits raised due to matrix interference.



### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DH0739		DH0740	DH0741		
Sampling Date		2012/04/26 14:30		2012/04/26 14:45	2012/04/26 15:00		
COC Number		S005953		S005953	S005953		
	Units	BH-24-2.3-2.6	RDL	BH-24-3.5-3.8	BH-24-4.7-5.0	RDL	QC Batch

<b>Volatiles</b>							
1,2-dibromoethane	mg/kg	<0.0040 (1)	0.0040	<0.0020	<0.0020	0.0020	5800011
1,2-dichloroethane	mg/kg	<0.0020	0.0020	0.0113	<0.0020	0.0020	5800011
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	104	N/A	103	103	N/A	5800011
D10-ETHYLBENZENE (sur.)	%	115	N/A	120	121	N/A	5800011
D4-1,2-DICHLOROETHANE (sur.)	%	91	N/A	95	95	N/A	5800011
D8-TOLUENE (sur.)	%	100	N/A	102	99	N/A	5800011

N/A = Not Applicable  
RDL = Reportable Detection Limit  
( 1 ) Detection limits raised due to matrix interference.

Maxxam ID		DH0742	DH0743		DH0744		
Sampling Date		2012/04/26 16:00	2012/04/26 16:00		2012/04/26 16:15		
COC Number		S005953	S005953		S005953		
	Units	BH-25-1.7-2.0	DUP-25	RDL	BH-25-3.5-3.8	RDL	QC Batch

<b>Volatiles</b>							
1,2-dibromoethane	mg/kg	<0.030 (1)	<0.030 (1)	0.030	<0.0020	0.0020	5800011
1,2-dichloroethane	mg/kg	<0.0020	<0.0020	0.0020	0.0346	0.0020	5800011
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	101	103	N/A	101	N/A	5800011
D10-ETHYLBENZENE (sur.)	%	124	123	N/A	120	N/A	5800011
D4-1,2-DICHLOROETHANE (sur.)	%	92	94	N/A	94	N/A	5800011
D8-TOLUENE (sur.)	%	100	101	N/A	99	N/A	5800011

N/A = Not Applicable  
RDL = Reportable Detection Limit  
( 1 ) Detection limits raised due to matrix interference.





Maxxam Job #: B234556  
Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA  
Sampler Initials: GC

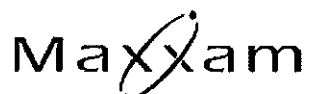
### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		DH0745	DH0746	DH0747		
Sampling Date		2012/04/26 16:30	2012/04/26 17:30	2012/04/26 17:45		
COC Number		S005953	S005953	S005953		
	Units	BH-25-4.7-5.0	BH-26-1.7-2.0	BH-26-2.3-2.6	RDL	QC Batch

Volatiles						
1,2-dibromoethane	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	5800011
1,2-dichloroethane	mg/kg	<0.0020	<0.0020	<0.0020	0.0020	5800011
Surrogate Recovery (%)						
4-BROMOFLUOROBENZENE (sur.)	%	100	99	102	N/A	5800011
D10-ETHYLBENZENE (sur.)	%	120	121	122	N/A	5800011
D4-1,2-DICHLOROETHANE (sur.)	%	94	94	94	N/A	5800011
D8-TOLUENE (sur.)	%	98	98	98	N/A	5800011

N/A = Not Applicable  
RDL = Reportable Detection Limit





Maxxam Job #: B234556

Report Date: 2012/05/07

O'CONNOR ASSOCIATES ENVIRONMENTAL

Client Project #: 10-1177.100

Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA

Sampler Initials: GC

Package 1	1.0°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**





## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA

## Quality Assurance Report

Maxxam Job Number: EB234556

QA/QC Batch			Date Analyzed						
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	Units	QC Limits		
5799336 YC1	Matrix Spike	D10-ANTHRACENE (sur.)	2012/04/30		74	%	50 - 130		
		D12-BENZO(A)PYRENE (sur.)	2012/04/30		46 (1)	%	50 - 130		
		D8-ACENAPHTHYLENE (sur.)	2012/04/30		77	%	50 - 130		
		TERPHENYL-D14 (sur.)	2012/04/30		88	%	50 - 130		
	Spiked Blank	Naphthalene	2012/04/30		91	%	50 - 130		
		D10-ANTHRACENE (sur.)	2012/04/30		90	%	50 - 130		
		D12-BENZO(A)PYRENE (sur.)	2012/04/30		99	%	50 - 130		
		D8-ACENAPHTHYLENE (sur.)	2012/04/30		94	%	50 - 130		
	Method Blank	TERPHENYL-D14 (sur.)	2012/04/30		91	%	50 - 130		
		Benzo(a)pyrene	2012/04/30		91	%	50 - 130		
		Naphthalene	2012/04/30		90	%	50 - 130		
		D10-ANTHRACENE (sur.)	2012/04/30		92	%	50 - 130		
	RPD	D12-BENZO(A)PYRENE (sur.)	2012/04/30		99	%	50 - 130		
		D8-ACENAPHTHYLENE (sur.)	2012/04/30		88	%	50 - 130		
		TERPHENYL-D14 (sur.)	2012/04/30		97	%	50 - 130		
		Benzo(a)pyrene	2012/04/30	<0.0050		mg/kg			
	RPD	Naphthalene	2012/04/30	<0.0050		mg/kg			
		Benzo(a)pyrene	2012/04/30	NC		%	50		
		Naphthalene	2012/04/30	19.9		%	50		
		Moisture	2012/04/29	<0.30		%			
	5799443 KH7	Method Blank	Moisture	2012/04/29	15.7		%	20	
RPD [DH0728-01]		Moisture	2012/04/29			%			
5799758 AK8	Matrix Spike [DH0731-01]	O-TERPHENYL (sur.)	2012/05/03		121	%	50 - 130		
		F2 (C10-C16 Hydrocarbons)	2012/05/03		95	%	50 - 130		
		F3 (C16-C34 Hydrocarbons)	2012/05/03		108	%	50 - 130		
		F4 (C34-C50 Hydrocarbons)	2012/05/03		117	%	50 - 130		
	Spiked Blank	O-TERPHENYL (sur.)	2012/05/03		103	%	50 - 130		
		F2 (C10-C16 Hydrocarbons)	2012/05/03		83	%	70 - 130		
		F3 (C16-C34 Hydrocarbons)	2012/05/03		91	%	70 - 130		
		F4 (C34-C50 Hydrocarbons)	2012/05/03		97	%	70 - 130		
	Method Blank	O-TERPHENYL (sur.)	2012/05/04		97	%	50 - 130		
		F2 (C10-C16 Hydrocarbons)	2012/05/04	<10		mg/kg			
		F3 (C16-C34 Hydrocarbons)	2012/05/04	<10		mg/kg			
		F4 (C34-C50 Hydrocarbons)	2012/05/04	<10		mg/kg			
	RPD [DH0730-01]	F2 (C10-C16 Hydrocarbons)	2012/05/03	30.4		%	50		
		F3 (C16-C34 Hydrocarbons)	2012/05/03	NC		%	50		
		F4 (C34-C50 Hydrocarbons)	2012/05/03	NC		%	50		
						%			
	5799989 YT	Matrix Spike [DH0729-01]	1,4-Difluorobenzene (sur.)	2012/04/30		117	%	60 - 140	
			4-BROMOFLUOROBENZENE (sur.)	2012/04/30		98	%	60 - 140	
			D10-ETHYLBENZENE (sur.)	2012/04/30		118	%	60 - 130	
D4-1,2-DICHLOROETHANE (sur.)			2012/04/30		99	%	60 - 140		
Spiked Blank		Benzene	2012/04/30		109	%	60 - 140		
		Toluene	2012/04/30		105	%	60 - 140		
		Ethylbenzene	2012/04/30		113	%	60 - 140		
		m & p-Xylene	2012/04/30		113	%	60 - 140		
Method Blank		o-Xylene	2012/04/30		110	%	60 - 140		
		(C6-C10)	2012/04/30		109	%	60 - 140		
		1,4-Difluorobenzene (sur.)	2012/04/30		99	%	60 - 140		
		4-BROMOFLUOROBENZENE (sur.)	2012/04/30		97	%	60 - 140		
Spiked Blank		D10-ETHYLBENZENE (sur.)	2012/04/30		109	%	60 - 130		
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		99	%	60 - 140		
		Benzene	2012/04/30		102	%	60 - 140		
		Toluene	2012/04/30		98	%	60 - 140		
Method Blank		Ethylbenzene	2012/04/30		105	%	60 - 140		
						%			
						%			
						%			





O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Attention: Adam Wickman  
 Client Project #: 10-1177.100  
 P.O. #:  
 Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA

Quality Assurance Report (Continued)

Maxxam Job Number: EB234556

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	Units	QC Limits
579989 YT	Spiked Blank	m & p-Xylene	2012/04/30		106	%	60 - 140
		o-Xylene	2012/04/30		103	%	60 - 140
		(C6-C10)	2012/04/30		102	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2012/04/30		101	%	60 - 140
		4-BROMOFLUOROBENZENE (sur.)	2012/04/30		99	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/04/30		110	%	60 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		98	%	60 - 140
		Benzene	2012/04/30	<0.0050		mg/kg	
		Toluene	2012/04/30	<0.020		mg/kg	
		Ethylbenzene	2012/04/30	<0.010		mg/kg	
		Xylenes (Total)	2012/04/30	<0.040		mg/kg	
		m & p-Xylene	2012/04/30	<0.040		mg/kg	
		o-Xylene	2012/04/30	<0.020		mg/kg	
		F1 (C6-C10) - BTEX	2012/04/30	<12		mg/kg	
		(C6-C10)	2012/04/30	<12		mg/kg	
	RPD [DH0728-01]	Benzene	2012/04/30	NC		%	50
		Toluene	2012/04/30	NC		%	50
		Ethylbenzene	2012/04/30	NC		%	50
		Xylenes (Total)	2012/04/30	NC		%	50
		m & p-Xylene	2012/04/30	NC		%	50
		o-Xylene	2012/04/30	NC		%	50
		F1 (C6-C10) - BTEX	2012/04/30	NC		%	50
		(C6-C10)	2012/04/30	NC		%	50
5800011 PS7	Matrix Spike [DH0729-01]	4-BROMOFLUOROBENZENE (sur.)	2012/04/30		99	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/04/30		116	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		106	%	60 - 140
		D8-TOLUENE (sur.)	2012/04/30		100	%	60 - 140
		1,2-dibromoethane	2012/04/30		134	%	60 - 140
		1,2-dichloroethane	2012/04/30		139	%	60 - 140
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/04/30		98	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/04/30		97	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		104	%	60 - 140
		D8-TOLUENE (sur.)	2012/04/30		99	%	60 - 140
		1,2-dibromoethane	2012/04/30		97	%	60 - 140
		1,2-dichloroethane	2012/04/30		105	%	60 - 140
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/04/30		101	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/04/30		99	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/04/30		96	%	60 - 140
		D8-TOLUENE (sur.)	2012/04/30		99	%	60 - 140
		1,2-dibromoethane	2012/04/30	<0.0020		mg/kg	
		1,2-dichloroethane	2012/04/30	<0.0020		mg/kg	
	RPD [DH0728-01]	1,2-dibromoethane	2012/04/30	NC		%	50
		1,2-dichloroethane	2012/04/30	NC		%	50
5803921 SG8	Matrix Spike [DH0728-01]	Total Lead (Pb)	2012/05/04		89	%	75 - 125
	QC Standard	Total Lead (Pb)	2012/05/04		102	%	54 - 146
	Spiked Blank	Total Lead (Pb)	2012/05/03		89	%	75 - 125
	Method Blank	Total Lead (Pb)	2012/05/03	<1.0		mg/kg	
	RPD [DH0728-01]	Total Lead (Pb)	2012/05/03	NC		%	35
5803936 SG8	Matrix Spike	Total Arsenic (As)	2012/05/01		94	%	75 - 125
		Total Barium (Ba)	2012/05/01		NC	%	75 - 125
		Total Chromium (Cr)	2012/05/01		109	%	75 - 125
		Total Copper (Cu)	2012/05/01		92	%	75 - 125
		Total Lead (Pb)	2012/05/01		76	%	75 - 125





O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Attention: Adam Wickman  
 Client Project #: 10-1177.100  
 P.O. #:  
 Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA

Quality Assurance Report (Continued)

Maxxam Job Number: EB234556

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	Units	QC Limits
5803936 SG8	Matrix Spike	Total Zinc (Zn)	2012/05/01		NC	%	75 - 125
		Total Arsenic (As)	2012/05/01		116	%	50 - 150
	QC Standard	Total Barium (Ba)	2012/05/01		128	%	69 - 131
		Total Chromium (Cr)	2012/05/01		124	%	41 - 159
		Total Copper (Cu)	2012/05/01		108	%	72 - 127
		Total Lead (Pb)	2012/05/01		87	%	54 - 146
		Total Zinc (Zn)	2012/05/01		110	%	72 - 128
	Spiked Blank	Total Arsenic (As)	2012/05/01		99	%	75 - 125
		Total Barium (Ba)	2012/05/01		104	%	75 - 125
		Total Chromium (Cr)	2012/05/01		104	%	75 - 125
		Total Copper (Cu)	2012/05/01		100	%	75 - 125
		Total Lead (Pb)	2012/05/01		95	%	75 - 125
		Total Zinc (Zn)	2012/05/01		100	%	75 - 125
	Method Blank	Total Arsenic (As)	2012/05/01	<1.0		mg/kg	
		Total Barium (Ba)	2012/05/01	<10		mg/kg	
		Total Chromium (Cr)	2012/05/01	<1.0		mg/kg	
		Total Copper (Cu)	2012/05/01	<5.0		mg/kg	
		Total Lead (Pb)	2012/05/01	<1.0		mg/kg	
		Total Zinc (Zn)	2012/05/01	<10		mg/kg	
	RPD	Total Arsenic (As)	2012/05/01	1.1		%	35
		Total Barium (Ba)	2012/05/01	2.1		%	35
		Total Chromium (Cr)	2012/05/01	0.9		%	35
		Total Copper (Cu)	2012/05/01	NC		%	35
		Total Lead (Pb)	2012/05/01	3.7		%	35
		Total Zinc (Zn)	2012/05/01	1.7		%	35
5806519 JW0	Matrix Spike	Extractable (Water) Methyl Sulfone (sur.)	2012/05/03		65	%	50 - 130
		Extractable (Water) Ethylene Glycol	2012/05/03		95	%	30 - 130
		Extractable (Water) Propylene Glycol	2012/05/03		72	%	30 - 130
	Spiked Blank	Extractable (Water) Methyl Sulfone (sur.)	2012/05/03		83	%	50 - 130
		Extractable (Water) Ethylene Glycol	2012/05/03		92	%	30 - 130
		Extractable (Water) Propylene Glycol	2012/05/03		75	%	30 - 130
	Method Blank	Extractable (Water) Methyl Sulfone (sur.)	2012/05/03		80	%	50 - 130
		Extractable (Water) Ethylene Glycol	2012/05/03	<10		mg/kg	
		Extractable (Water) Propylene Glycol	2012/05/03	<10		mg/kg	
	RPD	Extractable (Water) Ethylene Glycol	2012/05/03	NC		%	50
5807874 SG8	Matrix Spike	Total Arsenic (As)	2012/05/05		86	%	75 - 125
		Total Barium (Ba)	2012/05/05		NC	%	75 - 125
		Total Chromium (Cr)	2012/05/05		93	%	75 - 125
		Total Copper (Cu)	2012/05/05		89	%	75 - 125
		Total Lead (Pb)	2012/05/05		89	%	75 - 125
		Total Zinc (Zn)	2012/05/05		NC	%	75 - 125
	QC Standard	Total Arsenic (As)	2012/05/05		118	%	50 - 150
		Total Barium (Ba)	2012/05/05		113	%	69 - 131
		Total Chromium (Cr)	2012/05/05		117	%	41 - 159
		Total Copper (Cu)	2012/05/05		111	%	72 - 127
		Total Lead (Pb)	2012/05/05		105	%	54 - 146
		Total Zinc (Zn)	2012/05/05		106	%	72 - 128
	Spiked Blank	Total Arsenic (As)	2012/05/06		91	%	75 - 125
		Total Barium (Ba)	2012/05/06		93	%	75 - 125
		Total Chromium (Cr)	2012/05/06		97	%	75 - 125
		Total Copper (Cu)	2012/05/06		98	%	75 - 125
		Total Lead (Pb)	2012/05/06		96	%	75 - 125
		Total Zinc (Zn)	2012/05/06		88	%	75 - 125
	Method Blank	Total Arsenic (As)	2012/05/05	<1.0		mg/kg	
		Total Barium (Ba)	2012/05/05	<10		mg/kg	



O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Attention: Adam Wickman  
 Client Project #: 10-1177.100  
 P.O. #:  
 Site Location: 208 ST. ANNES ROAD WINNIPEG / MANITOBA

### Quality Assurance Report (Continued)

Maxxam Job Number: EB234556

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
5807874 SG8	Method Blank	Total Chromium (Cr)	2012/05/05	<1.0		mg/kg	
		Total Copper (Cu)	2012/05/05	<5.0		mg/kg	
		Total Lead (Pb)	2012/05/05	<1.0		mg/kg	
		Total Zinc (Zn)	2012/05/05	<10		mg/kg	
	RPD	Total Arsenic (As)	2012/05/05	NC		%	35
		Total Barium (Ba)	2012/05/05	4.9		%	35
		Total Chromium (Cr)	2012/05/05	9.7		%	35
		Total Copper (Cu)	2012/05/05	NC		%	35
		Total Lead (Pb)	2012/05/05	NC		%	35
		Total Zinc (Zn)	2012/05/05	NC		%	35

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

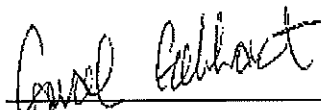


## Validation Signature Page

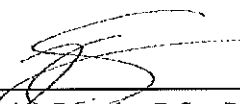
Maxxam Job #: B234556

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Carol Gebhart, Senior Analyst



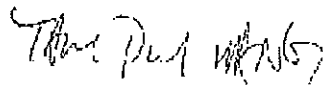
Kristopher Beaudet, B.Sc., P.Chem, Scientific Specialist



Karla Offord, Senior Analyst, Organics Department



Luba Shymushovska, Senior Analyst, Organic Department



Pui Hang Tam, Senior Analyst

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



**Consulting Company:** O'Connor Associates Environmental Inc.  
**Contact:** Adam Wickman  
**Address:** 7 Terrace Place, Winnipeg, MB R3Z 9B3  
**Contact #/s:** 204-489-2964 Cell N/A  
**Project ID:** 10-1177.100  
**Sampled By:** Gordon Chamberlain

**Report Distribution (E-Mail):**  
 adam-wickman@oconnor-associates.com

**REGULATORY GUIDELINES:**  
☐ AT1  
☒ CCME low  
☐ Regulated Drinking Water  
☐ Other



**DOWNSTREAM** ☒  
 Site address: 208 St. Annes Road  
 Site City/Prov: Winnipeg / Manitoba  
 Outlet number: 63955  
 Monitoring: ☒ m / n / m / m / (circle one)  
**Senior Suncor Advisor:**  
 Brian Holmes ☐ Rick Lemoine ☒ Other:

Sample ID	Depth (unit)	Date/Time Sampled YYMMDD 24:00	SOIL				WATER				Other Analyses		# of Containers Submitted
			Regulated Metals (CCME / AT1)	Salinity 4	Regulated Metals (CCME / AT1)	DTX FI	DTX FI-F2	DTX FI-F4	Turb F	Total Dissolved (CCME / AT1)	Regulated Metals	DTX FI-F4	
1 BH-19-1.1-1.4	m	12/01/26 09:00	X										2
2 BH-19-4.1-4.4	m	12/01/26 09:15	X										2
3 BH-20-2.3-2.6	m	12/01/26 10:15	X										2
4 BH-20-3.5-3.8	m	12/01/26 10:30	X										2
5 BH-20-4.7-5.0	m	12/01/26 10:45	X										2
6 BH-21-2.3-2.6	m	12/01/26 11:45	X										3
7 BH-21-3.5-3.8	m	12/01/26 12:00	X										3
8 BH-22-2.3-2.6	m	12/01/26 13:00	X										4
9 DUP-3.2	m	12/01/26 13:00	X										4
10 BH-22-3.5-3.8	m	12/01/26 13:15	X										2
11 BH-22-4.7-5.0	m	12/01/26 13:30	X										2
12													2

**SERVICE REQUESTED:**  
☐ RUSH (Contact lab to reserve)  
☐ 2 DAY  
☐ 1 DAY  
☐ SAME DAY  
☒ REGULAR (5 Days)  
 Date Required: 12/01/26

All samples are held for 90 calendar days after sample receipt, unless specified otherwise.

**UPSTREAM** ☐  
 LSD#:   
 Site/Field:   
 AFE#:   
 PO# (if applicable):   
**Senior Suncor Advisor:**  
 Mike Morden ☐ Ben Parsons ☐  
 Russell Browne ☐ Phil Scalia ☐  
 Other:

Please indicate Filtered, Preserved or Both (F, P, FP)

**Relinquished By (Signature/Print):** Jesse Bursee  
**Date (YYMMDD):** 12/01/27  
**Time (24:00):** 16:00  
**Relinquished By (Signature/Print):**  
**Date (YYMMDD):**  
**Time (24:00):**  
**Special Instructions:**  
 Headspace may be present, please proceed with analysis.  
 # of Jars Used & Not Supplied: 24 of 44

**LAB USE ONLY**  
**Received By:** DEEPTHA WICKRAMASEKARA  
**Date:** 2012-04-25  
**Time:** 11:52  
**Maxxam Job #:** B754556  
**Custody Seal:** Intact  
**Temperature:** 17/19  
**Ice:** present





Consulting Company:	O'Connor Associates Environment		
Contact:	Adam Wickman		
Address:	7 Terrace Place, Winnipeg		
	Prov.	Manitoba	PO R2L 4B3
Contact #s:	Ph:	204-489-2964	Cell N/A.
Project ID:	10-117.120		
Sampled By:	Gordon Chamberlain		

<b>SERVICE REQUESTED:</b>	<input type="checkbox"/> <b>RUSH (Contact lab to reserve)</b> <input type="checkbox"/> <b>2 DAY</b> <input type="checkbox"/> <b>1 DAY</b> <input type="checkbox"/> <b>SAME DAY</b>
	<b>Date Required:</b> <input checked="" type="checkbox"/> <b>REGULAR (5 Days)</b>

Report Distribution (E-Mail):  
e.  
edam-wikiman@cammer-associates.com

REGULATORY GUIDELINES:

☐ AT1

☒ CCME low

☐ Regulated Drinking Water

☐ Other:

DOWNSTREAM <input checked="" type="checkbox"/>	Site address: 208 St. Annes Road	Site City/Prov: Winnipeg / Manitoba	Outlet number: 63955	Monitoring <input checked="" type="checkbox"/> a / r / ri / ra / m / (circle one)	Senior Suncor Advisor:	Brian Holmes <input type="checkbox"/>	Rick Lemoine <input checked="" type="checkbox"/>	Other:
--	----------------------------------	-------------------------------------	----------------------	---	------------------------	---------------------------------------	--	--------

UPSTREAM	<input type="checkbox"/>
LSD#:	
Site/Field :	
AFE#:	
RO# (if applicable):	
Senior Suncor Advisor:	
Mike Morden	<input type="checkbox"/> Ben Parsons
Russell Browne	<input type="checkbox"/> Phil Scalia
Other:	

[illegible]

Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00
1 BH-24-2.3-2.6	m	Soil	12/04/26 14:30
2 BH-24-3.5-3.8	m	Soil	12/04/26 14:45
3 BH-24-4.7-5.0	m	Soil	12/04/26 15:00
4 BH-25-1.7-2.0	m	Soil	12/04/26 16:00
5 DUP-25	m	Soil	12/04/26 16:00
6 BH-25-3.5-3.8	m	Soil	12/04/26 16:15
7 BH-25-4.7-5.0	m	Soil	12/04/26 16:30
8 BH-26-1.7-2.0	m	Soil	12/04/26 17:30
9 BH-26-2.3-2.6	m	Soil	12/04/26 17:45
10			
11			
12			

Please indicate Filtered, Preserved or Both (F, P, F/P)

Released By (Signature/Print): <i>[Signature]</i> Jesse Bursee	Date (YY/MM/DD): 12/04/27	Time (24:00): 16:00
Requisitioned By (Signature/Print): <i>[Signature]</i>	Date (YY/MM/DD):	Time (24:00):
Special Instructions: <i>Headboxes may be present, please proceed with analysis.</i>		# of Jars Used & Not spigared 25 of 48

Received By:	Date:	Time:	LAB USE ONLY	
			Maxcam Job #:	BZ34556
Lab Comments:	-DEETHA NICKANAGAL	11:57	Custody Seal	Ice
			Present	16/1
			Impact	Pre



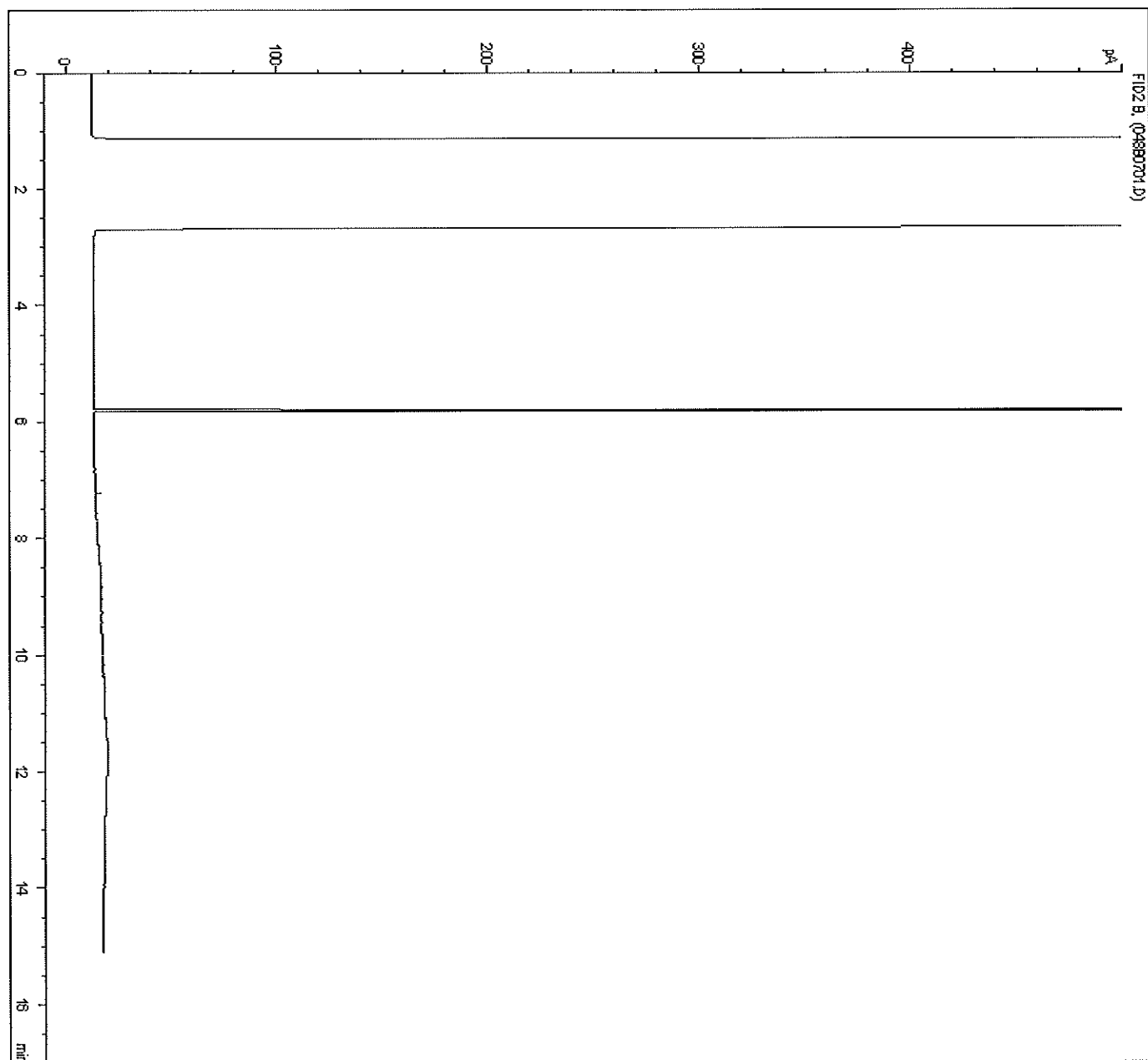


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0728

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-19-1.1-1.4

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\048B0701.D  
Sample Name: DH0728



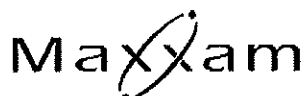
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:07 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



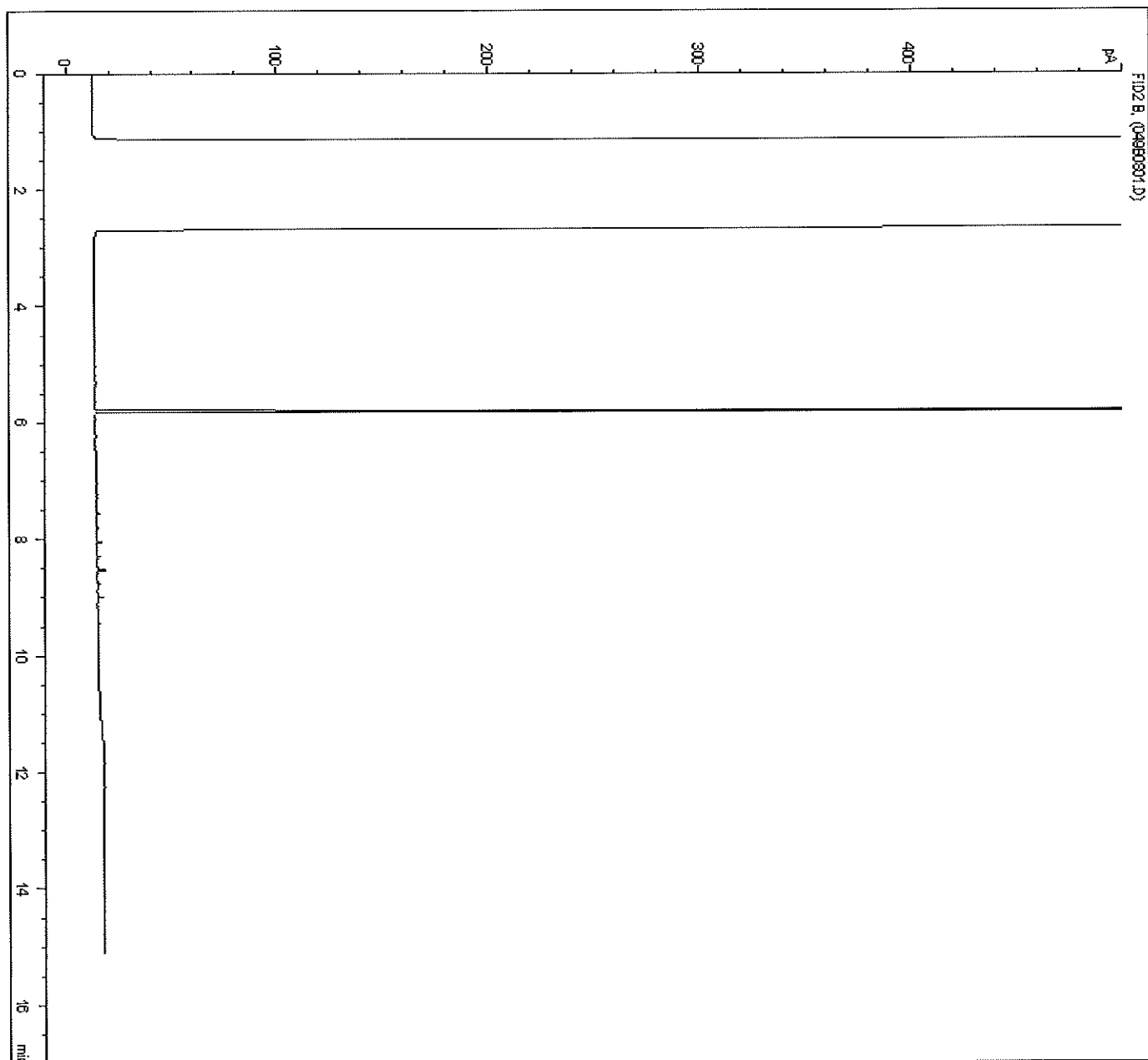


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0729

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-19-4.1-4.4

### CCME Hydrocarbons (F2-F4 In soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\049B0801.D  
Sample Name: DH0729



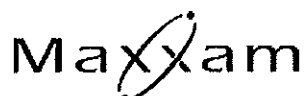
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:09 AM AK8

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



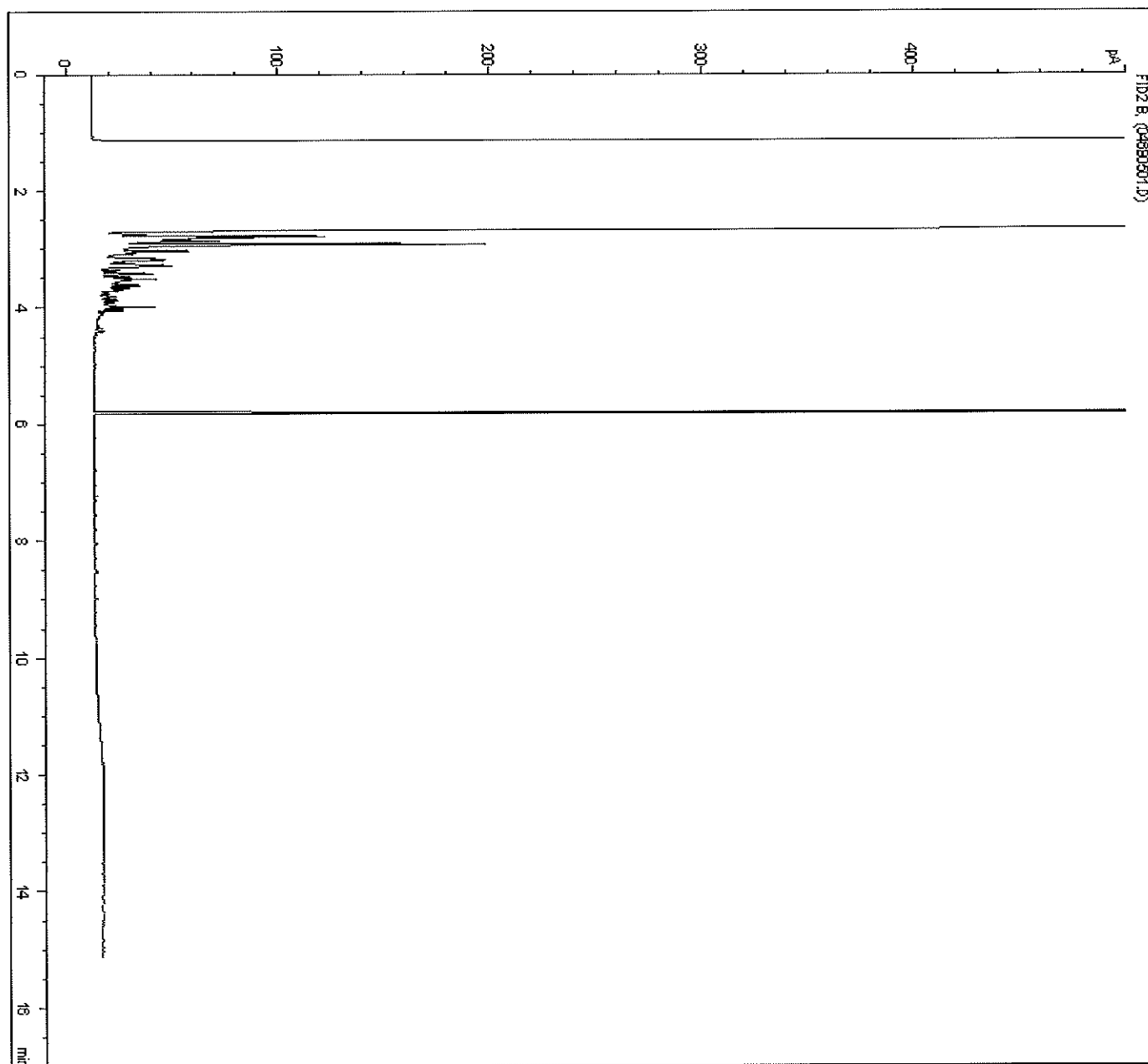


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0730

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-20-2.3-2.6

### CCME Hydrocarbons (F2-F4 In soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\046B0501.D  
Sample Name: DH0730



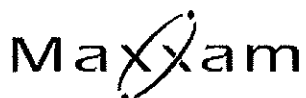
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:03 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



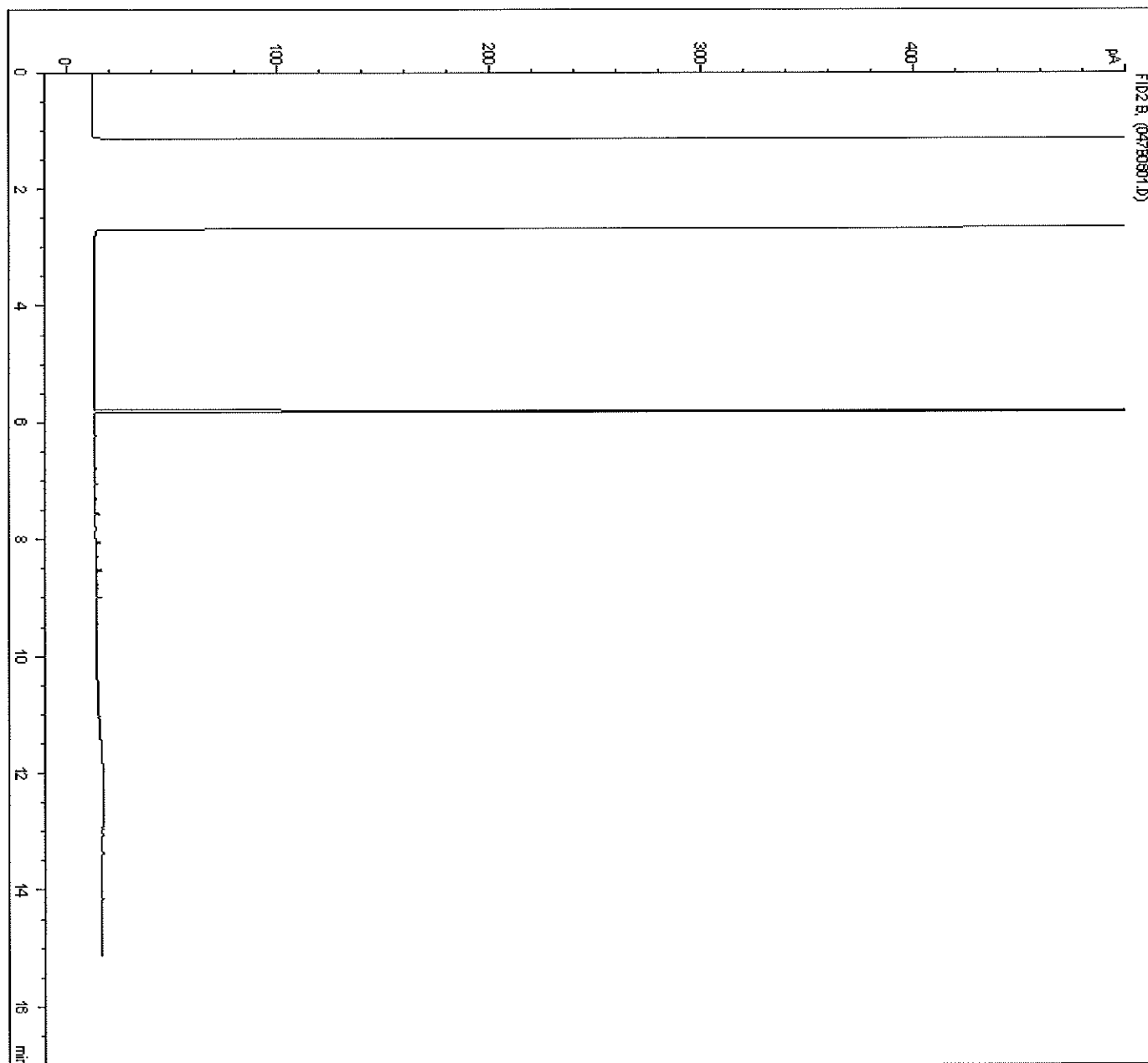


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0731

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-20-3.5-3.8

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\047B0601.D  
Sample Name: DH0731



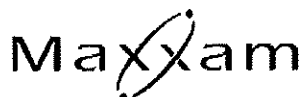
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:05 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



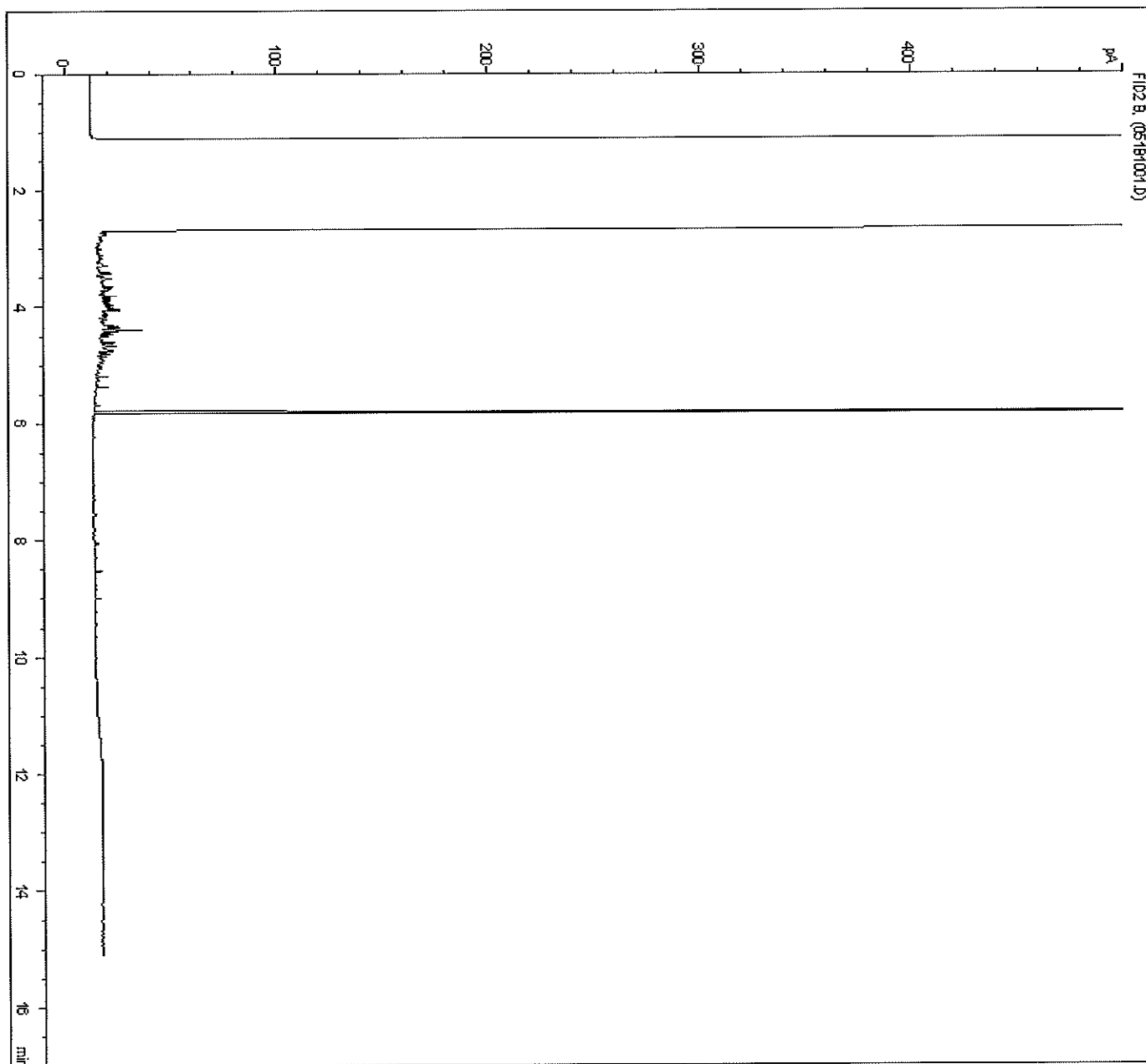


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0733

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-21-2.3-2.6

### CCME Hydrocarbons (F2-F4 In soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\051B1001.D  
Sample Name: DH0733



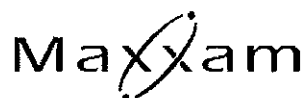
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:14 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



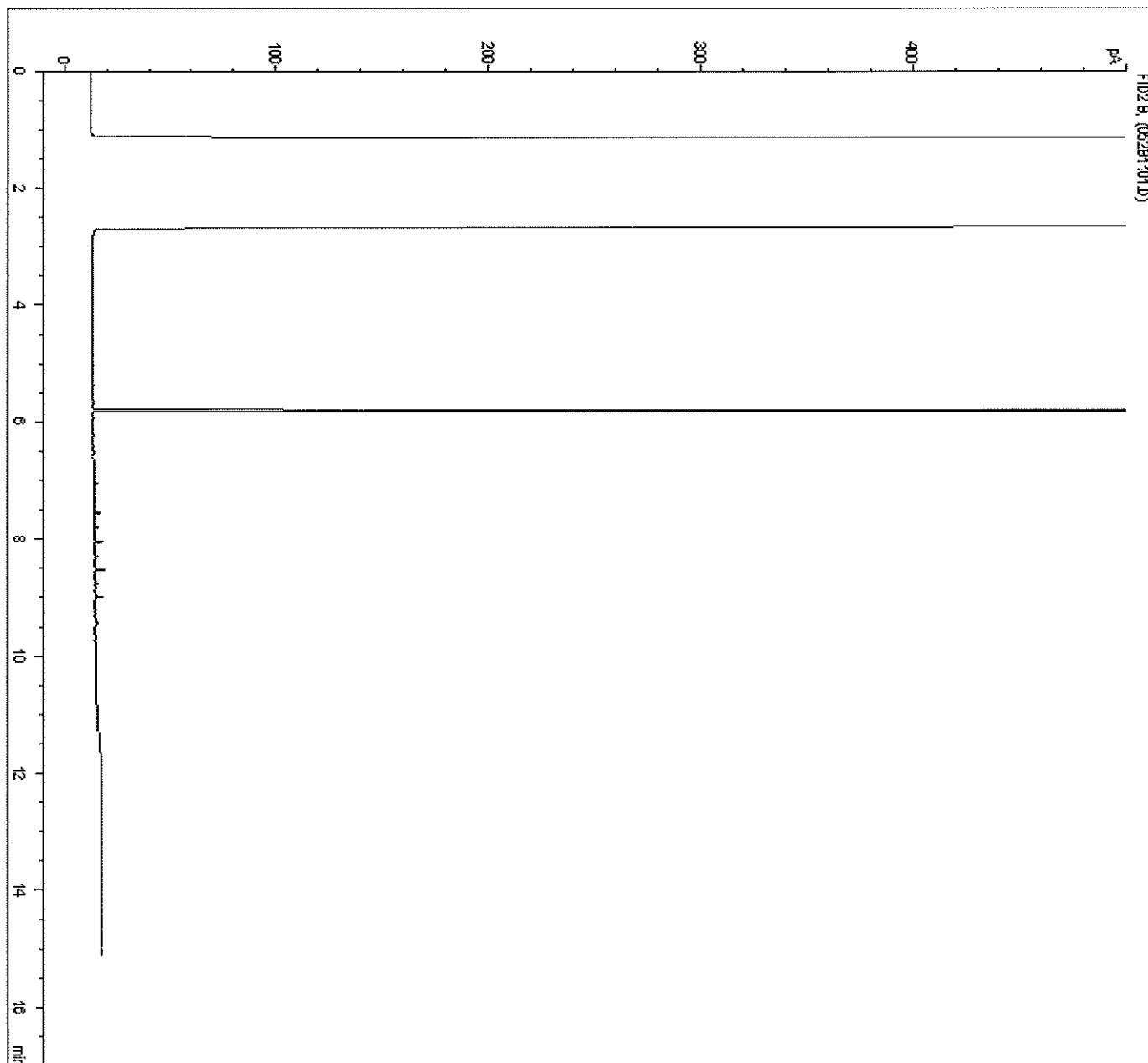


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0734

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-21-3.5-3.8

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\052B1101.D  
Sample Name: DH0734



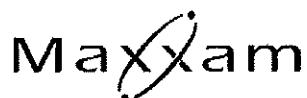
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:16 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



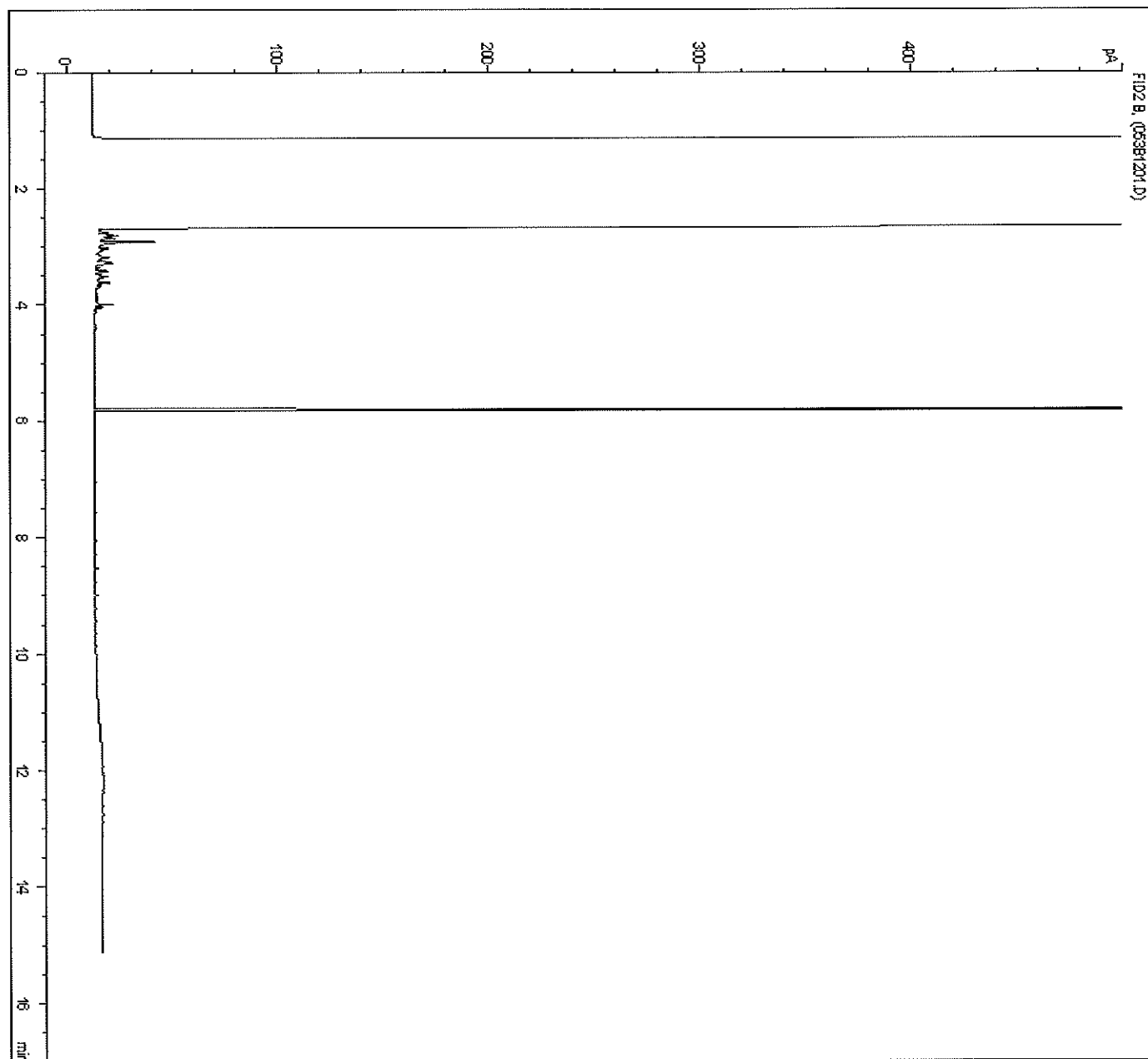


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0735

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-22-2.3-2.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\053B1201.D  
Sample Name: DH0735



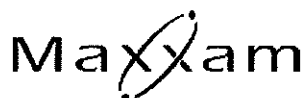
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:18 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



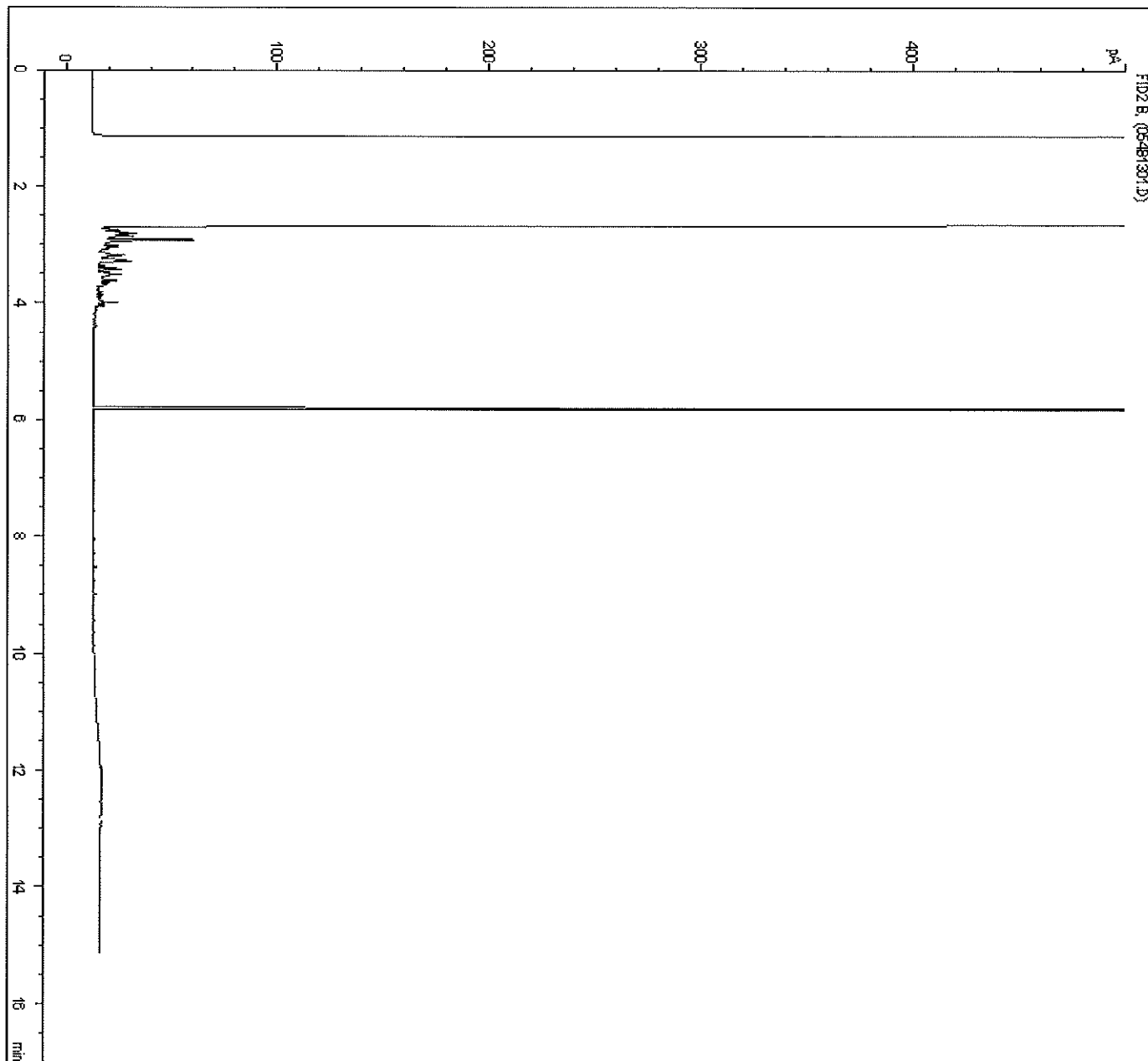


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0736

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: DUP-22

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\054B1301.D  
Sample Name: DH0736



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:20 AM AK8

Page 1 of 1

**Note:** This Information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



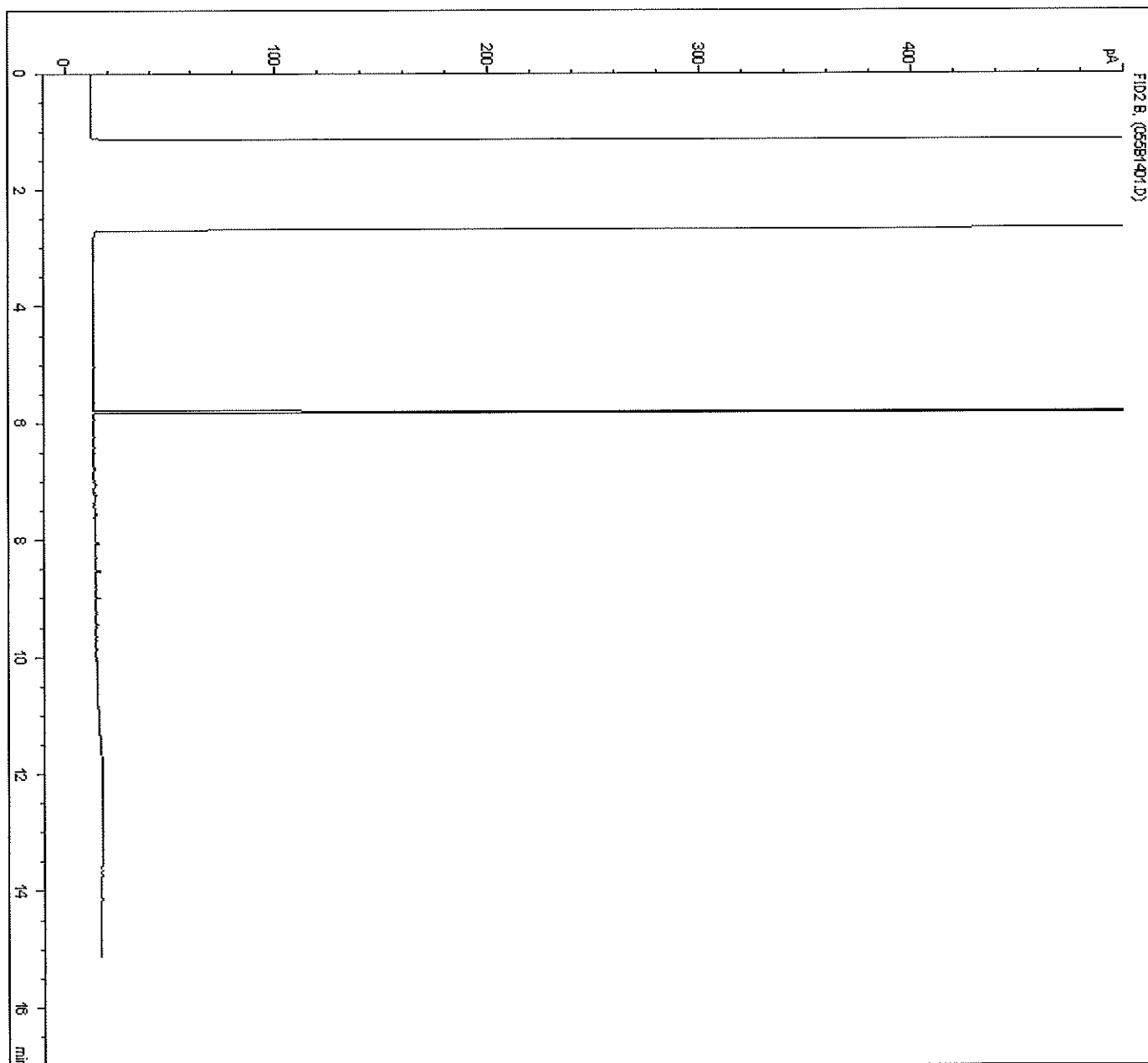


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0737

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-22-3.5-3.8

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\055B1401.D  
Sample Name: DH0737



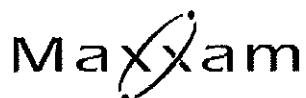
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:22 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



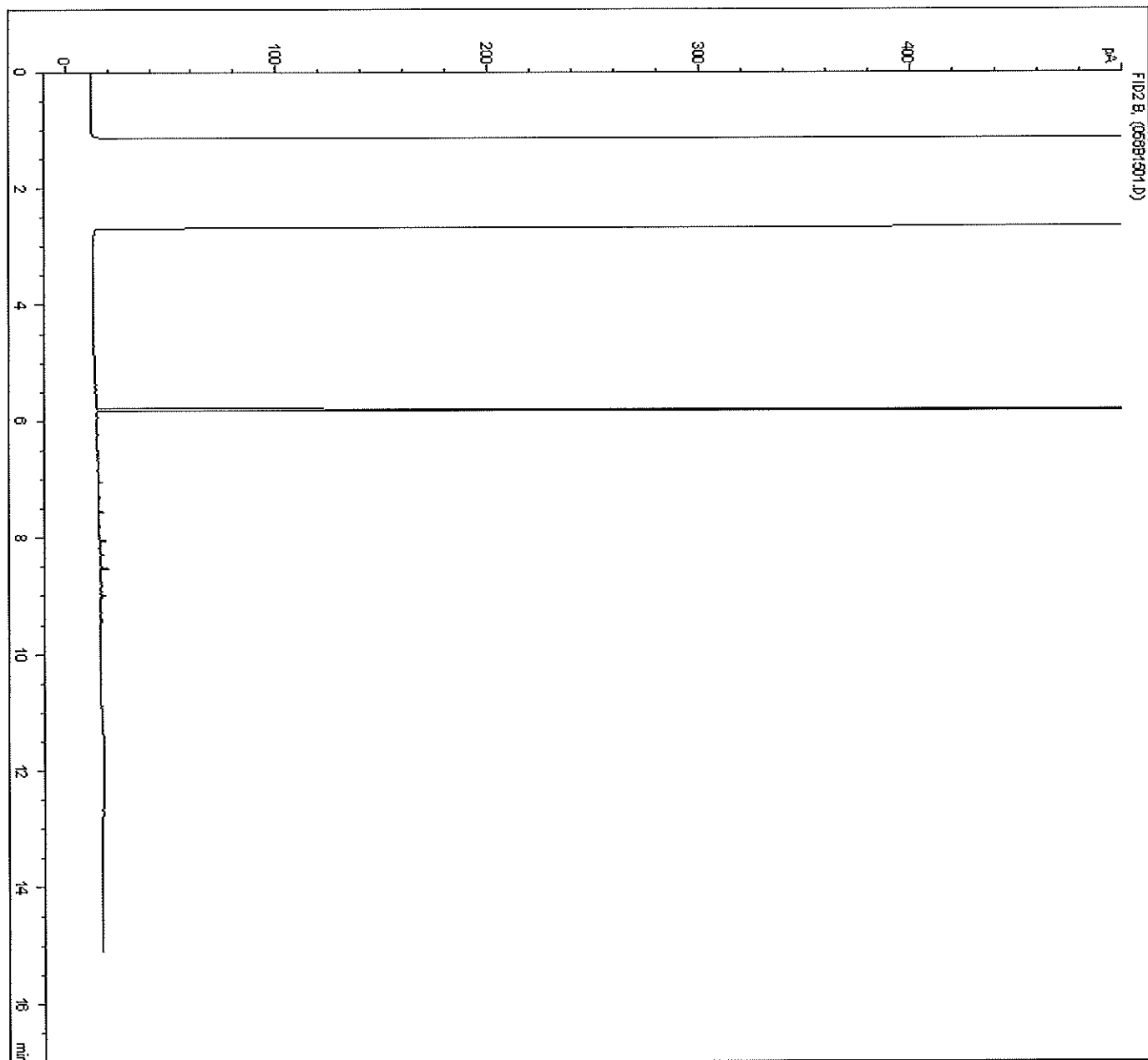


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0738

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-22-4.7-5.0

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\056B1501.D  
Sample Name: DH0738



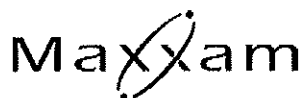
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:25 AM AK6

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



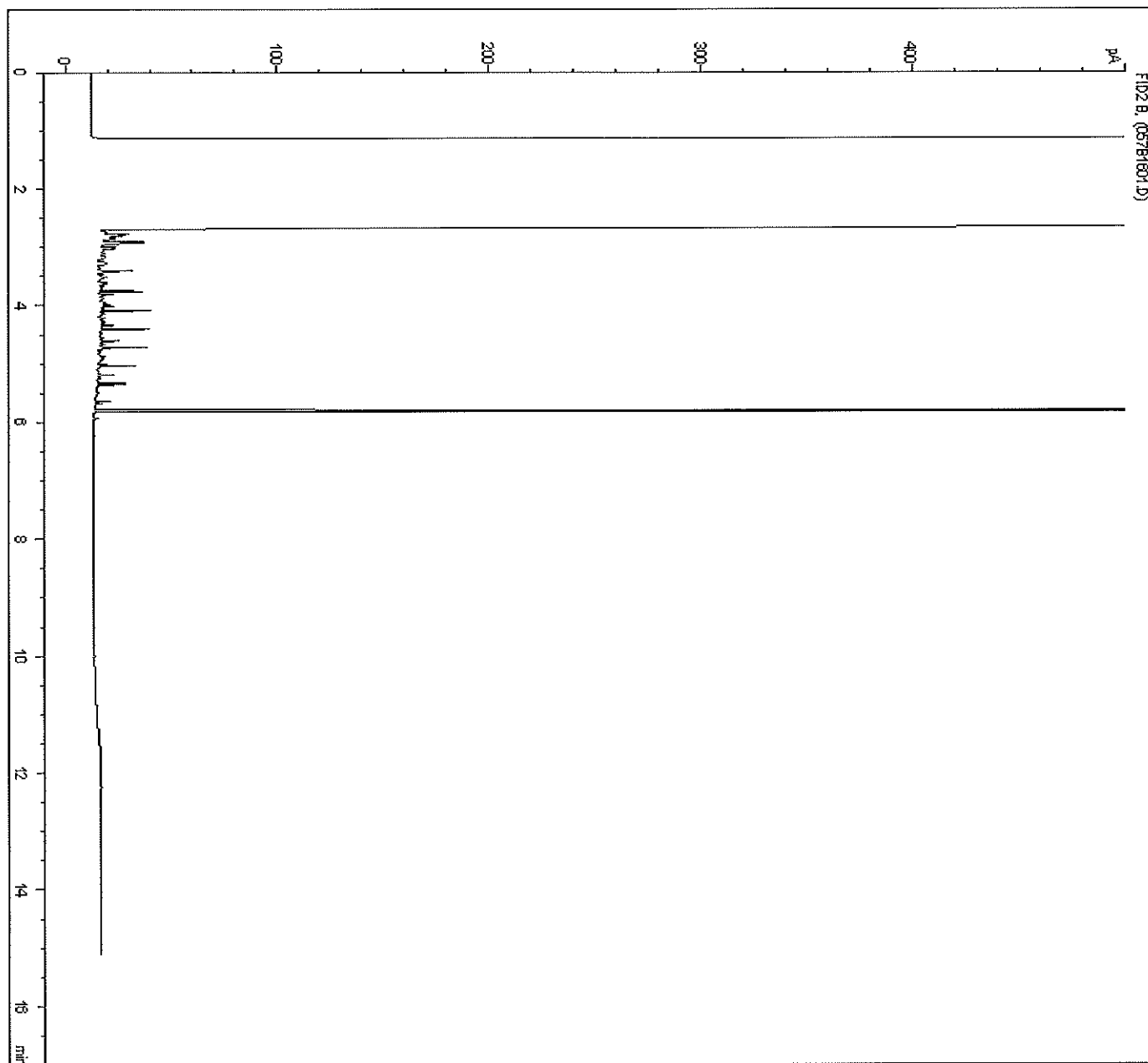


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0739

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-24-2.3-2.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\057B1601.D  
Sample Name: DH0739



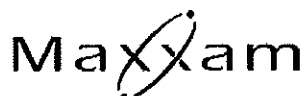
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:27 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



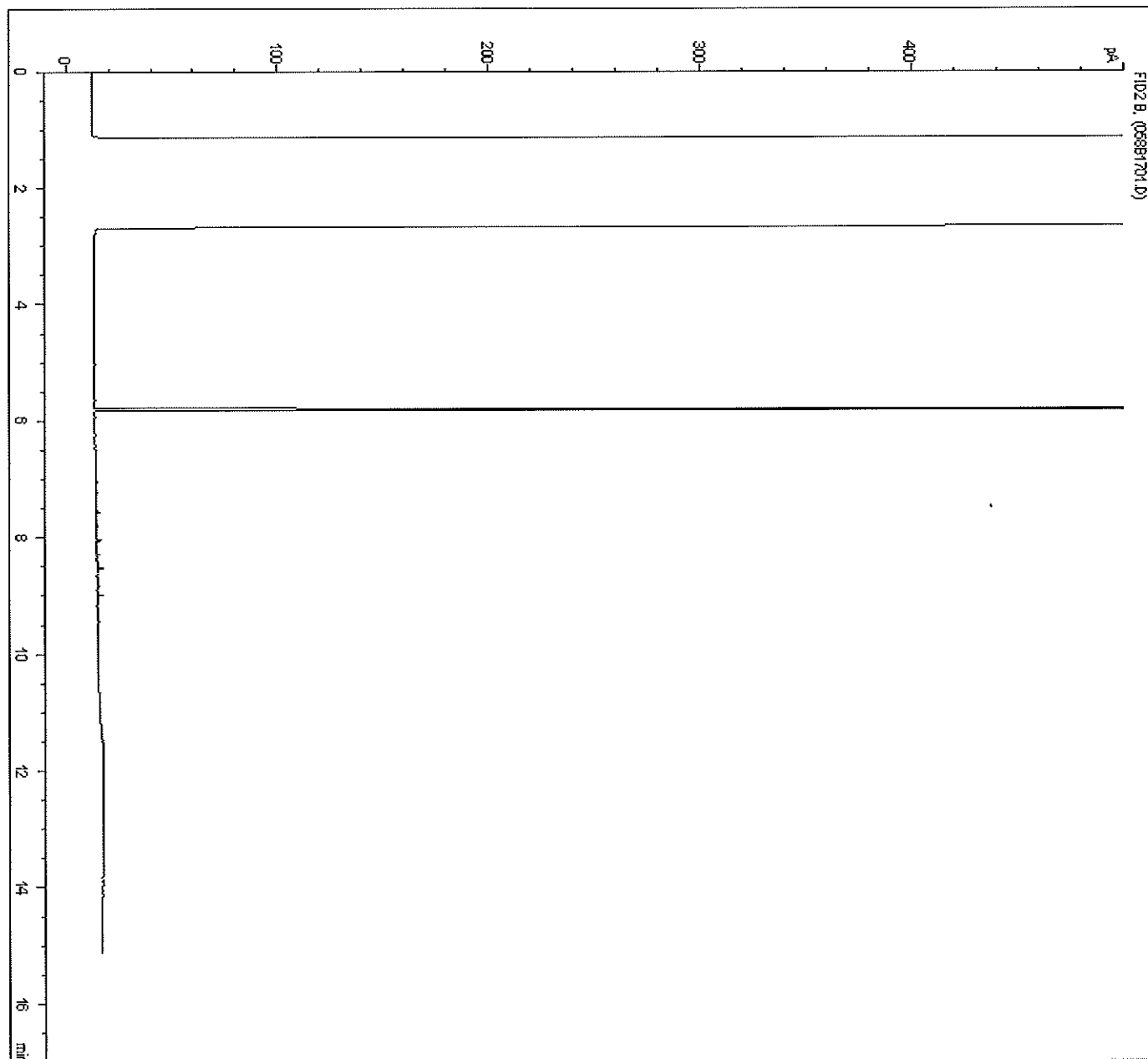


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0740

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-24-3.5-3.8

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\058B1701.D  
Sample Name: DH0740



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:29 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



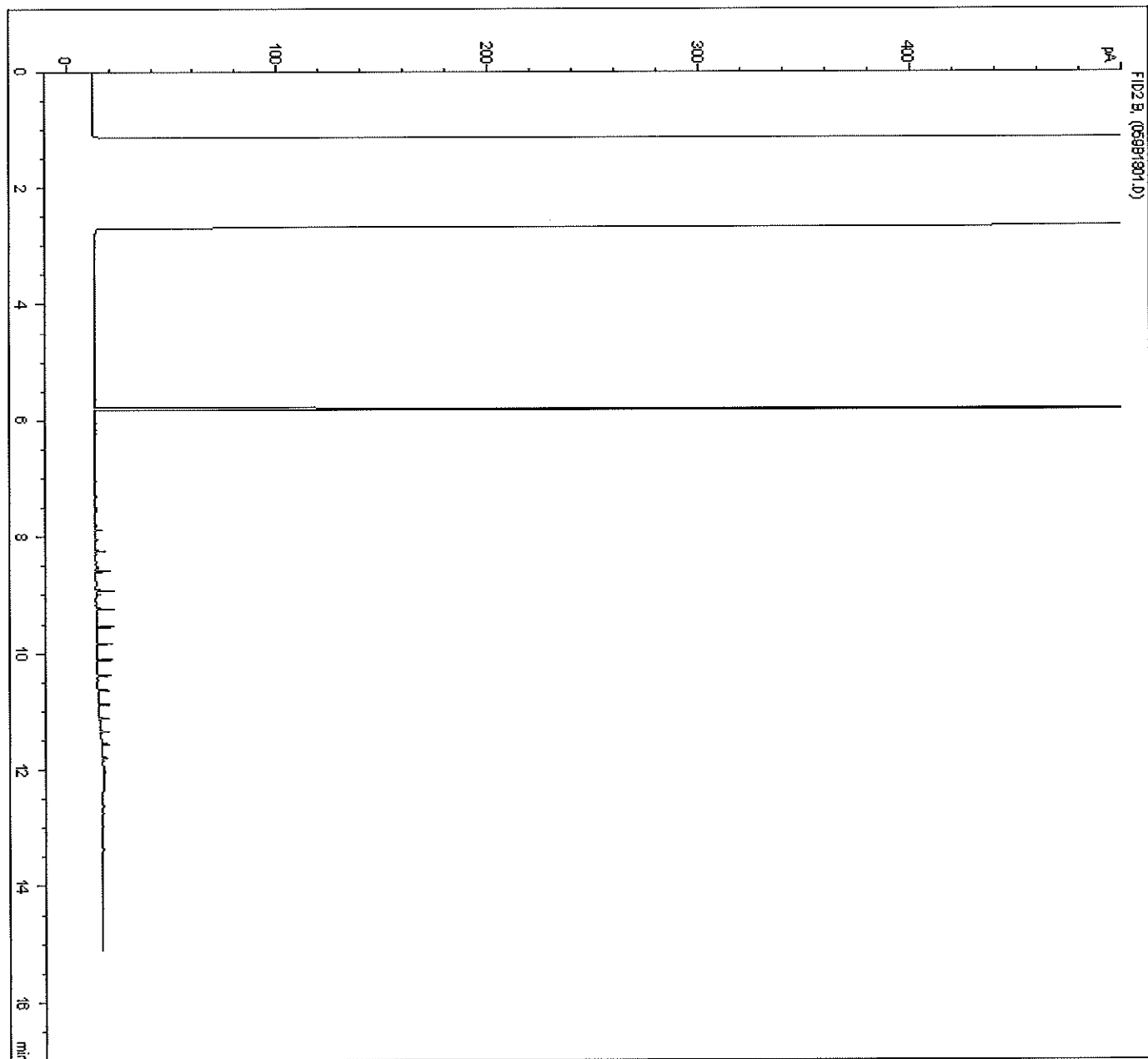


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0741

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-24-4.7-5.0

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

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Sample Name: DH0741



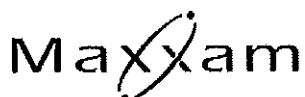
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:31 AM AK8

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



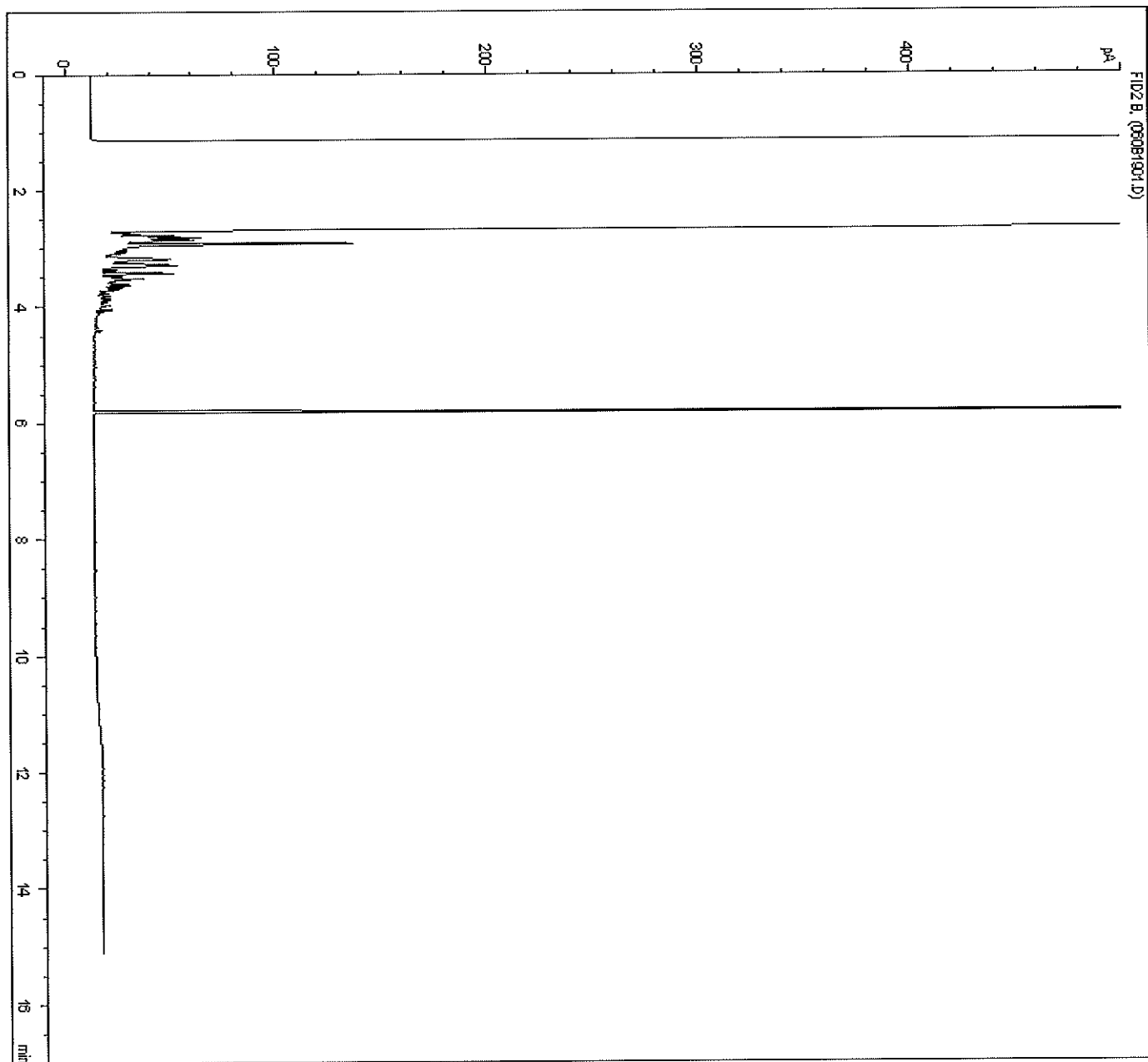


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0742

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-25-1.7-2.0

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\060B1901.D  
Sample Name: DH0742



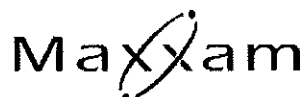
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:33 AM AK6

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



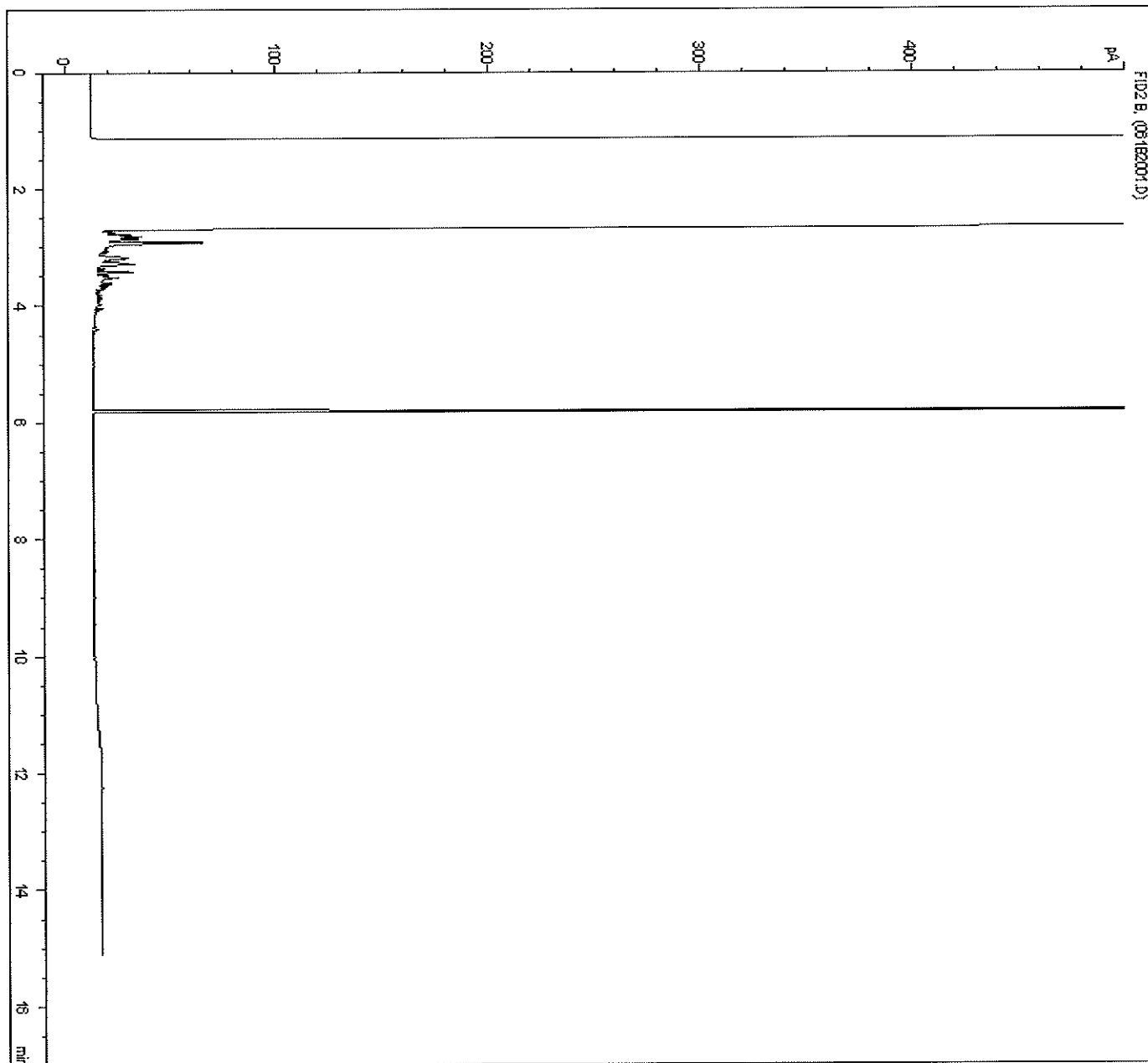


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0743

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: DUP-25

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\061B2001.D  
Sample Name: DH0743



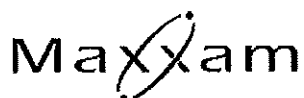
\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:35 AM AK8

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



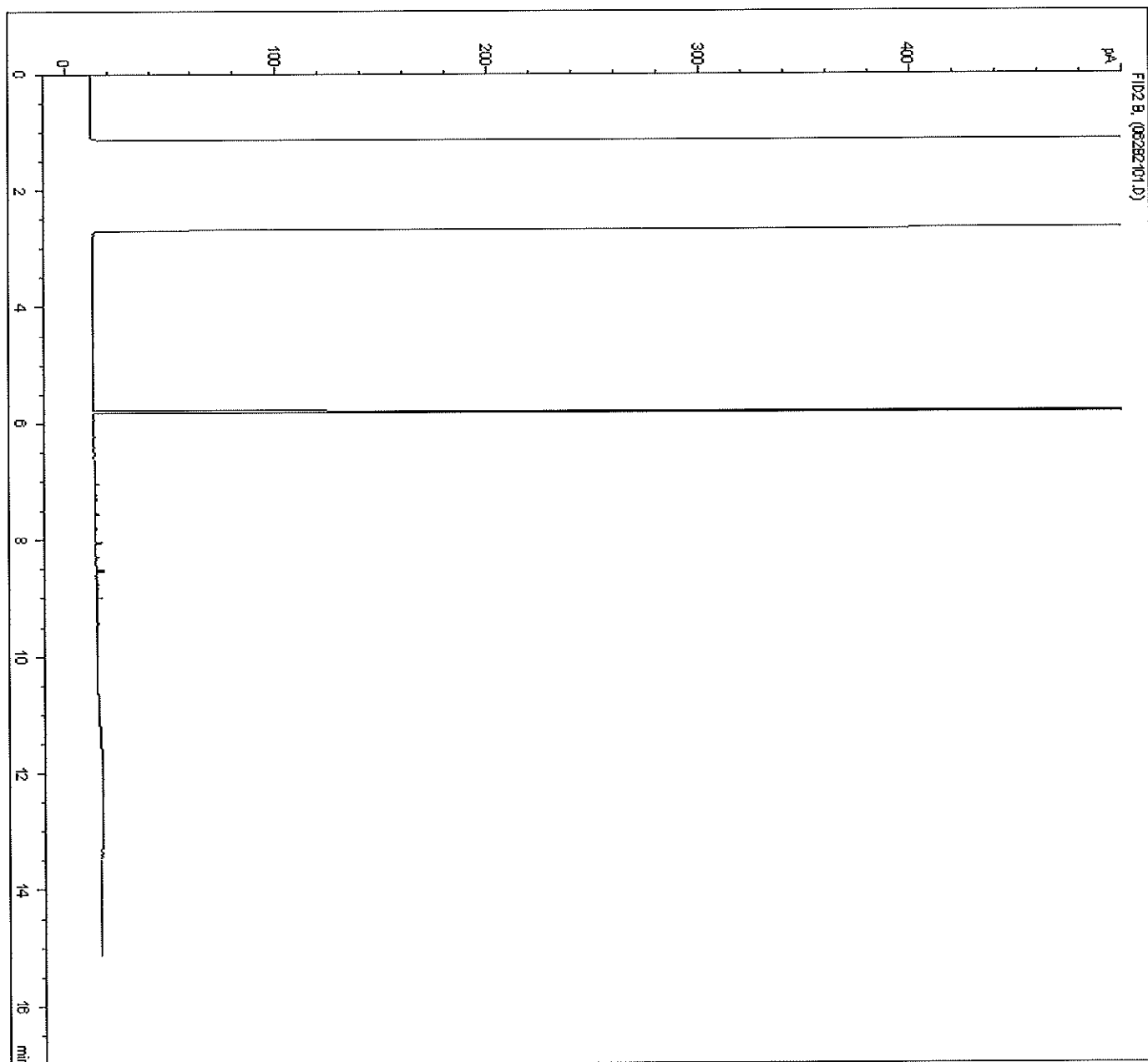


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0744

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-25-3.5-3.8

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\062B2101.D  
Sample Name: DH0744



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:38 AM AK8

Page 1 of 1

Note: This Information Is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



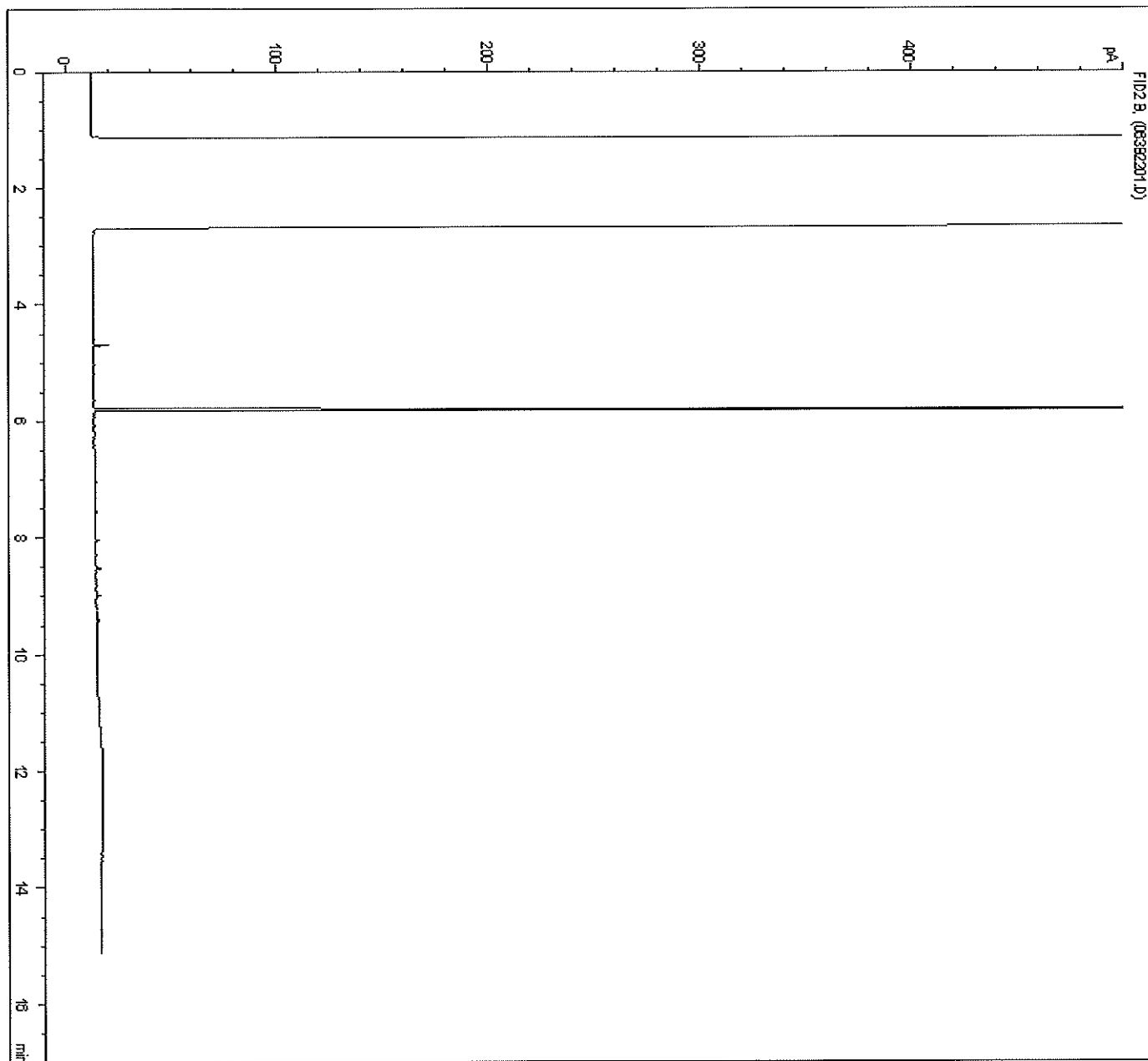


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0745

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-25-4.7-5.0

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\063B2201.D  
Sample Name: DH0745



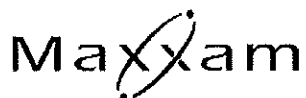
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Instrument 1 2012/05/04 11:45:40 AM AK6

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



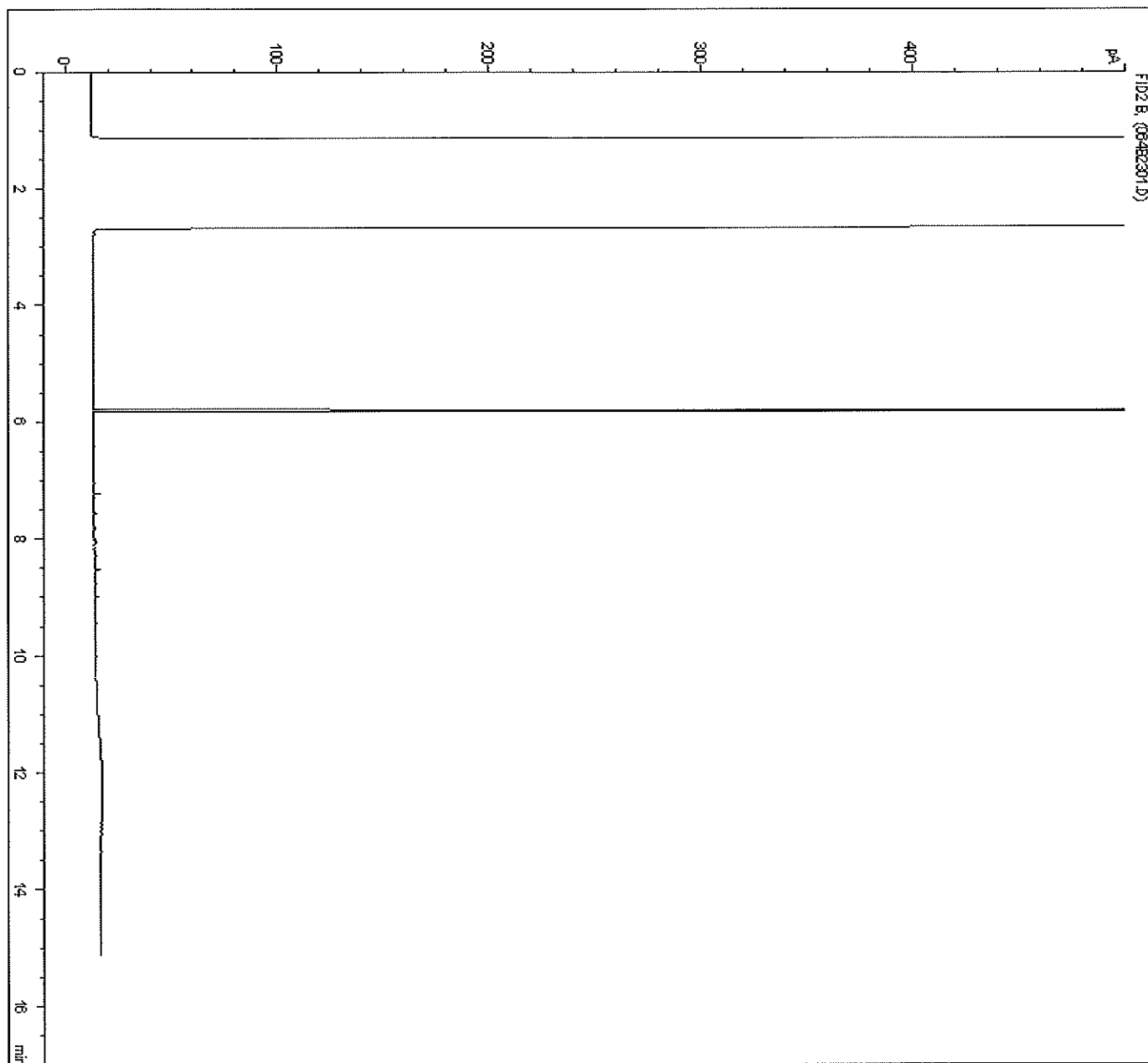


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0746

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-26-1.7-2.0

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\064B2301.D  
Sample Name: DH0746



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:42 AM AK8

Page 1 of 1

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



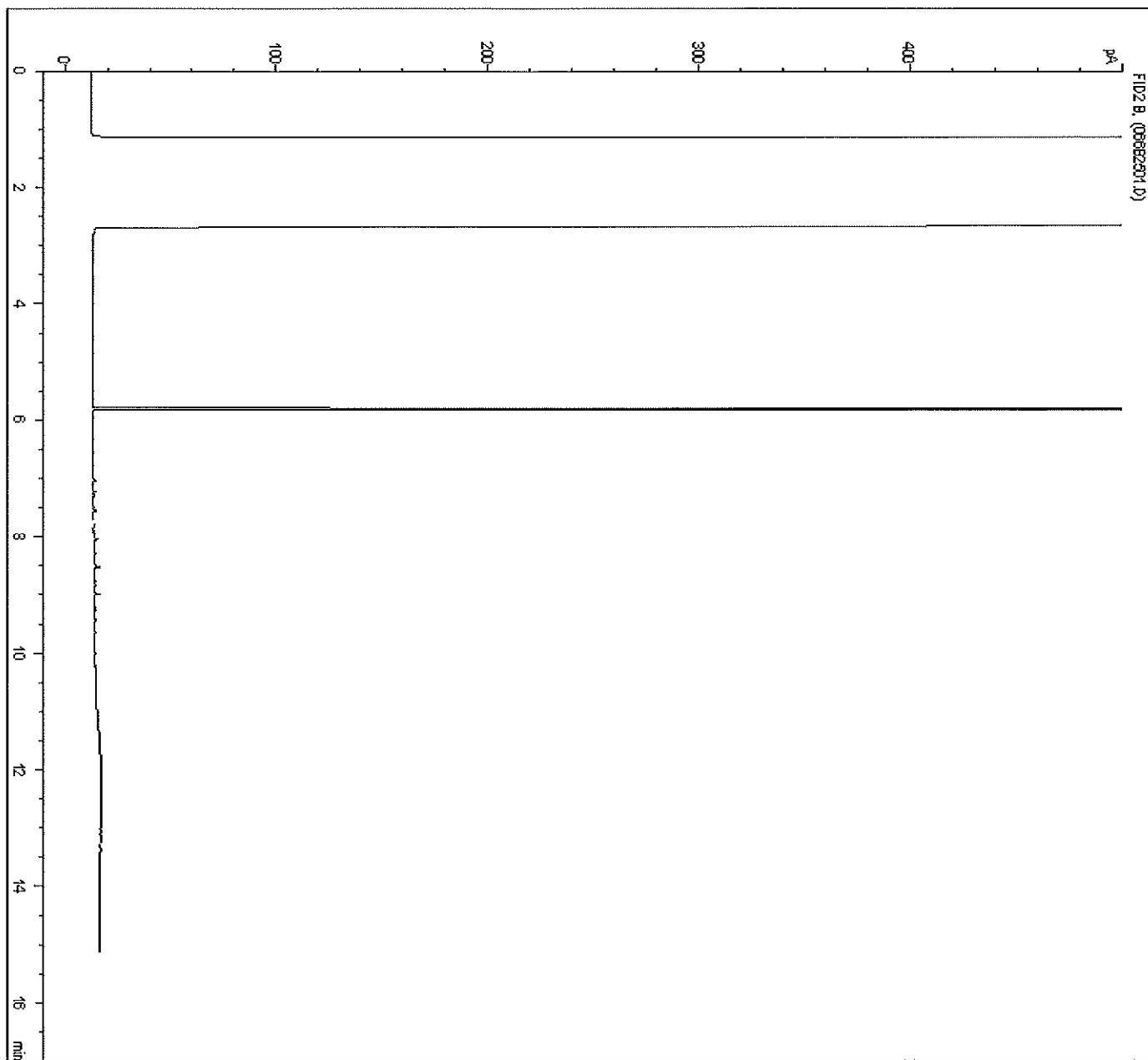


Report Date: 2012/05/07  
Maxxam Job #: B234556  
Maxxam Sample: DH0747

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNES ROAD WINNIPEG /  
Client ID: BH-26-2.3-2.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0503A\GNA0503A 2012-05-03 15-33-35\066B2501.D  
Sample Name: DH0747



\*\*\* End of Report \*\*\*

Instrument 1 2012/05/04 11:45:46 AM AK8

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



### DATA QUALITY REVIEW CHECKLIST

Consultant: ParsonsSampling Date: 2012/04/26Location: 208 St. Anne's Road, Winnipeg, MBLaboratory : Maxxam Analytics Inc.Consultant Project Number: 10-1177.100Sample Submission Number: B234556

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	X			The matrix spike recovery is below the control limit.
Extraction Surrogate Recovery	X			
Method Blank Concentration	X			
Matrix Duplicate RPD	X			
Matrix Spike Recovery		X		
Lab Control Sample Recovery			X	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			X	All field QC have met alert limits.
Trip Blank Concentration			X	
Field Duplicate RPD	X			

Has CoA been signed off (Yes/No)?:

Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?:

Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:

Yes

Were all samples analyzed within hold times (Yes/No)?:

Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:

Yes

Is Chain of Custody completed and signed (Yes/No)?:

Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?:

Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?:

No

Date Issued: \_\_\_\_\_

Date of Response: \_\_\_\_\_


Is data considered to be reliable (Yes/No)?:

Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-NaurockiReview Date: 2013/02/21

Revision Date (if applicable): \_\_\_\_\_

Data Reviewed by (Signature): 

Revised by (Signature): \_\_\_\_\_





Your Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Your C.O.C. #: S003333

**Attention: Adam Wickman**  
O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

**Report Date: 2012/06/21**

### CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B251209**

**Received: 2012/06/15, 8:25**

Sample Matrix: Water  
# Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS	4	N/A	2012/06/18	AB SOP-00039	CCME, EPA 8260C
BTEX/F1 in Water by HS GC/MS	1	N/A	2012/06/19	AB SOP-00039	CCME, EPA 8260C
CCME Hydrocarbons in Water (F2; C10-C16)	5	2012/06/20	2012/06/20	AB SOP-00040 AB SOP-00037	EPA3510/CCME PHCCWS
Lead (Dissolved)	5	N/A	2012/06/18	AB SOP-00043	EPA 200.8
Volatile Organic Compounds in Water	5	N/A	2012/06/18	EENVSOP-00021	EPA SW846, 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Desirae Hopkinson

22 Jun 2012 12:37:14 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

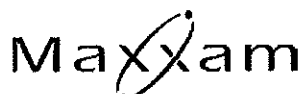
Desirae Hopkinson, Project Manager  
Email: DHopkinson@maxxam.ca  
Phone# (780) 577-7104

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1





Maxxam Job #: B251209  
Report Date: 2012/06/21

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

### AT1 BTEX AND F1-F2 (WATER)

Maxxam ID		DR8185		DR8186		DR8187		
Sampling Date		2012/06/13 13:00		2012/06/13 13:15		2012/06/13 13:30		
COC Number		S003333		S003333		S003333		
	UNITS	BH-19	RDL	BH-20	RDL	BH-21	RDL	QC Batch
<b>Hydrocarbons</b>								
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	4.8	0.10	<0.10	0.10	5928943
<b>Volatiles</b>								
Benzene	ug/L	<0.40	0.40	340	0.40	0.82	0.40	5928890
Toluene	ug/L	<0.40	0.40	14	0.40	0.90	0.40	5928890
Ethylbenzene	ug/L	<0.40	0.40	6.3	0.40	<0.40	0.40	5928890
o-Xylene	ug/L	<0.40	0.40	780	0.40	0.52	0.40	5928890
m & p-Xylene	ug/L	<0.80	0.80	3200 (1)	8.0	<0.80	0.80	5928890
Xylenes (Total)	ug/L	<0.80	0.80	4000 (1)	8.0	<0.80	0.80	5928890
F1 (C6-C10) - BTEX	ug/L	<100	100	5600	100	<100	100	5928890
(C6-C10)	ug/L	<100	100	9900	100	<100	100	5928890
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene (sur.)	%	104	N/A	98	N/A	102	N/A	5928890
4-BROMOFLUOROBENZENE (sur.)	%	96	N/A	97	N/A	97	N/A	5928890
D4-1,2-DICHLOROETHANE (sur.)	%	97	N/A	95	N/A	101	N/A	5928890
O-TERPHENYL (sur.)	%	97	N/A	101	N/A	110	N/A	5928943
N/A = Not Applicable RDL = Reportable Detection Limit ( 1 ) Detection limits raised due to dilution to bring analyte within the calibrated range.								



## AT1 BTEX AND F1-F2 (WATER)

Maxxam ID		DR8188		DR8189		
Sampling Date		2012/06/13 13:45		2012/06/13 14:00		
COC Number		S003333		S003333		
	<b>UNITS</b>	<b>BH-24</b>	<b>RDL</b>	<b>BH-25</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Hydrocarbons</b>						
F2 (C10-C16 Hydrocarbons)	mg/L	2.9	0.10	2.3	0.10	5928943
<b>Volatiles</b>						
Benzene	ug/L	22000 (1)	40	2900 (1)	4.0	5928890
Toluene	ug/L	30000 (1)	40	150	0.40	5928890
Ethylbenzene	ug/L	2600 (1)	4.0	1500 (1)	4.0	5928890
o-Xylene	ug/L	5200 (1)	4.0	190	0.40	5928890
m & p-Xylene	ug/L	9000 (1)	8.0	2800 (1)	8.0	5928890
Xylenes (Total)	ug/L	14000 (1)	8.0	3000 (1)	8.0	5928890
F1 (C6-C10) - BTEX	ug/L	7500 (1)	1000	9700 (1)	1000	5928890
(C6-C10)	ug/L	76000 (1)	1000	17000 (1)	1000	5928890
<b>Surrogate Recovery (%)</b>						
1,4-Difluorobenzene (sur.)	%	94	N/A	95	N/A	5928890
4-BROMOFLUOROBENZENE (sur.)	%	101	N/A	99	N/A	5928890
D4-1,2-DICHLOROETHANE (sur.)	%	96	N/A	92	N/A	5928890
O-TERPHENYL (sur.)	%	102	N/A	104	N/A	5928943

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Detection limits raised due to dilution to bring analyte within the calibrated range.





Maxxam Job #: B251209  
Report Date: 2012/06/21

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		DR8185	DR8186	DR8187	DR8188	DR8189		
Sampling Date		2012/06/13 13:00	2012/06/13 13:15	2012/06/13 13:30	2012/06/13 13:45	2012/06/13 14:00		
COC Number		S003333	S003333	S003333	S003333	S003333		
	UNITS	BH-19	BH-20	BH-21	BH-24	BH-25	RDL	QC Batch

Elements								
Dissolved Lead (Pb)	mg/L	<0.00020	0.0015	<0.00020	0.0018	<0.00020	0.00020	5930410

RDL = Reportable Detection Limit



### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DR8185	DR8186	DR8187	DR8188		
Sampling Date		2012/06/13 13:00	2012/06/13 13:15	2012/06/13 13:30	2012/06/13 13:45		
COC Number		S003333	S003333	S003333	S003333		
	<b>UNITS</b>	<b>BH-19</b>	<b>BH-20</b>	<b>BH-21</b>	<b>BH-24</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Volatiles</b>							
1,2-dichloroethane	ug/L	2.5	35	<0.50	36	0.50	5928928
1,2-dibromoethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5928928
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	110	115	104	123	N/A	5928928
D4-1,2-DICHLOROETHANE (sur.)	%	106	97	92	100	N/A	5928928
D8-TOLUENE (sur.)	%	96	96	96	93	N/A	5928928

N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		DR8189		
Sampling Date		2012/06/13 14:00		
COC Number		S003333		
	<b>UNITS</b>	<b>BH-25</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Volatiles</b>				
1,2-dichloroethane	ug/L	10	0.50	5928928
1,2-dibromoethane	ug/L	<0.50	0.50	5928928
<b>Surrogate Recovery (%)</b>				
4-BROMOFLUOROBENZENE (sur.)	%	119	N/A	5928928
D4-1,2-DICHLOROETHANE (sur.)	%	92	N/A	5928928
D8-TOLUENE (sur.)	%	103	N/A	5928928

N/A = Not Applicable  
RDL = Reportable Detection Limit





Maxxam Job #: B251209  
Report Date: 2012/06/21

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

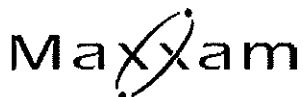
Package 1	4.0°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**





O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177

P.O. #:

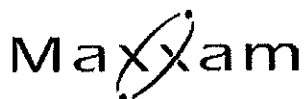
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report

Maxxam Job Number: EB251209

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
5928890 YT	Matrix Spike	1,4-Difluorobenzene (sur.)	2012/06/18		97	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/18		98	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/18		99	%	70 - 130
		Benzene	2012/06/18		87	%	70 - 130
		Toluene	2012/06/18		86	%	70 - 130
		Ethylbenzene	2012/06/18		92	%	70 - 130
		o-Xylene	2012/06/18		91	%	70 - 130
		m & p-Xylene	2012/06/18		92	%	70 - 130
		(C6-C10)	2012/06/18		86	%	70 - 130
	Spiked Blank	1,4-Difluorobenzene (sur.)	2012/06/18		98	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/18		96	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/18		97	%	70 - 130
		Benzene	2012/06/18		81	%	70 - 130
		Toluene	2012/06/18		81	%	70 - 130
		Ethylbenzene	2012/06/18		87	%	70 - 130
		o-Xylene	2012/06/18		86	%	70 - 130
		m & p-Xylene	2012/06/18		88	%	70 - 130
		(C6-C10)	2012/06/18		115	%	70 - 130
	Method Blank	1,4-Difluorobenzene (sur.)	2012/06/18		102	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/18		95	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/18		93	%	70 - 130
		Benzene	2012/06/18	<0.40		ug/L	
		Toluene	2012/06/18	<0.40		ug/L	
		Ethylbenzene	2012/06/18	<0.40		ug/L	
		o-Xylene	2012/06/18	<0.40		ug/L	
		m & p-Xylene	2012/06/18	<0.80		ug/L	
		Xylenes (Total)	2012/06/18	<0.80		ug/L	
		F1 (C6-C10) - BTEX	2012/06/18	<100		ug/L	
	RPD	(C6-C10)	2012/06/18	<100		ug/L	
		Benzene	2012/06/18	NC		%	40
		Toluene	2012/06/18	NC		%	40
		Ethylbenzene	2012/06/18	NC		%	40
		o-Xylene	2012/06/18	NC		%	40
		m & p-Xylene	2012/06/18	NC		%	40
		Xylenes (Total)	2012/06/18	NC		%	40
		F1 (C6-C10) - BTEX	2012/06/18	NC		%	40
		(C6-C10)	2012/06/18	NC		%	40
5928928 KE4	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2012/06/18		110	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/18		116	%	70 - 130
		D8-TOLUENE (sur.)	2012/06/18		95	%	70 - 130
		1,2-dichloroethane	2012/06/18		109	%	70 - 130
	Spiked Blank	1,2-dibromoethane	2012/06/18		86	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/18		112	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/18		95	%	70 - 130
		D8-TOLUENE (sur.)	2012/06/18		97	%	70 - 130
	Method Blank	1,2-dichloroethane	2012/06/18		96	%	70 - 130
		1,2-dibromoethane	2012/06/18		73	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/18		106	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/18		96	%	70 - 130
	RPD	D8-TOLUENE (sur.)	2012/06/18		97	%	70 - 130
		1,2-dichloroethane	2012/06/18	<0.50		ug/L	
		1,2-dibromoethane	2012/06/18	<0.50		ug/L	
		1,2-dichloroethane	2012/06/18	NC		%	40
		1,2-dibromoethane	2012/06/18	NC		%	40
5928943 GG3	Matrix Spike	O-TERPHENYL (sur.)	2012/06/20		105	%	50 - 130





O'CONNOR ASSOCIATES ENVIRONMENTAL  
Attention: Adam Wickman  
Client Project #: 10-1177  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

Quality Assurance Report (Continued)

Maxxam Job Number: EB251209

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
5928943 GG3	Matrix Spike	F2 (C10-C16 Hydrocarbons)	2012/06/20		114	%	70 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2012/06/20		96	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/06/20		100	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2012/06/20		100	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/06/20	<0.10		mg/L	
	RPD	F2 (C10-C16 Hydrocarbons)	2012/06/20	NC		%	40
5930410 HM3	Matrix Spike	Dissolved Lead (Pb)	2012/06/18		94	%	80 - 120
	Spiked Blank	Dissolved Lead (Pb)	2012/06/18		96	%	80 - 120
	Method Blank	Dissolved Lead (Pb)	2012/06/18	<0.00020		mg/L	
	RPD	Dissolved Lead (Pb)	2012/06/18	NC		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.  
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.  
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.  
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.  
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.  
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 9331 - 48th Street T6B 2R4 Telephone(780)577-7100 Fax(780)450-4187



## Validation Signature Page

Maxxam Job #: B251209

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Daniel Reslan, Volatiles Supervisor



Dina Tleugabulova, Ph.D., Scientific Specialist, Inorganics Department



Karla Offord, Senior Analyst, Organics Department

---

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Consulting Company: O'Connor Associates Env. Inc.  
 Contact: Adam Wickman  
 Address: 7 Terrence Place, Winnipeg  
 Prov: MB PC: R3T 4B3  
 Contact #s: Ph: 204-489-2964 Cell: N/A  
 Project ID: 16-1177  
 Sampled By: Joy Jacobson

Report Distribution (E-Mail):  
adam.wickman@parsons.com

REGULATORY GUIDELINES:  
☐ AT1  
☒ CCME 10W  
☐ Regulated Drinking Water  
☐ Other:

SERVICE REQUESTED:  
☐ RUSH (Contact lab to reserve)  
☐ 2 DAY  
☐ 1 DAY  
☐ SAME DAY  
 Date Required:  
☒ REGULAR (5 Days)

Sample ID	Depth (unit)	Matrix GW / SW Soil	Date/Time Sampled YY/MM/DD 24:00	SOIL				WATER				Other Analysis	HOLD - Do not Analyze	# of Containers Submitted
				BTEX FI-P4	Sieve (75 micron)	Regulated Metals (CCME / AT1)	Salinity 4	DBTEX FI	DBTEX FI-P4	DBTEX FI-P4	Regulated Metals (CCME / AT1)	Regulated Metals (CCME / AT1)		
1 BH-19		GW	12/06/13 1300											5
2 BH-20		GW	12/06/13 1315											9
3 BH-21		GW	12/06/13 1330											9
4 BH-24		GW	12/06/13 1345											9
5 BH-25		GW	12/06/13 1400											9
6														
7														
8														
9														
10														
11														
12														

Please indicate Filtered, Preserved or Both (F, P, F/P)

Relinquished By (Signature/Print): Joy Jacobson Date (YY/MM/DD): 12/06/13  
 Date (YY/MM/DD): 1600  
 Date (YY/MM/DD): 1600

Special Instructions: Headspace and/or sediment may be present, please proceed with analysis  
 # of Jars Used & Not Sealed: 10 of 15

DOWNSTREAM ☒  
 Site address: 208 St. Annes Rd  
 Site City/Prov: Winnipeg, MB  
 Outlet number: 63955  
 Monitoring: ☒ ne / ☐ rx / ☐ ni / ☐ m / ☐ (circle one)  
 Senior Suncor Advisor:  
 Brian Holmes ☐ Rick Lemoine ☒  
 Other:

UPSTREAM ☐  
 LSD#:   
 Site/Field:   
 AFE#:   
 RO# (if applicable):   
 Senior Suncor Advisor:  
 Mike Morden ☐ Ben Parsons ☐  
 Russell Browne ☐ Phil Scalia ☐  
 Other:

LAB USE ONLY  
 Received By: Amanda St. Onofre Date: 11/3  
 Custody Seal: 11/3  
 Temperature: 4, 3, 5  
 Ice: present



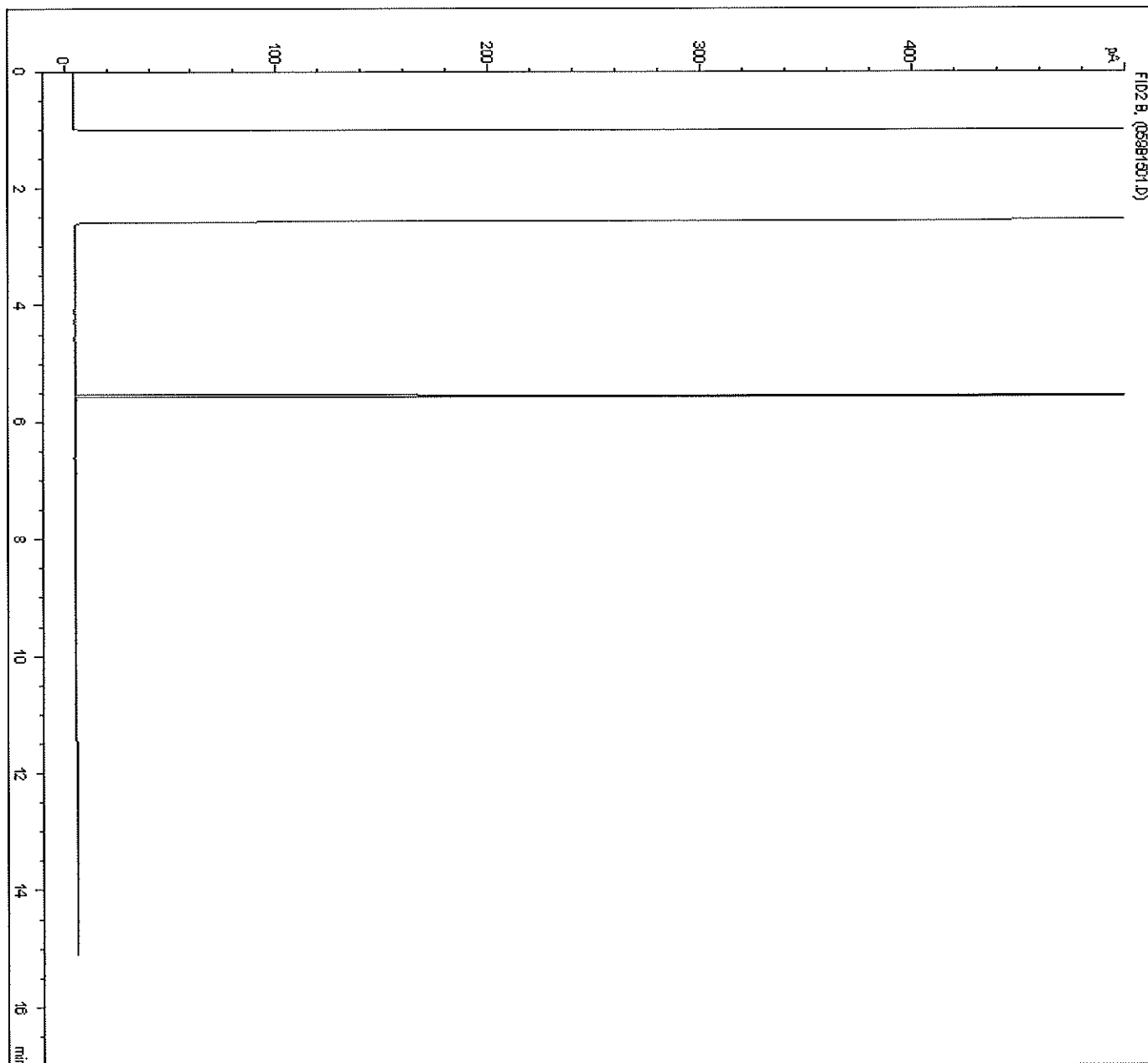


Report Date: 2012/06/21  
Maxxam Job #: B251209  
Maxxam Sample: DR8185

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-19

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

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Sample Name: DR8185-02



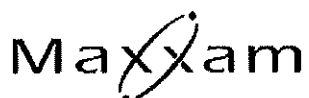
\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:17 AM 6890NA GG3

Page 1 of 1

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



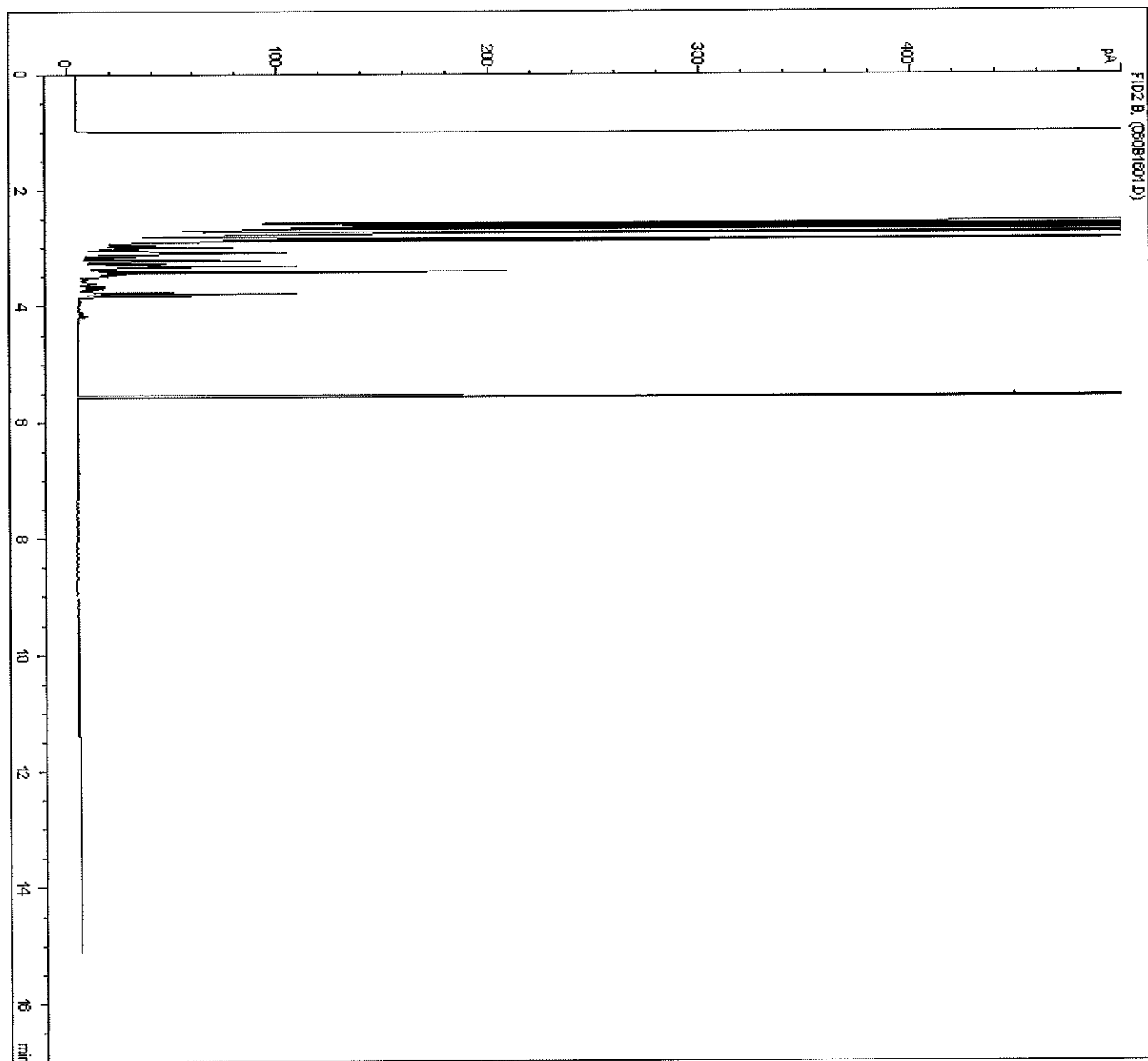


Report Date: 2012/06/21  
Maxxam Job #: B251209  
Maxxam Sample: DR8186

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-20

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\060B1601.D  
Sample Name: DR8186-02



\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:19 AM 6890NA GG3

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



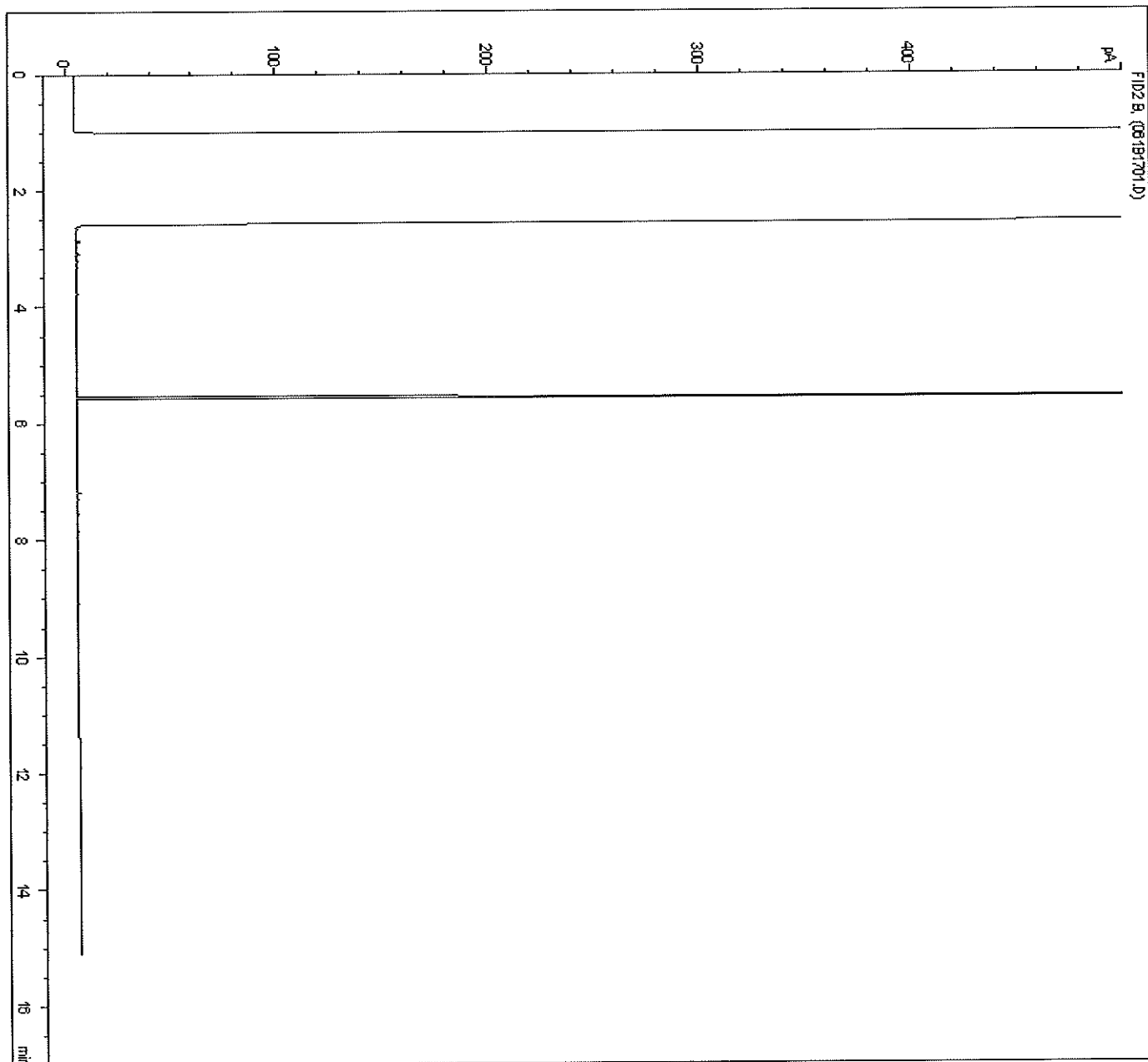


Report Date: 2012/06/21  
Maxxam Job #: B251209  
Maxxam Sample: DR8187

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-21

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\061B1701.D  
Sample Name: DR8187-02



\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:21 AM 6890NA GG3

Page 1 of 1

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

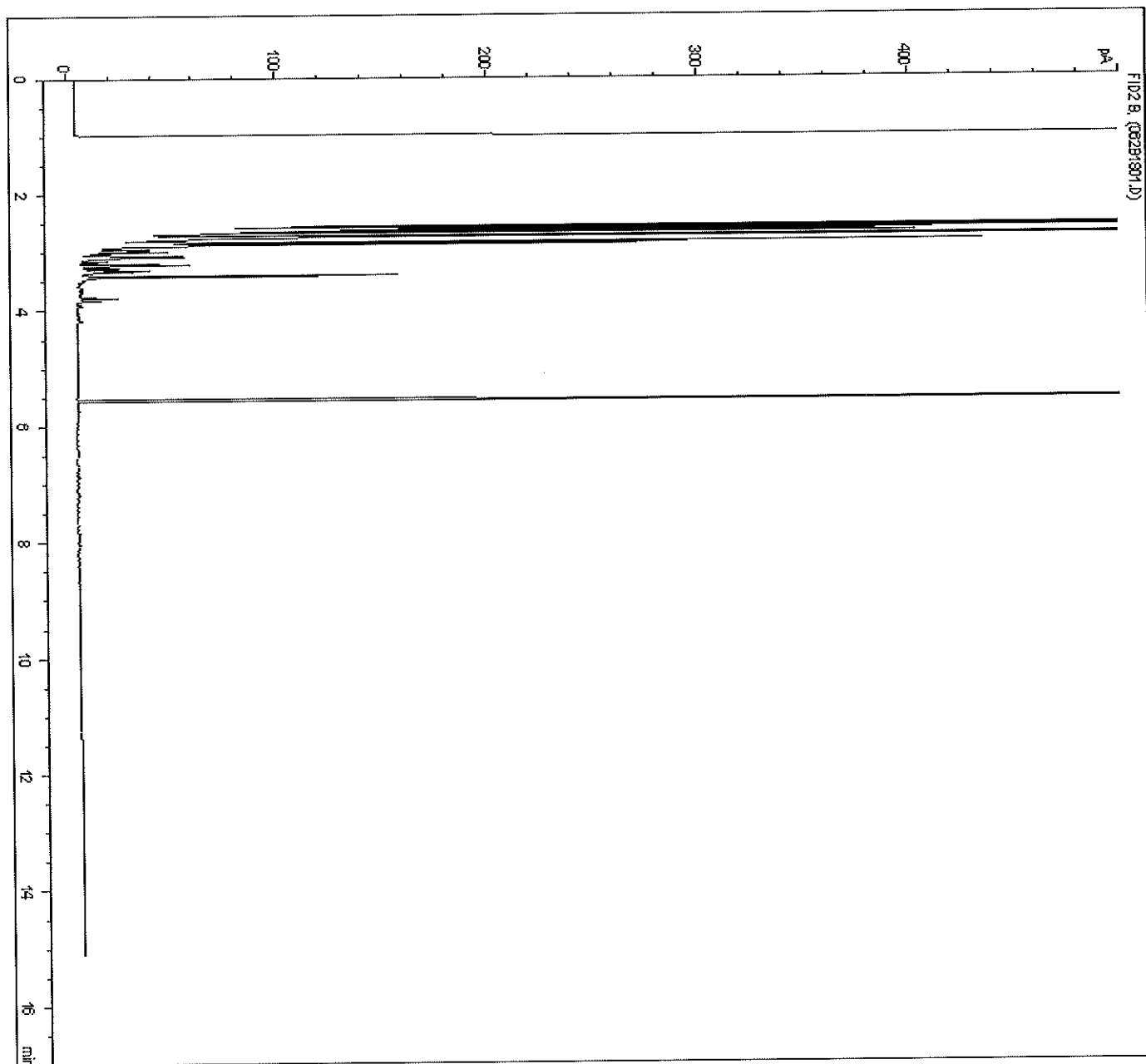


Report Date: 2012/06/21  
Maxxam Job #: B251209  
Maxxam Sample: DR8188

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-24

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\062B1801.D  
Sample Name: DR8188-02



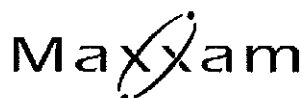
\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:23 AM 6890NA GG3

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



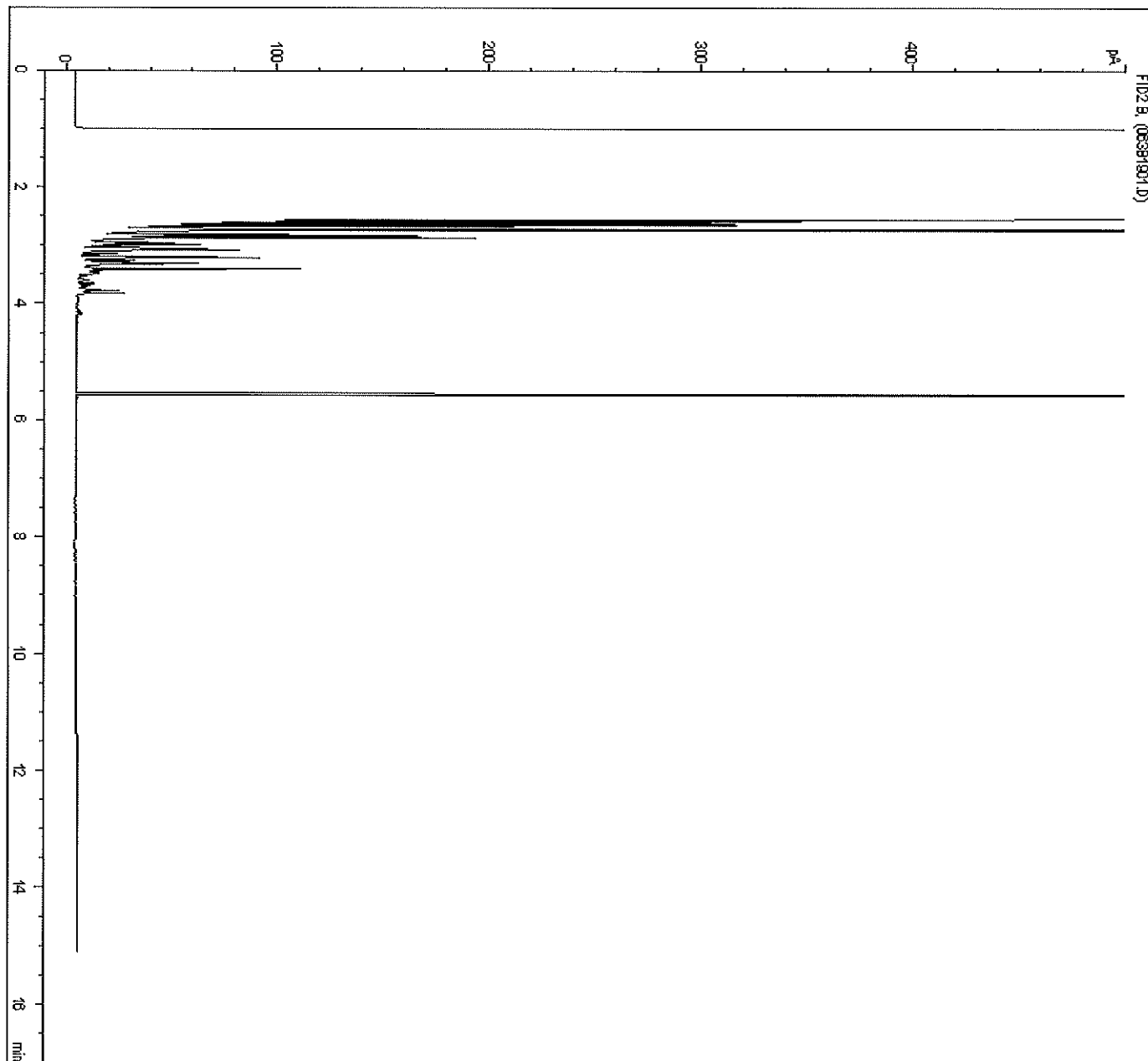


Report Date: 2012/06/21  
Maxxam Job #: B251209  
Maxxam Sample: DR8189

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-25

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\063B1901.D  
Sample Name: DR8189-02



\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:25 AM 6890NA GG3

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



**DATA QUALITY REVIEW CHECKLIST**

Consultant: Parsons

Sampling Date: 2012/06/13

Location: 208 St. Anne's Road, Winnipeg, MB

Laboratory : Maxxam Analytics Inc.

Consultant Project Number: 10-1177.100

Sample Submission Number: B251209

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration	<i>X</i>			
Matrix Duplicate RPD	<i>X</i>			
Matrix Spike Recovery	<i>X</i>			
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<i>X</i>	<i>No field QC were submitted.</i>
Trip Blank Concentration			<i>X</i>	
Field Duplicate RPD			<i>X</i>	

Has CoA been signed off (Yes/No)?:

Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?:

Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:

Yes

Were all samples analyzed within hold times (Yes/No)?:

Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:

N/A

Is Chain of Custody completed and signed (Yes/No)?:

Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?:

Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?:

No

Date Issued: \_\_\_\_\_


Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?:

Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-Naurocki

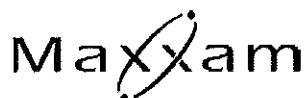
Data Reviewed by (Signature): 

Review Date: 2013/02/21

Revision Date (if applicable): \_\_\_\_\_

Revised by (Signature): \_\_\_\_\_





Your Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Your C.O.C. #: S003335

**Attention: Adam Wickman**  
O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

Report Date: 2012/06/22

### CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B251213**

**Received: 2012/06/15, 8:25**

Sample Matrix: Water

# Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS	4	N/A	2012/06/20	AB SOP-00039	CCME, EPA 8260C
BTEX/F1 in Water by HS GC/MS	1	N/A	2012/06/21	AB SOP-00039	CCME, EPA 8260C
CCME Hydrocarbons in Water (F2; C10-C16)	5	2012/06/20	2012/06/20	AB SOP-00040	EPA3510/CCME PHCCWS
				AB SOP-00037	
Glycols in Water by GC/FID (1)	1	N/A	2012/06/22	CAL SOP-00093	EPA 8015 D
Elements by ICP - Dissolved	1	N/A	2012/06/21	AB SOP-00042	EPA 200.7
Elements by ICPMS - Dissolved	1	N/A	2012/06/19	AB SOP-00043	EPA 200.8
Benzo[a]pyrene Equivalency (1)	1	N/A	2012/06/20	AB SOP-00003	EPA 8270D
Polycyclic Aromatic Hydrocarbons (1,2)	1	2012/06/19	2012/06/20	AB SOP-00003	EPA 3510C/8270D
				AB SOP-00037	
Lead (Dissolved)	4	N/A	2012/06/21	AB SOP-00043	EPA 200.8
Volatile Organic Compounds in Water	5	N/A	2012/06/19	EENV SOP-00021	EPA SW846, 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Calgary Environmental

(2) B[a]P TPE is calculated using 1/2 of the RDL for non detect results as per Alberta Environment instructions. This protocol may not apply in other jurisdictions.

Encryption Key

Desirae Hopkinson

22 Jun 2012 16:35:43 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Desirae Hopkinson, Project Manager

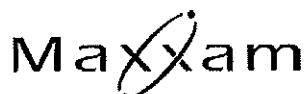
Email: DHopkinson@maxxam.ca

Phone# (780) 577-7104

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Total cover pages: 1





Maxxam Job #: B251213  
Report Date: 2012/06/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

### AT1 BTEX AND F1-F2 (WATER)

Maxxam ID		DR8214	DR8215	DR8216	DR8217		
Sampling Date		2012/06/13 14:15	2012/06/13 14:30	2012/06/13 14:45	2012/06/13 12:00		
COC Number		S003335	S003335	S003335	S003335		
	<b>UNITS</b>	<b>BH-26</b>	<b>BH-27</b>	<b>BH-28</b>	<b>BH-29</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Hydrocarbons</b>							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	5.6	<0.10	<0.10	0.10	5932241
<b>Volatiles</b>							
Benzene	ug/L	<0.40	16	<0.40	<0.40	0.40	5932258
Toluene	ug/L	<0.40	1.6	<0.40	<0.40	0.40	5932258
Ethylbenzene	ug/L	<0.40	99	<0.40	<0.40	0.40	5932258
o-Xylene	ug/L	<0.40	11	<0.40	<0.40	0.40	5932258
m & p-Xylene	ug/L	<0.80	850	<0.80	<0.80	0.80	5932258
Xylenes (Total)	ug/L	<0.80	860	<0.80	<0.80	0.80	5932258
F1 (C6-C10) - BTEX	ug/L	<100	8100	<100	<100	100	5932258
(C6-C10)	ug/L	<100	9100	<100	<100	100	5932258
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	100	96	91	92	N/A	5932258
4-BROMOFLUOROBENZENE (sur.)	%	97	100	99	99	N/A	5932258
D4-1,2-DICHLOROETHANE (sur.)	%	104	118	125	121	N/A	5932258
O-TERPHENYL (sur.)	%	108	108	101	102	N/A	5932241

N/A = Not Applicable  
RDL = Reportable Detection Limit



### AT1 BTEX AND F1-F2 (WATER)

Maxxam ID		DR8218		
Sampling Date		2012/06/13 12:15		
COC Number		S003335		
	UNITS	BH9	RDL	QC Batch

<b>Hydrocarbons</b>				
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	5932241
<b>Volatiles</b>				
Benzene	ug/L	<0.40	0.40	5932258
Toluene	ug/L	<0.40	0.40	5932258
Ethylbenzene	ug/L	<0.40	0.40	5932258
o-Xylene	ug/L	<0.40	0.40	5932258
m & p-Xylene	ug/L	<0.80	0.80	5932258
Xylenes (Total)	ug/L	<0.80	0.80	5932258
F1 (C6-C10) - BTEX	ug/L	<100	100	5932258
(C6-C10)	ug/L	<100	100	5932258
<b>Surrogate Recovery (%)</b>				
1,4-Difluorobenzene (sur.)	%	93	N/A	5932258
4-BROMOFLUOROBENZENE (sur.)	%	98	N/A	5932258
D4-1,2-DICHLOROETHANE (sur.)	%	120	N/A	5932258
O-TERPHENYL (sur.)	%	100	N/A	5932241
N/A = Not Applicable RDL = Reportable Detection Limit				



### GLYCOLS BY GC-FID (WATER)

Maxxam ID		DR8217		
Sampling Date		2012/06/13 12:00		
COC Number		S003335		
	UNITS	BH-29	RDL	QC Batch

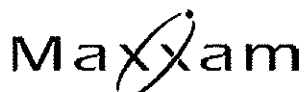
<b>Glycols</b>				
Ethylene Glycol	mg/L	<10	10	5941564
Propylene Glycol	mg/L	<10	10	5941564
<b>Surrogate Recovery (%)</b>				
Methyl Sulfone (sur.)	%	76	N/A	5941564
N/A = Not Applicable RDL = Reportable Detection Limit				



### SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DR8217		
Sampling Date		2012/06/13 12:00		
COC Number		S003335		
	UNITS	BH-29	RDL	QC Batch
<b>Polycyclic Aromatics</b>				
Benzo[a]pyrene equivalency	ug/L	<0.010	0.010	5928280
Acenaphthene	ug/L	<0.10	0.10	5933288
Anthracene	ug/L	<0.010	0.010	5933288
Benzo(a)anthracene	ug/L	<0.0085	0.0085	5933288
Benzo(a)pyrene	ug/L	<0.0075	0.0075	5933288
Fluoranthene	ug/L	<0.040	0.040	5933288
Fluorene	ug/L	<0.050	0.050	5933288
Naphthalene	ug/L	<0.10	0.10	5933288
Phenanthrene	ug/L	<0.050	0.050	5933288
Pyrene	ug/L	<0.020	0.020	5933288
<b>Surrogate Recovery (%)</b>				
D10-ANTHRACENE (sur.)	%	88	N/A	5933288
D12-BENZO(A)PYRENE (sur.)	%	77	N/A	5933288
D8-ACENAPHTHYLENE (sur.)	%	88	N/A	5933288
TERPHENYL-D14 (sur.)	%	95	N/A	5933288
N/A = Not Applicable RDL = Reportable Detection Limit				





Maxxam Job #: B251213  
Report Date: 2012/06/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		DR8214	DR8215	DR8216	DR8217		
Sampling Date		2012/06/13 14:15	2012/06/13 14:30	2012/06/13 14:45	2012/06/13 12:00		
COC Number		S003335	S003335	S003335	S003335		
	<b>UNITS</b>	<b>BH-26</b>	<b>BH-27</b>	<b>BH-28</b>	<b>BH-29</b>	<b>RDL</b>	<b>QC Batch</b>

Elements							
Dissolved Arsenic (As)	mg/L	N/A	N/A	N/A	0.0014	0.00020	5932301
Dissolved Barium (Ba)	mg/L	N/A	N/A	N/A	0.027	0.010	5938746
Dissolved Chromium (Cr)	mg/L	N/A	N/A	N/A	<0.010	0.010	5938746
Dissolved Copper (Cu)	mg/L	N/A	N/A	N/A	0.0048	0.00020	5932301
Dissolved Lead (Pb)	mg/L	N/A	N/A	N/A	0.00021	0.00020	5932301
Dissolved Zinc (Zn)	mg/L	N/A	N/A	N/A	0.010	0.0030	5932301
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	<0.00020	N/A	0.00020	5936548

N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		DR8218		
Sampling Date		2012/06/13 12:15		
COC Number		S003335		
	<b>UNITS</b>	<b>BH9</b>	<b>RDL</b>	<b>QC Batch</b>

Elements				
Dissolved Lead (Pb)	mg/L	<0.00020	0.00020	5936548

RDL = Reportable Detection Limit





Maxxam Job #: B251213  
Report Date: 2012/06/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DR8214	DR8214	DR8215	DR8216		
Sampling Date		2012/06/13 14:15	2012/06/13 14:15	2012/06/13 14:30	2012/06/13 14:45		
COC Number		S003335	S003335	S003335	S003335		
	UNITS	BH-26	BH-26 Lab-Dup	BH-27	BH-28	RDL	QC Batch

Volatiles							
1,2-dichloroethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5932156
1,2-dibromoethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5932156
Surrogate Recovery (%)							
4-BROMOFLUOROBENZENE (sur.)	%	105	116	109	104	N/A	5932156
D4-1,2-DICHLOROETHANE (sur.)	%	91	101	88	101	N/A	5932156
D8-TOLUENE (sur.)	%	97	93	102	90	N/A	5932156

N/A = Not Applicable

RDL = Reportable Detection Limit

Lab-Dup = Laboratory Initiated Duplicate

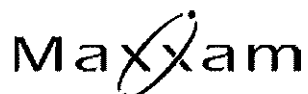
Maxxam ID		DR8217	DR8218		
Sampling Date		2012/06/13 12:00	2012/06/13 12:15		
COC Number		S003335	S003335		
	UNITS	BH-29	BH9	RDL	QC Batch

Volatiles					
1,2-dichloroethane	ug/L	<0.50	<0.50	0.50	5932156
1,2-dibromoethane	ug/L	<0.50	<0.50	0.50	5932156
Surrogate Recovery (%)					
4-BROMOFLUOROBENZENE (sur.)	%	106	118	N/A	5932156
D4-1,2-DICHLOROETHANE (sur.)	%	99	105	N/A	5932156
D8-TOLUENE (sur.)	%	106	97	N/A	5932156

N/A = Not Applicable

RDL = Reportable Detection Limit





Maxxam Job #: B251213  
Report Date: 2012/06/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

Package 1	7.3°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**





O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177

P.O. #:

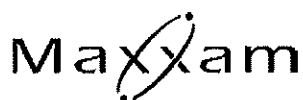
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

Quality Assurance Report

Maxxam Job Number: EB251213

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
5932156 KE4	Matrix Spike [DR8215-02]	4-BROMOFLUOROBENZENE (sur.)	2012/06/19		107	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/19		97	%	70 - 130
		D8-TOLUENE (sur.)	2012/06/19		84	%	70 - 130
		1,2-dichloroethane	2012/06/19		96	%	70 - 130
		1,2-dibromoethane	2012/06/19		75	%	70 - 130
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/06/19		113	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/19		100	%	70 - 130
		D8-TOLUENE (sur.)	2012/06/19		96	%	70 - 130
		1,2-dichloroethane	2012/06/19		90	%	70 - 130
		1,2-dibromoethane	2012/06/19		80	%	70 - 130
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/06/19		107	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/19		88	%	70 - 130
		D8-TOLUENE (sur.)	2012/06/19		97	%	70 - 130
		1,2-dichloroethane	2012/06/19	<0.50		ug/L	
		1,2-dibromoethane	2012/06/19	<0.50		ug/L	
	RPD [DR8214-02]	1,2-dichloroethane	2012/06/19	NC		%	40
		1,2-dibromoethane	2012/06/19	NC		%	40
5932241 PK4	Matrix Spike	O-TERPHENYL (sur.)	2012/06/20		100	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/06/20		98	%	70 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2012/06/20		107	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/06/20		113	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2012/06/20		104	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/06/20	<0.10		mg/L	
	RPD	F2 (C10-C16 Hydrocarbons)	2012/06/20	NC		%	40
	Matrix Spike	1,4-Difluorobenzene (sur.)	2012/06/20		99	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/20		96	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/20		103	%	70 - 130
		Benzene	2012/06/20		106	%	70 - 130
		Toluene	2012/06/20		103	%	70 - 130
		Ethylbenzene	2012/06/20		101	%	70 - 130
		o-Xylene	2012/06/20		98	%	70 - 130
		m & p-Xylene	2012/06/20		99	%	70 - 130
		(C6-C10)	2012/06/20		114	%	70 - 130
	Spiked Blank	1,4-Difluorobenzene (sur.)	2012/06/20		99	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/20		101	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/20		103	%	70 - 130
		Benzene	2012/06/20		104	%	70 - 130
		Toluene	2012/06/20		103	%	70 - 130
		Ethylbenzene	2012/06/20		100	%	70 - 130
		o-Xylene	2012/06/20		99	%	70 - 130
		m & p-Xylene	2012/06/20		101	%	70 - 130
		(C6-C10)	2012/06/20		126	%	70 - 130
	Method Blank	1,4-Difluorobenzene (sur.)	2012/06/20		100	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/20		96	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/20		105	%	70 - 130
		Benzene	2012/06/20	<0.40		ug/L	
		Toluene	2012/06/20	<0.40		ug/L	
		Ethylbenzene	2012/06/20	<0.40		ug/L	
		o-Xylene	2012/06/20	<0.40		ug/L	
		m & p-Xylene	2012/06/20	<0.80		ug/L	
		Xylenes (Total)	2012/06/20	<0.80		ug/L	
		F1 (C6-C10) - BTEX	2012/06/20	<100		ug/L	
		(C6-C10)	2012/06/20	<100		ug/L	
5932258 RPA	RPD	Benzene	2012/06/20	NC		%	40





## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: EB251213

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
5932258 RPA	RPD	Toluene	2012/06/20	NC		%	40
		Ethylbenzene	2012/06/20	NC		%	40
		o-Xylene	2012/06/20	NC		%	40
		m & p-Xylene	2012/06/20	NC		%	40
		Xylenes (Total)	2012/06/20	NC		%	40
5932301 WAU	Matrix Spike	Dissolved Arsenic (As)	2012/06/19		92	%	80 - 120
		Dissolved Chromium (Cr)	2012/06/19		89	%	80 - 120
		Dissolved Copper (Cu)	2012/06/19		84	%	80 - 120
		Dissolved Lead (Pb)	2012/06/19		96	%	80 - 120
		Dissolved Zinc (Zn)	2012/06/19		102	%	80 - 120
	Spiked Blank	Dissolved Arsenic (As)	2012/06/19		97	%	80 - 120
		Dissolved Chromium (Cr)	2012/06/19		92	%	80 - 120
		Dissolved Copper (Cu)	2012/06/19		90	%	80 - 120
		Dissolved Lead (Pb)	2012/06/19		103	%	80 - 120
		Dissolved Zinc (Zn)	2012/06/19		99	%	80 - 120
	Method Blank	Dissolved Arsenic (As)	2012/06/19	<0.00020		mg/L	
		Dissolved Chromium (Cr)	2012/06/19	<0.0010		mg/L	
		Dissolved Copper (Cu)	2012/06/19	<0.00020		mg/L	
		Dissolved Lead (Pb)	2012/06/19	<0.00020		mg/L	
		Dissolved Zinc (Zn)	2012/06/19	<0.0030		mg/L	
	RPD	Dissolved Arsenic (As)	2012/06/19	NC		%	20
		Dissolved Chromium (Cr)	2012/06/19	NC		%	20
		Dissolved Copper (Cu)	2012/06/19	NC		%	20
		Dissolved Lead (Pb)	2012/06/19	NC		%	20
		Dissolved Zinc (Zn)	2012/06/19	NC		%	20
5933288 SJ1	Matrix Spike	D10-ANTHRACENE (sur.)	2012/06/19		74	%	50 - 130
		D12-BENZO(A)PYRENE (sur.)	2012/06/19		71	%	50 - 130
		D8-ACENAPHTHYLENE (sur.)	2012/06/19		71	%	50 - 130
		TERPHENYL-D14 (sur.)	2012/06/19		80	%	50 - 130
		Acenaphthene	2012/06/19		69	%	50 - 130
		Anthracene	2012/06/19		64	%	50 - 130
		Benzo(a)anthracene	2012/06/19		72	%	50 - 130
		Benzo(a)pyrene	2012/06/19		68	%	50 - 130
		Fluoranthene	2012/06/19		73	%	50 - 130
		Fluorene	2012/06/19		72	%	50 - 130
		Naphthalene	2012/06/19		66	%	50 - 130
		Phenanthrene	2012/06/19		70	%	50 - 130
		Pyrene	2012/06/19		70	%	50 - 130
	Spiked Blank	D10-ANTHRACENE (sur.)	2012/06/19		82	%	50 - 130
		D12-BENZO(A)PYRENE (sur.)	2012/06/19		79	%	50 - 130
		D8-ACENAPHTHYLENE (sur.)	2012/06/19		79	%	50 - 130
		TERPHENYL-D14 (sur.)	2012/06/19		89	%	50 - 130
		Acenaphthene	2012/06/19		81	%	50 - 130
		Anthracene	2012/06/19		75	%	50 - 130
		Benzo(a)anthracene	2012/06/19		82	%	50 - 130
		Benzo(a)pyrene	2012/06/19		80	%	50 - 130
		Fluoranthene	2012/06/19		85	%	50 - 130
		Fluorene	2012/06/19		83	%	50 - 130
		Naphthalene	2012/06/19		73	%	50 - 130
		Phenanthrene	2012/06/19		81	%	50 - 130
		Pyrene	2012/06/19		81	%	50 - 130
	Method Blank	D10-ANTHRACENE (sur.)	2012/06/19		76	%	50 - 130
		D12-BENZO(A)PYRENE (sur.)	2012/06/19		66	%	50 - 130
		D8-ACENAPHTHYLENE (sur.)	2012/06/19		71	%	50 - 130
		TERPHENYL-D14 (sur.)	2012/06/19		81	%	50 - 130





O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Attention: Adam Wickman  
 Client Project #: 10-1177  
 P.O. #:  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: EB251213

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
5933288 SJ1	Method Blank	Acenaphthene	2012/06/19	<0.10		ug/L	
		Anthracene	2012/06/19	<0.010		ug/L	
		Benzo(a)anthracene	2012/06/19	<0.0085		ug/L	
		Benzo(a)pyrene	2012/06/19	<0.0075		ug/L	
		Fluoranthene	2012/06/19	<0.040		ug/L	
		Fluorene	2012/06/19	<0.050		ug/L	
		Naphthalene	2012/06/19	<0.10		ug/L	
		Phenanthrene	2012/06/19	<0.050		ug/L	
		Pyrene	2012/06/19	<0.020		ug/L	
	RPD	Acenaphthene	2012/06/19	NC		%	40
		Anthracene	2012/06/19	NC		%	40
		Benzo(a)anthracene	2012/06/19	NC		%	40
		Benzo(a)pyrene	2012/06/19	NC		%	40
		Fluoranthene	2012/06/19	NC		%	40
		Fluorene	2012/06/19	NC		%	40
		Naphthalene	2012/06/19	NC		%	40
		Phenanthrene	2012/06/19	NC		%	40
		Pyrene	2012/06/19	NC		%	40
5936548 SG8	Matrix Spike	Dissolved Lead (Pb)	2012/06/21		91	%	80 - 120
	Spiked Blank	Dissolved Lead (Pb)	2012/06/21		100	%	80 - 120
	Method Blank	Dissolved Lead (Pb)	2012/06/21	<0.00020		mg/L	
	RPD	Dissolved Lead (Pb)	2012/06/21	NC		%	20
5938746 SV1	Matrix Spike	Dissolved Barium (Ba)	2012/06/21		98	%	80 - 120
		Dissolved Chromium (Cr)	2012/06/21		94	%	80 - 120
	Spiked Blank	Dissolved Barium (Ba)	2012/06/21		96	%	80 - 120
		Dissolved Chromium (Cr)	2012/06/21		94	%	80 - 120
	Method Blank	Dissolved Barium (Ba)	2012/06/21	<0.010		mg/L	
		Dissolved Chromium (Cr)	2012/06/21	<0.010		mg/L	
	RPD	Dissolved Barium (Ba)	2012/06/21	NC		%	20
5941564 JW0	Matrix Spike	Methyl Sulfone (sur.)	2012/06/22		96	%	70 - 130
		Ethylene Glycol	2012/06/22		110	%	70 - 130
		Propylene Glycol	2012/06/22		72	%	70 - 130
	Spiked Blank	Methyl Sulfone (sur.)	2012/06/22		109	%	70 - 130
		Ethylene Glycol	2012/06/22		105	%	70 - 130
		Propylene Glycol	2012/06/22		95	%	70 - 130
	Method Blank	Methyl Sulfone (sur.)	2012/06/22		119	%	70 - 130
		Ethylene Glycol	2012/06/22	<10		mg/L	
		Propylene Glycol	2012/06/22	<10		mg/L	
	RPD	Ethylene Glycol	2012/06/22	NC		%	40
		Propylene Glycol	2012/06/22	NC		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.  
 Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.  
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.  
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.  
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.  
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.



## Validation Signature Page

Maxxam Job #: B251213

---

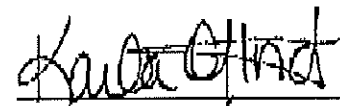
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Carol Gebhart, Senior Analyst



Daniel Reslan, Volatiles Supervisor



Karla Offord, Senior Analyst, Organics Department



Luba Shymushovska, Senior Analyst, Organic Department



Pui Hang Tam, Senior Analyst

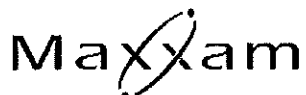
---

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.







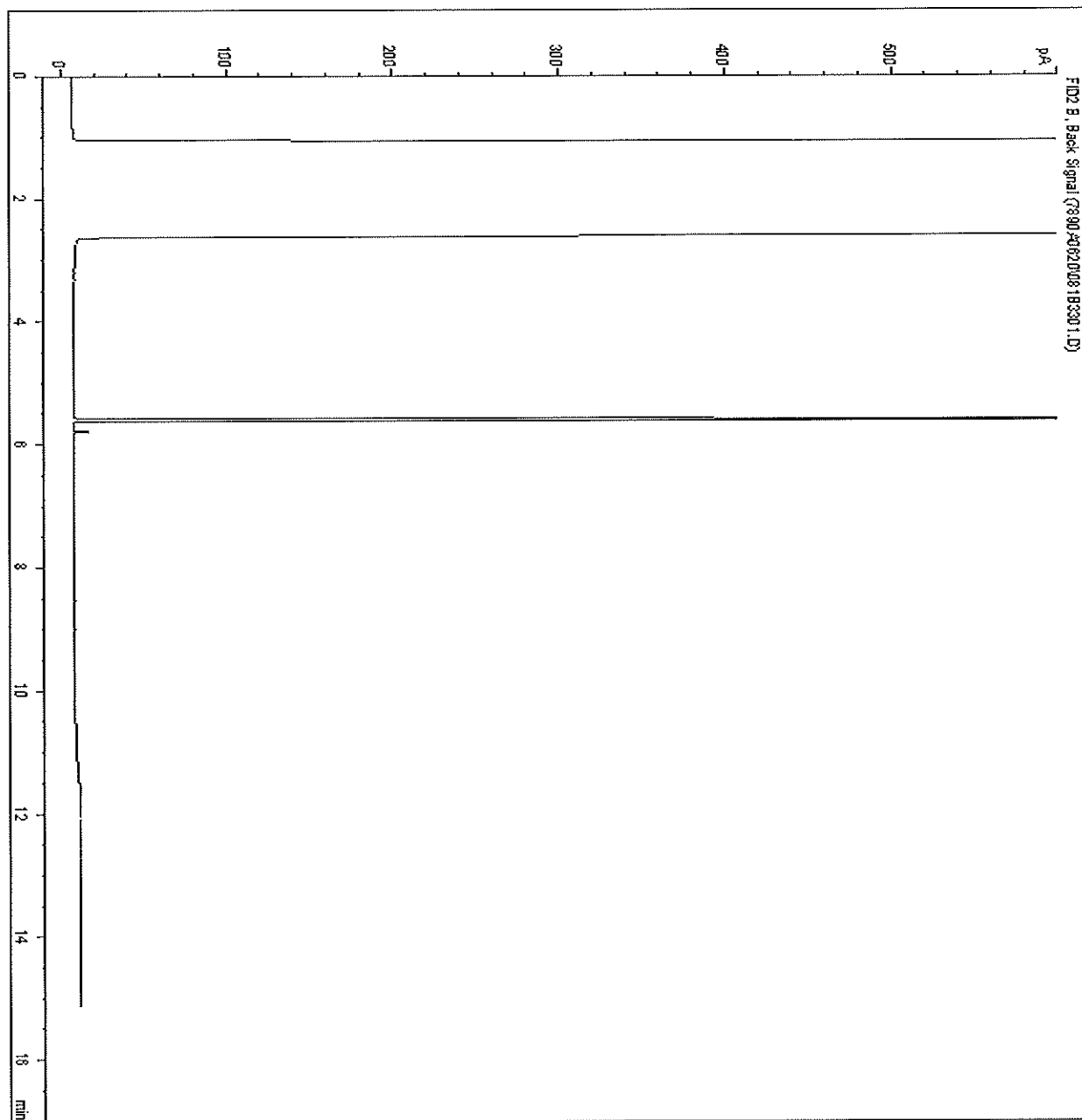


Report Date: 2012/06/22  
Maxxam Job #: B251213  
Maxxam Sample: DR8214

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-26

### CCME Hydrocarbons In Water (F2; C10-C16) Chromatogram

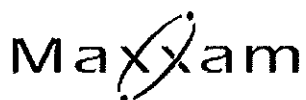
Data File C:\CHEM32\1\DATA\7890A0620\081B3301.D  
Sample Name: DR8214



\*\*\* End of Report \*\*\*

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



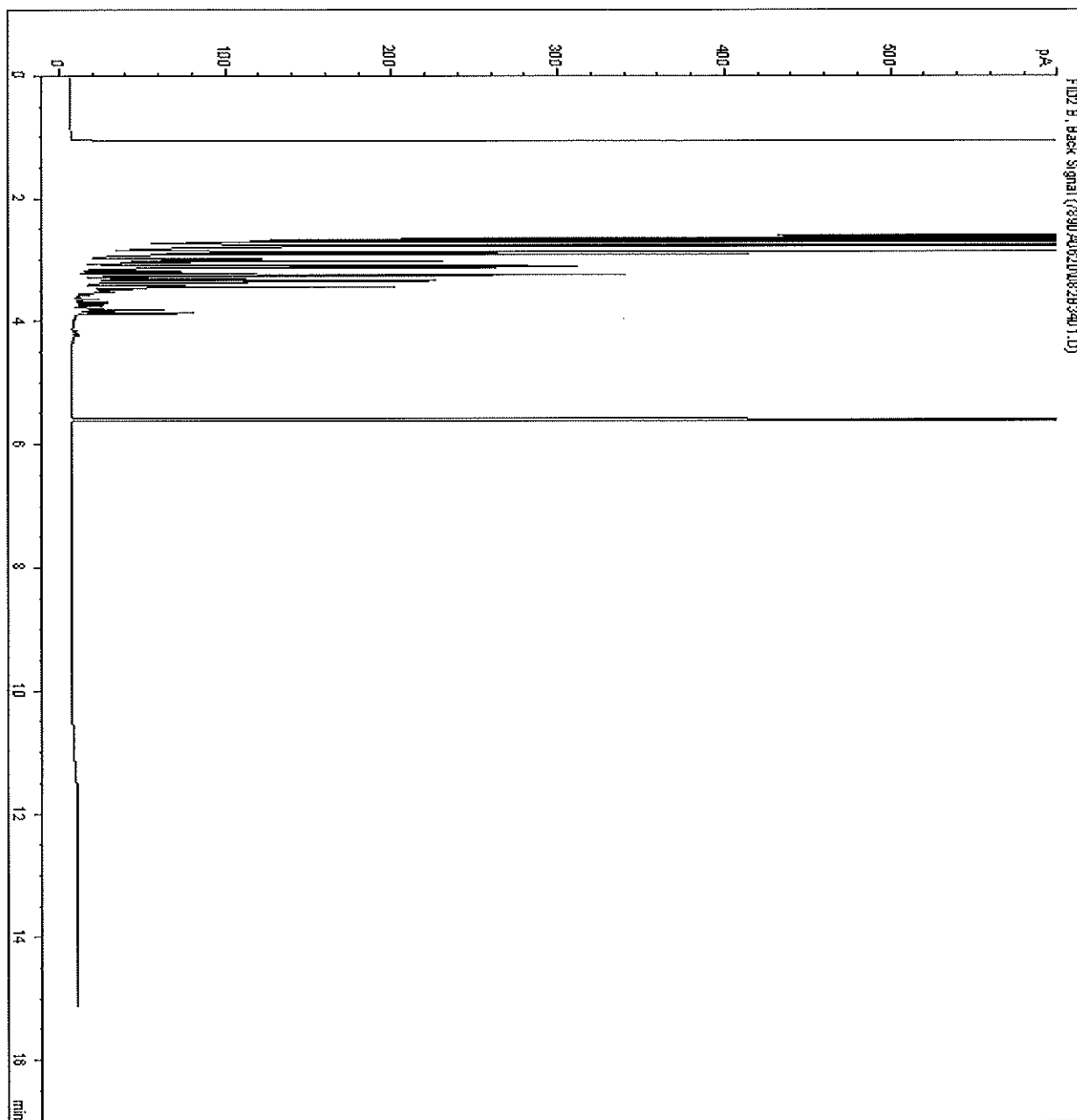


Report Date: 2012/06/22  
Maxxam Job #: B251213  
Maxxam Sample: DR8215

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-27

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\7890A0620\082B3401.D  
Sample Name: DR8215



\*\*\* End of Report \*\*\*

7890A GC 2012/06/21 10:26:40 AM 7890A PK4

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



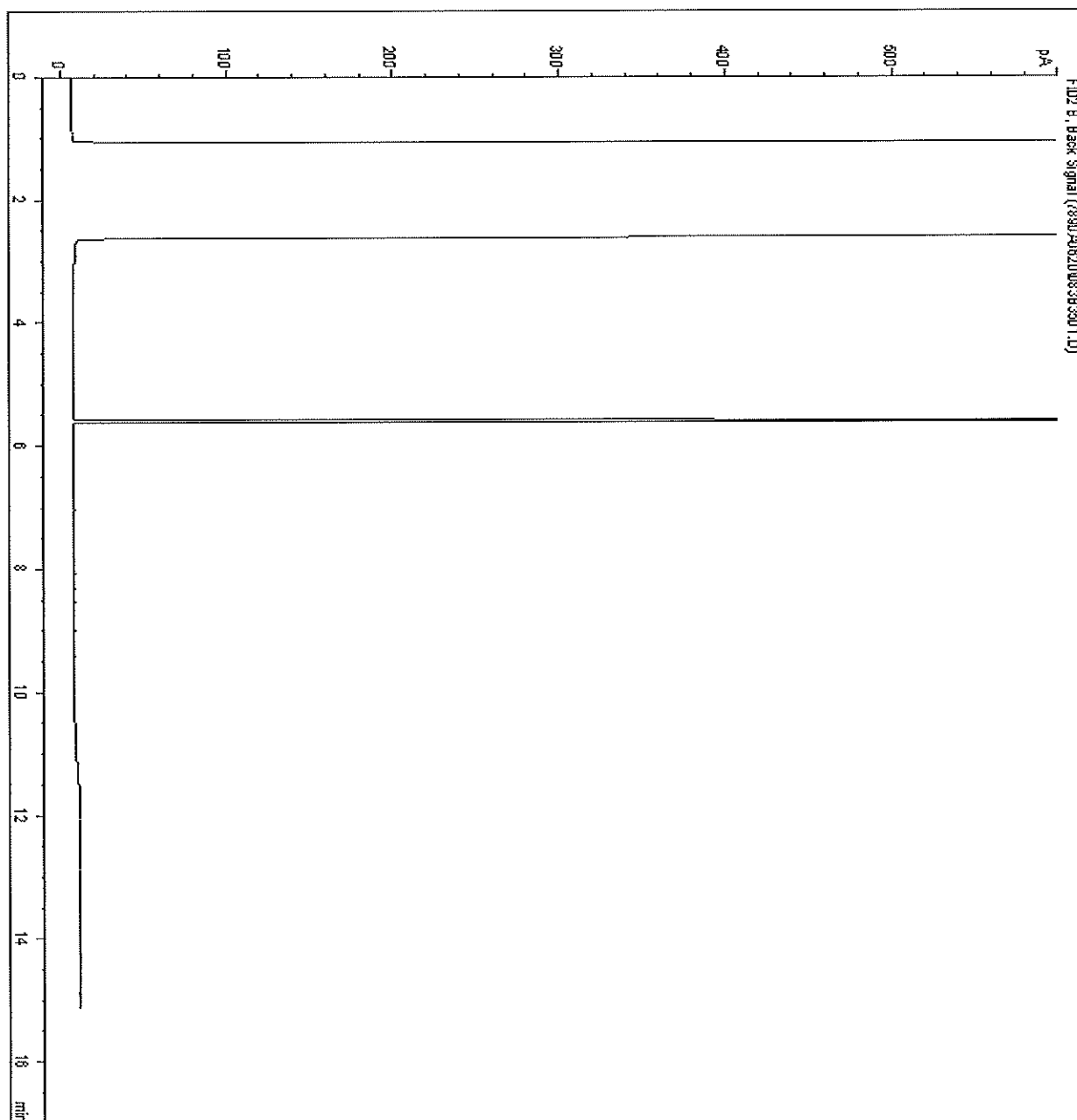


Report Date: 2012/06/22  
Maxxam Job #: B251213  
Maxxam Sample: DR8216

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-28

### CCME Hydrocarbons In Water (F2; C10-C16) Chromatogram

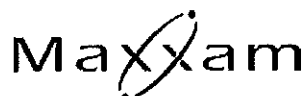
Data File C:\CHEM32\1\DATA\7890A0620\083B3501.D  
Sample Name: DR8216



\*\*\* End of Report \*\*\*

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



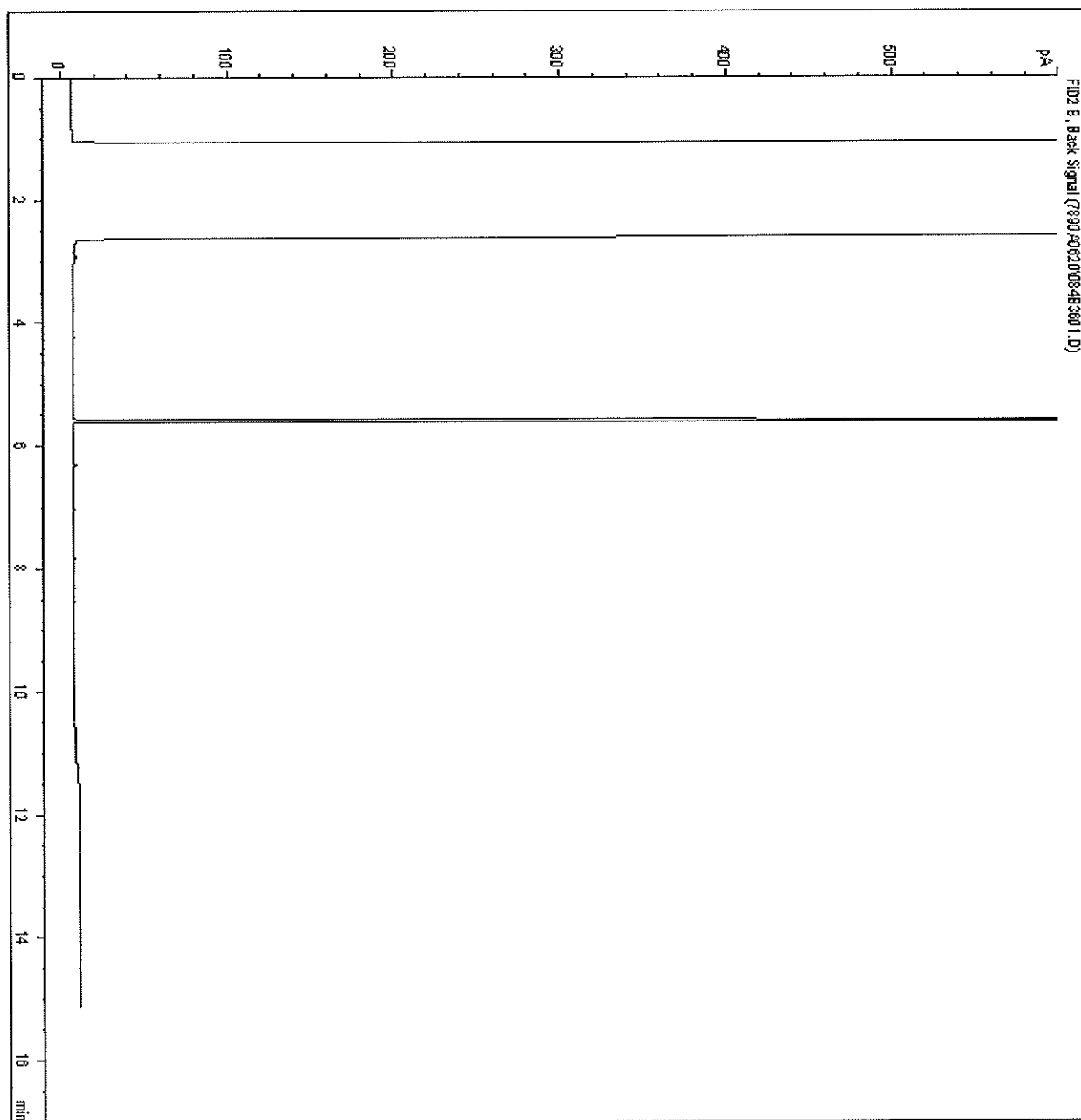


Report Date: 2012/06/22  
Maxxam Job #: B251213  
Maxxam Sample: DR8217

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-29

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\7890A0620\084B3601.D  
Sample Name: DR8217



\*\*\* End of Report \*\*\*

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



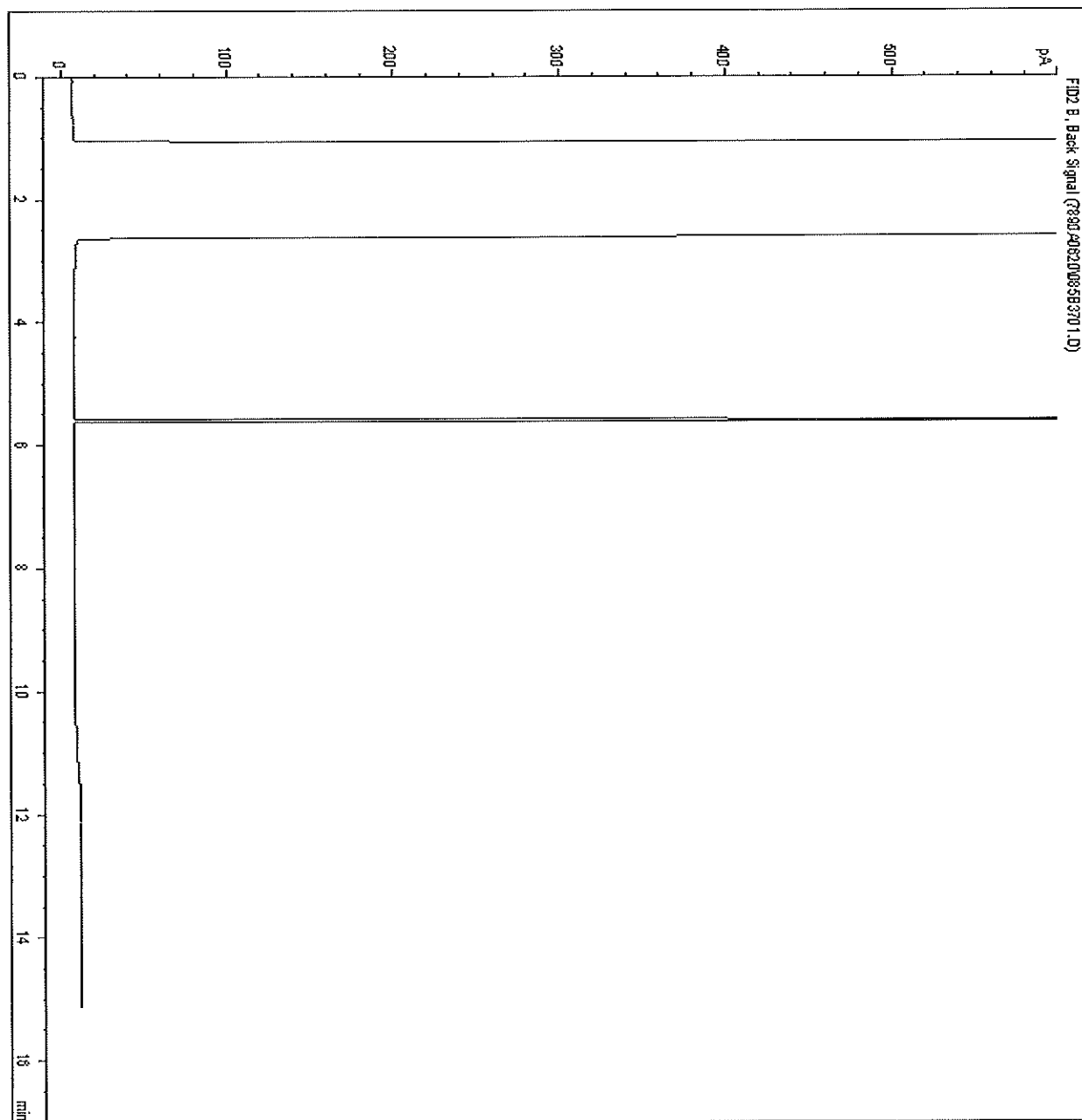


Report Date: 2012/06/22  
Maxxam Job #: B251213  
Maxxam Sample: DR8218

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH9

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEN32\1\DATA\7890A0620\085B3701.D  
Sample Name: DR8218



\*\*\* End of Report \*\*\*

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



# DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2012/06/13</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory: <u>Maxxam Analytics Inc.</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B251213</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration	<i>X</i>			
Matrix Duplicate RPD	<i>X</i>			
Matrix Spike Recovery	<i>X</i>			
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<i>X</i>	<i>No field QC were submitted.</i>
Trip Blank Concentration			<i>X</i>	
Field Duplicate RPD			<i>X</i>	

Has CoA been signed off (Yes/No)?: \_\_\_\_\_ *Yes*

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: \_\_\_\_\_ *Yes*

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: \_\_\_\_\_ *Yes*

Were all samples analyzed within hold times (Yes/No)?: \_\_\_\_\_ *Yes*

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: \_\_\_\_\_ *N/A*

Is Chain of Custody completed and signed (Yes/No)?: \_\_\_\_\_ *Yes*

Were sample temperatures acceptable when they reached lab (Yes/No)?: \_\_\_\_\_ *Yes*

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: \_\_\_\_\_ *No*


Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

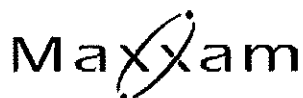
Is data considered to be reliable (Yes/No)?: \_\_\_\_\_ *Yes*

If answer is "No", describe and provide rationale: \_\_\_\_\_

Data Reviewed by (Print): <u>Alexia Reske-Naurocki</u>	Data Reviewed by (Signature): 
Review Date: <u>2013/02/21</u>	
Revision Date (if applicable): _____	Revised by (Signature): _____





Your Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Your C.O.C. #: S003332

**Attention: Adam Wickman**  
O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

**Report Date: 2012/06/22**

### CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B251220**

**Received: 2012/06/15, 8:25**

Sample Matrix: Water  
# Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 In Water by HS GC/MS	7	N/A	2012/06/20	AB SOP-00039	CCME, EPA 8260C
CCME Hydrocarbons In Water (F2; C10-C16)	5	2012/06/20	2012/06/20	AB SOP-00040 AB SOP-00037	EPA3510/CCME PHCCWS
Lead (Dissolved)	4	N/A	2012/06/21	AB SOP-00043	EPA 200.8
Volatile Organic Compounds In Water	4	N/A	2012/06/19	EENV SOP-00021	EPA SW846, 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

#### Encryption Key

Desirae Hopkinson

22 Jun 2012 14:33:23 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Desirae Hopkinson, Project Manager  
Email: DHopkinson@maxxam.ca  
Phone# (780) 577-7104

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



### AT1 BTEX AND F1-F2 (WATER)

Maxxam ID		DR8264	DR8265		DR8266	DR8267		
Sampling Date		2012/06/13 12:30	2012/06/13 12:30		2012/06/13 12:45	2012/06/13 12:45		
COC Number		S003332	S003332		S003332	S003332		
	<b>UNITS</b>	<b>BH7</b>	<b>DUP-1</b>	<b>RDL</b>	<b>BH5</b>	<b>DUP-2</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Hydrocarbons</b>								
F2 (C10-C16 Hydrocarbons)	mg/L	4.3	3.1	0.10	2.1	2.1	0.10	5936531
<b>Volatiles</b>								
Benzene	ug/L	4800 (1)	4900 (1)	4.0	440	360	0.40	5933216
Toluene	ug/L	200	230	0.40	100	81	0.40	5933216
Ethylbenzene	ug/L	290	290	0.40	2000 (1)	1800 (1)	4.0	5933216
o-Xylene	ug/L	910	980	0.40	2600 (1)	2500 (1)	4.0	5933216
m & p-Xylene	ug/L	1400	1500	0.80	8000 (1)	7300 (1)	8.0	5933216
Xylenes (Total)	ug/L	2300	2400	0.80	11000 (1)	9800 (1)	8.0	5933216
F1 (C6-C10) - BTEX	ug/L	4000 (1)	6100 (1)	1000	8800 (1)	13000 (1)	1000	5933216
(C6-C10)	ug/L	12000 (1)	14000 (1)	1000	22000 (1)	25000 (1)	1000	5933216
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene (sur.)	%	94	94	N/A	94	86	N/A	5933216
4-BROMOFLUOROBENZENE (sur.)	%	100	99	N/A	98	103	N/A	5933216
D4-1,2-DICHLOROETHANE (sur.)	%	99	97	N/A	94	125	N/A	5933216
O-TERPHENYL (sur.)	%	93	97	N/A	97	89	N/A	5936531

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Detection limits raised due to dilution to bring analyte within the calibrated range.



### AT1 BTEX AND F1-F2 (WATER)

Maxxam ID		DR8270		
Sampling Date		2012/06/13 11:45		
COC Number		S003332		
	UNITS	BH6	RDL	QC Batch

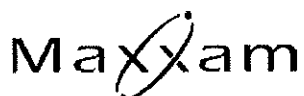
<b>Hydrocarbons</b>				
F2 (C10-C16 Hydrocarbons)	mg/L	1.1	0.10	5936531
<b>Volatiles</b>				
Benzene	ug/L	360	0.40	5933216
Toluene	ug/L	30	0.40	5933216
Ethylbenzene	ug/L	830	0.40	5933216
o-Xylene	ug/L	350	0.40	5933216
m & p-Xylene	ug/L	3300 (1)	8.0	5933216
Xylenes (Total)	ug/L	3700 (1)	8.0	5933216
F1 (C6-C10) - BTEX	ug/L	2500	100	5933216
(C6-C10)	ug/L	7400	100	5933216
<b>Surrogate Recovery (%)</b>				
1,4-Difluorobenzene (sur.)	%	93	N/A	5933216
4-BROMOFLUOROBENZENE (sur.)	%	100	N/A	5933216
D4-1,2-DICHLOROETHANE (sur.)	%	95	N/A	5933216
O-TERPHENYL (sur.)	%	95	N/A	5936531

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Detection limits raised due to dilution to bring analyte within the calibrated range.





Maxxam Job #: B251220  
Report Date: 2012/06/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		DR8264	DR8264	DR8265	DR8266	DR8267		
Sampling Date		2012/06/13 12:30	2012/06/13 12:30	2012/06/13 12:30	2012/06/13 12:45	2012/06/13 12:45		
COC Number		S003332	S003332	S003332	S003332	S003332		
	UNITS	BH7	BH7 Lab-Dup	DUP-1	BH5	DUP-2	RDL	QC Batch

Elements								
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	<0.00020	0.00059	0.00049	0.00020	5942536

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate





Maxxam Job #: B251220  
Report Date: 2012/06/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DR8264	DR8265	DR8266	DR8267		
Sampling Date		2012/06/13 12:30	2012/06/13 12:30	2012/06/13 12:45	2012/06/13 12:45		
COC Number		S003332	S003332	S003332	S003332		
	UNITS	BH7	DUP-1	BH5	DUP-2	RDL	QC Batch

<b>Volatiles</b>							
1,2-dichloroethane	ug/L	24	27	1.9	1.5	0.50	5932156
1,2-dibromoethane	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	5932156
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	116	130	118	123	N/A	5932156
D4-1,2-DICHLOROETHANE (sur.)	%	87	89	84	88	N/A	5932156
D8-TOLUENE (sur.)	%	94	98	88	99	N/A	5932156

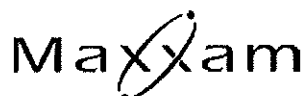
N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		DR8268	DR8269		
Sampling Date		2012/06/13 15:00	2012/06/13 16:00		
COC Number		S003332	S003332		
	UNITS	FIELD BLANK-1	TRIP BLANK-1	RDL	QC Batch

<b>Volatiles</b>					
Benzene	ug/L	<0.40	<0.40	0.40	5933216
Toluene	ug/L	<0.40	<0.40	0.40	5933216
Ethylbenzene	ug/L	<0.40	<0.40	0.40	5933216
o-Xylene	ug/L	<0.40	<0.40	0.40	5933216
m & p-Xylene	ug/L	<0.80	<0.80	0.80	5933216
Xylenes (Total)	ug/L	<0.80	<0.80	0.80	5933216
F1 (C6-C10) - BTEX	ug/L	<100	<100	100	5933216
(C6-C10)	ug/L	<100	<100	100	5933216
<b>Surrogate Recovery (%)</b>					
1,4-Difluorobenzene (sur.)	%	97	100	N/A	5933216
4-BROMOFLUOROBENZENE (sur.)	%	100	99	N/A	5933216
D4-1,2-DICHLOROETHANE (sur.)	%	102	109	N/A	5933216

N/A = Not Applicable  
RDL = Reportable Detection Limit





Maxxam Job #: B251220  
Report Date: 2012/06/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: JJ

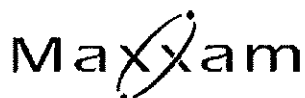
Package 1	1.3°C
-----------	-------

Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**





## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177

P.O. #:

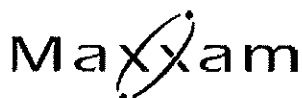
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: EB251220

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
5932156 KE4	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2012/06/19		107	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/19		97	%	70 - 130
		D8-TOLUENE (sur.)	2012/06/19		84	%	70 - 130
	Spiked Blank	1,2-dichloroethane	2012/06/19		96	%	70 - 130
		1,2-dibromoethane	2012/06/19		75	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/19		113	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/19		100	%	70 - 130
		D8-TOLUENE (sur.)	2012/06/19		96	%	70 - 130
		1,2-dichloroethane	2012/06/19		90	%	70 - 130
	Method Blank	1,2-dibromoethane	2012/06/19		80	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/19		107	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/19		88	%	70 - 130
		D8-TOLUENE (sur.)	2012/06/19		97	%	70 - 130
	RPD	1,2-dichloroethane	2012/06/19	<0.50		ug/L	
		1,2-dibromoethane	2012/06/19	<0.50		ug/L	
		1,2-dichloroethane	2012/06/19	NC		%	40
		1,2-dibromoethane	2012/06/19	NC		%	40
5933216 YT	Matrix Spike	1,4-Difluorobenzene (sur.)	2012/06/20		94	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/20		101	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/20		99	%	70 - 130
		Benzene	2012/06/20		91	%	70 - 130
		Toluene	2012/06/20		92	%	70 - 130
		Ethylbenzene	2012/06/20		96	%	70 - 130
		o-Xylene	2012/06/20		94	%	70 - 130
		m & p-Xylene	2012/06/20		95	%	70 - 130
		(C6-C10)	2012/06/20		96	%	70 - 130
		1,4-Difluorobenzene (sur.)	2012/06/20		96	%	70 - 130
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/06/20		101	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/06/20		99	%	70 - 130
		Benzene	2012/06/20		91	%	70 - 130
		Toluene	2012/06/20		91	%	70 - 130
		Ethylbenzene	2012/06/20		96	%	70 - 130
		o-Xylene	2012/06/20		96	%	70 - 130
		m & p-Xylene	2012/06/20		98	%	70 - 130
		(C6-C10)	2012/06/20		105	%	70 - 130
		1,4-Difluorobenzene (sur.)	2012/06/20		99	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/06/20		100	%	70 - 130
	Method Blank	D4-1,2-DICHLOROETHANE (sur.)	2012/06/20		102	%	70 - 130
		Benzene	2012/06/20	<0.40		ug/L	
		Toluene	2012/06/20	<0.40		ug/L	
		Ethylbenzene	2012/06/20	<0.40		ug/L	
		o-Xylene	2012/06/20	<0.40		ug/L	
		m & p-Xylene	2012/06/20	<0.80		ug/L	
		Xylenes (Total)	2012/06/20	<0.80		ug/L	
		F1 (C6-C10) - BTEX	2012/06/20	<100		ug/L	
		(C6-C10)	2012/06/20	<100		ug/L	
		Benzene	2012/06/20	NC		%	40
		Toluene	2012/06/20	NC		%	40
		Ethylbenzene	2012/06/20	NC		%	40
		o-Xylene	2012/06/20	NC		%	40
		m & p-Xylene	2012/06/20	NC		%	40
		Xylenes (Total)	2012/06/20	NC		%	40
		F1 (C6-C10) - BTEX	2012/06/20	NC		%	40
		(C6-C10)	2012/06/20	NC		%	40
5936531 GG3	Matrix Spike	O-TERPHENYL (sur.)	2012/06/20		99	%	50 - 130





O'CONNOR ASSOCIATES ENVIRONMENTAL  
Attention: Adam Wickman  
Client Project #: 10-1177  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

Quality Assurance Report (Continued)

Maxxam Job Number: EB251220

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
5936531 GG3	Matrix Spike	F2 (C10-C16 Hydrocarbons)	2012/06/20		104	%	70 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2012/06/20		99	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/06/20		101	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2012/06/20		105	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/06/20	<0.10		mg/L	
	RPD	F2 (C10-C16 Hydrocarbons)	2012/06/20	NC		%	40
5942536 SG8	Matrix Spike						
	[DR8264-01]	Dissolved Lead (Pb)	2012/06/21		101	%	80 - 120
	Spiked Blank	Dissolved Lead (Pb)	2012/06/21		95	%	80 - 120
	Method Blank	Dissolved Lead (Pb)	2012/06/21	<0.00020		mg/L	
	RPD [DR8264-01]	Dissolved Lead (Pb)	2012/06/21	NC		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Maxxam Analytics International Corporation o/a Maxxam Analytics Edmonton: 9331 - 48th Street T6B 2R4 Telephone(780)577-7100 Fax(780)450-4187



## Validation Signature Page

Maxxam Job #: B251220

---

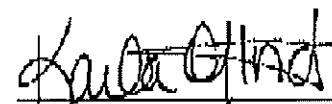
The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




Carol Gebhart, Senior Analyst



Daniel Reslan, Volatiles Supervisor



Karla Offord, Senior Analyst, Organics Department



Pui Hang Tam, Senior Analyst

---

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.





Consulting Company:	Winnor Associates Env. Inc.		
Contact:	Adam Wickman		
Address:	7 Terrace Place, Winnipeg		
	Prov:	PC	B21 4B3
Contact #5:	204-489-2964		
	City:	NA	
Project ID:	10-1177		
Sampled By:	Joy Jacobsen		

<b>SERVICE REQUESTED:</b>	<input type="checkbox"/> <b>RUSH (Contact lab to reserve)</b> <input type="checkbox"/> <b>2 DAY</b> <input type="checkbox"/> <b>1 DAY</b> <input type="checkbox"/> <b>SAME DAY</b>
	<b>Date Required:</b> <input checked="" type="checkbox"/> <b>REGULAR (5 Days)</b>

Report Distribution (E-Mail):  
adam.wickman@parsons.com

REGULATORY GUIDELINES:

☐ AT: *low*

☒ CCME *low*

☐ Regulated Drinking Water

☐ Other:

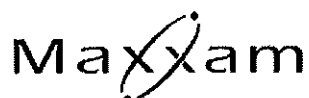
DOWNSTREAM	<input checked="" type="checkbox"/>
Site address:	208 St. Annes Rd.
Site City/Prov:	Winnipeg, MB
Outlet number:	63955
Monitoring	<input checked="" type="checkbox"/> none / m / m / m / (circle one) <b>Senior Suncor Advisor:</b> Brian Holmes <input type="checkbox"/> Rick Lemoine <input checked="" type="checkbox"/> Other:

UPSTREAM	<input type="checkbox"/>
LSD#:	
Site/Field :	
AFE#:	
RO# (if applicable):	
<b>Senior Suncor Advisor:</b>	
Mike Morden	<input type="checkbox"/> Ben Parsons
Russell Browne	<input type="checkbox"/> Phil Scala
Other:	

[illegible][illegible]

Relinquished By (Signature/Print): <i>Wm. L. Joy Jacobsen</i>	Date (YY/MM/DD): 12/06/14	Time (24:00): 1600
Relinquished By (Signature/Print):	Date (YY/MM/DD):	Time (24:00):
Special Instructions: Sediment may be present, please Headspace and/or <del>the</del> proceed with analysis.		# of Jars Used & Not Sampled 10 of 15 0



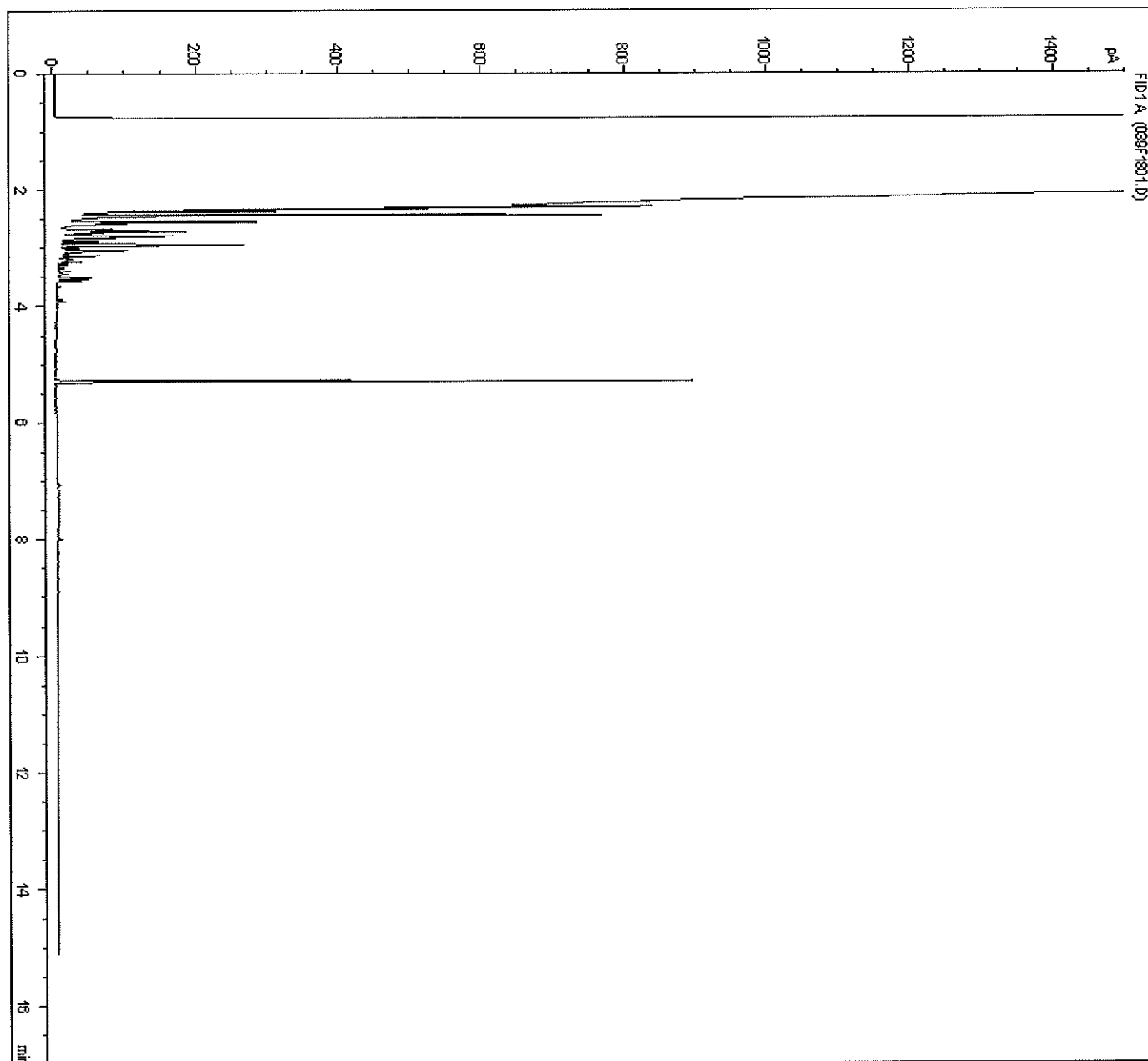


Report Date: 2012/06/22  
Maxxam Job #: B251220  
Maxxam Sample: DR8264

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH7

### CCME Hydrocarbons In Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\039F1801.D  
Sample Name: DR8264-02



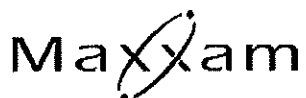
\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:23 AM 6890NA GG3

Page 1 of 1

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



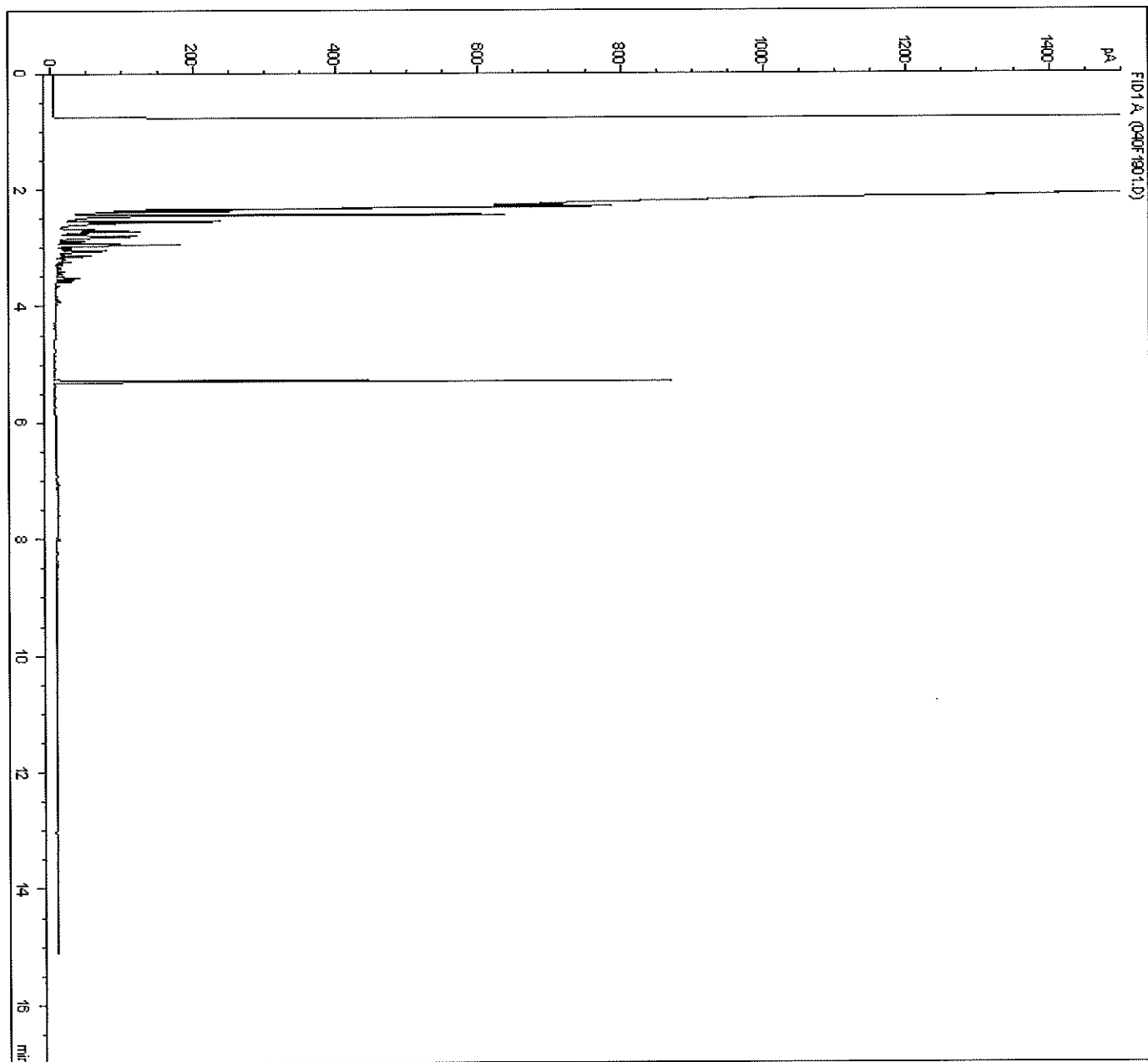


Report Date: 2012/06/22  
Maxxam Job #: B251220  
Maxxam Sample: DR8265

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-1

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\040F1901.D  
Sample Name: DR8265-02



\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:25 AM 6890NA GG3

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**

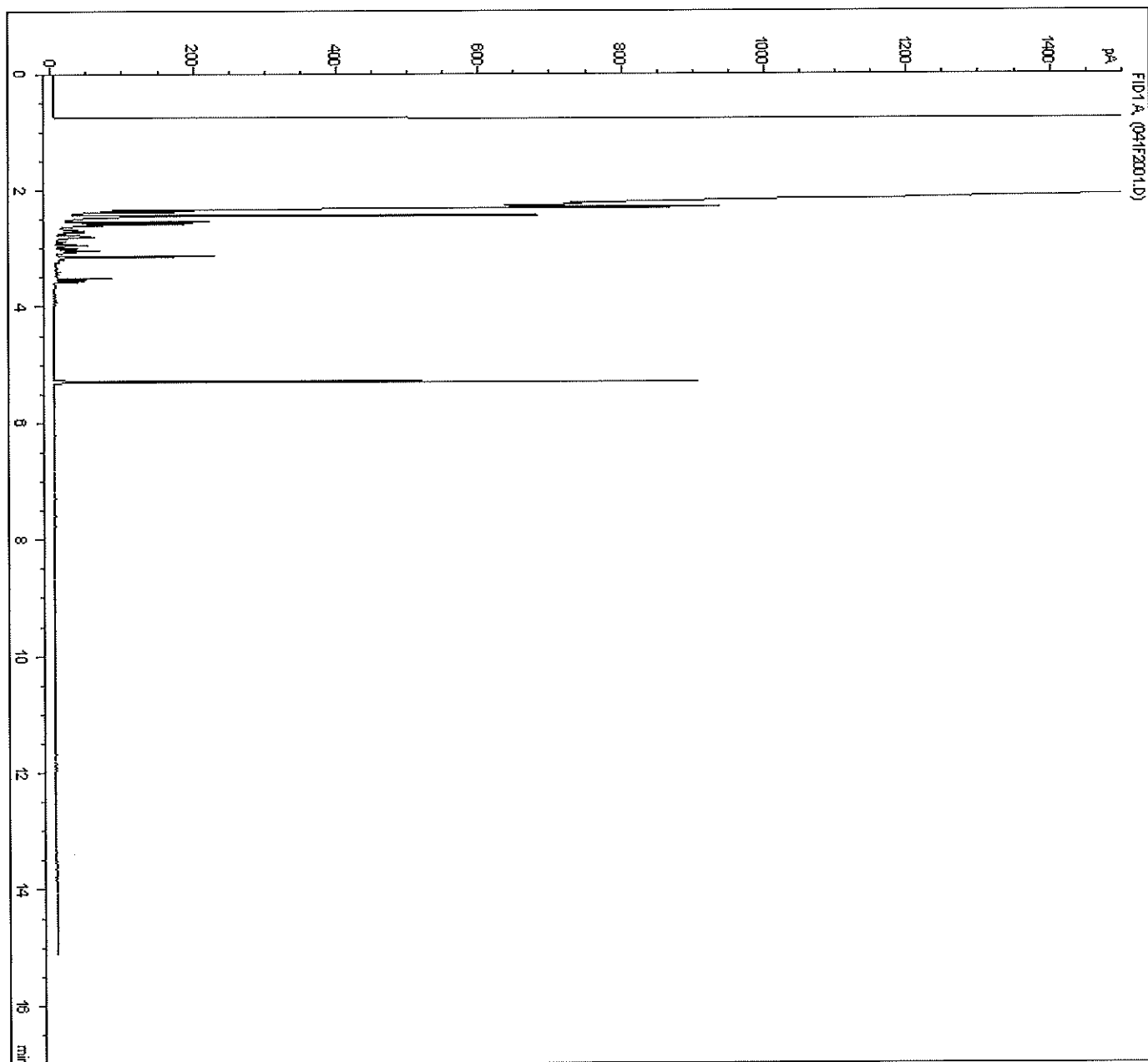


Report Date: 2012/06/22  
Maxxam Job #: B251220  
Maxxam Sample: DR8266

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH5

**CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram**

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\041F2001.D  
Sample Name: DR8266-02



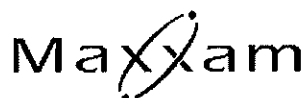
\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:27 AM 6890NA GG3

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



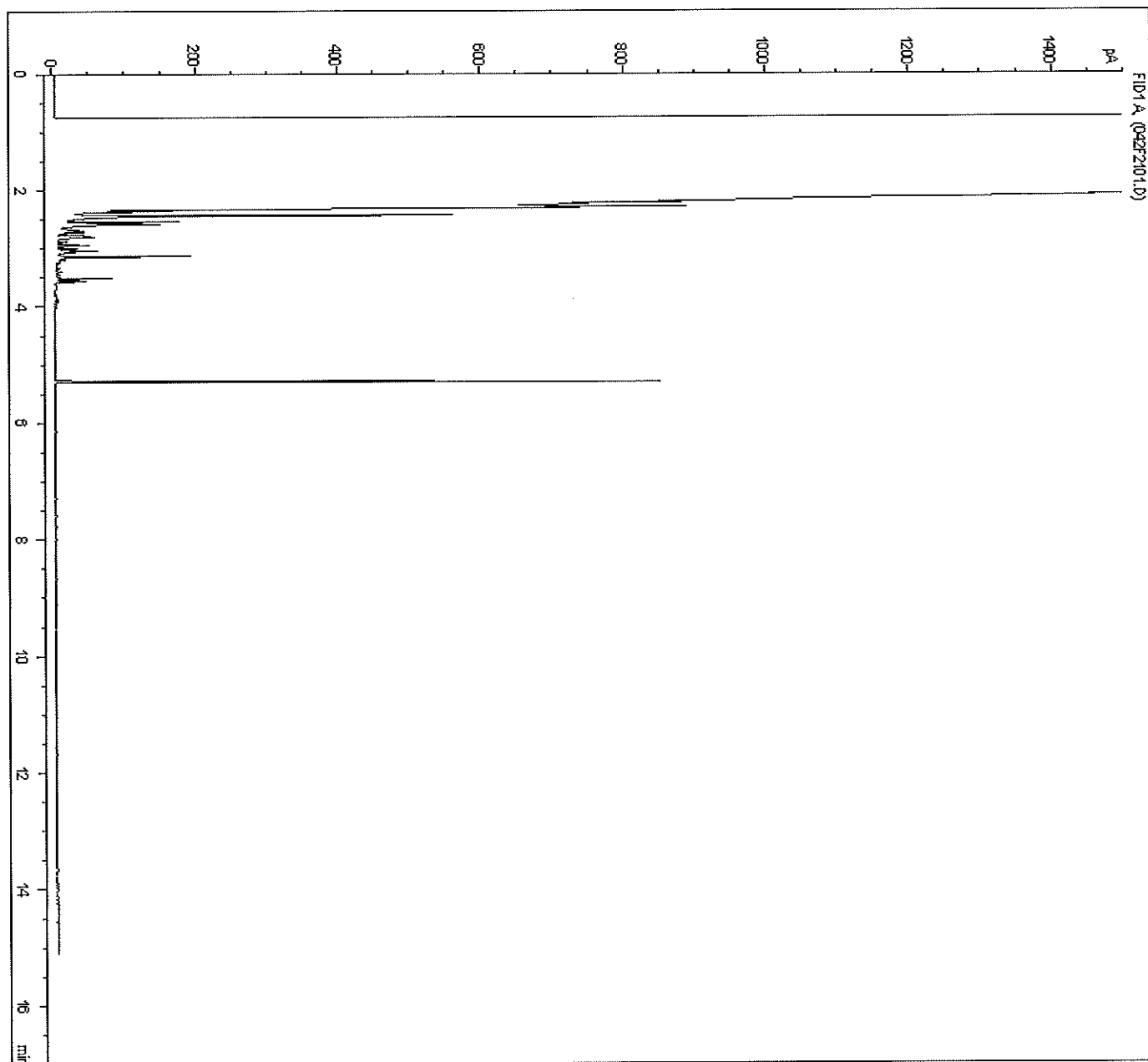


Report Date: 2012/06/22  
Maxxam Job #: B251220  
Maxxam Sample: DR8267

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-2

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\042F2101.D  
Sample Name: DR8267-02



\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:30 AM 6890NA GG3

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



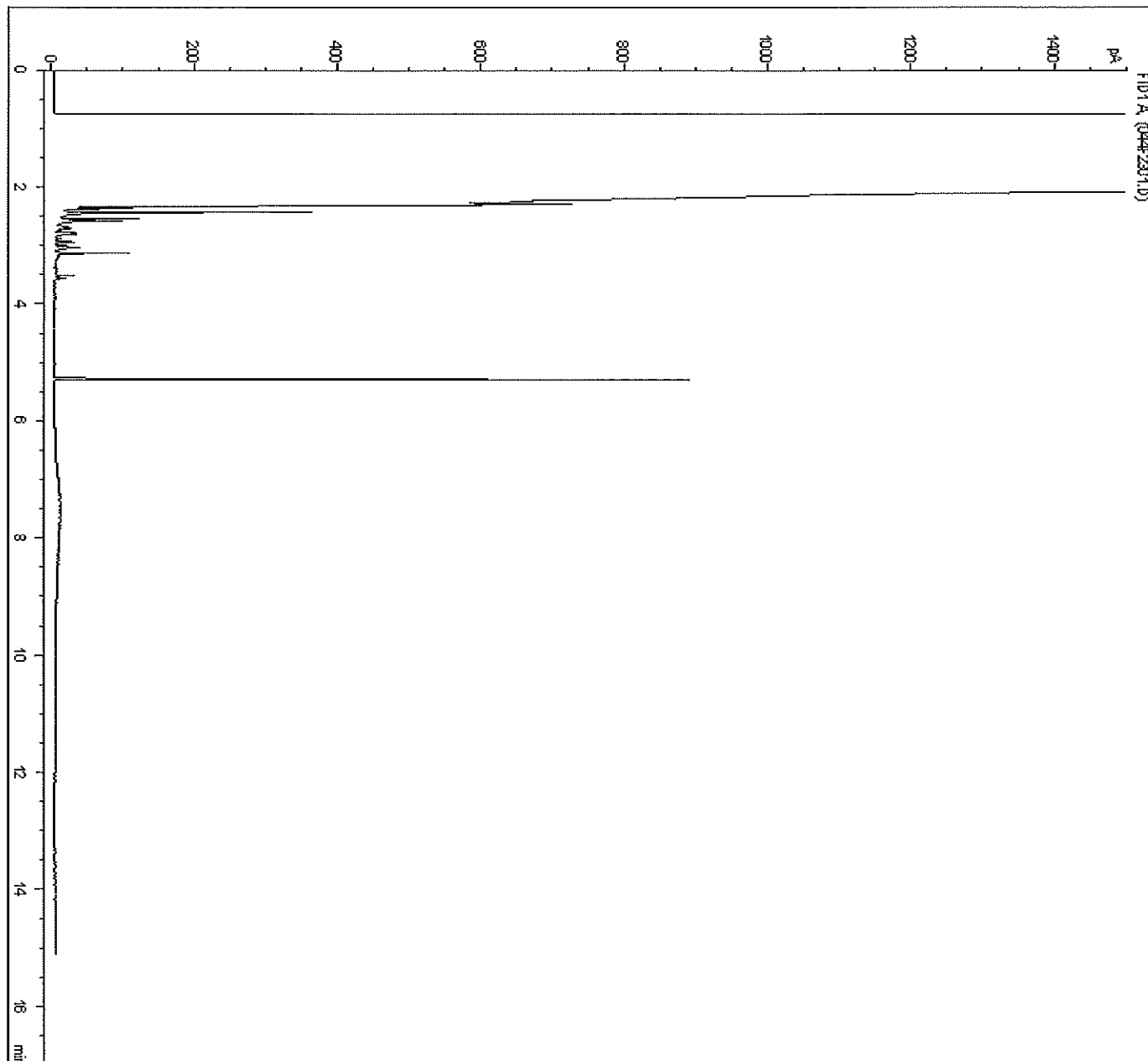


Report Date: 2012/06/22  
Maxxam Job #: B251220  
Maxxam Sample: DR8270

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH6

### CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

Data File C:\CHEM32\1\DATA\GNA0620B\GNA0620B 2012-06-20 15-21-39\044F2301.D  
Sample Name: DR8270-02



\*\*\* End of Report \*\*\*

Instrument 1 2012/06/21 10:50:34 AM 6890NA GG3

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



### DATA QUALITY REVIEW CHECKLIST

Consultant: ParsonsSampling Date: 2012/06/13Location: 208 St. Anne's Road, Winnipeg, MBLaboratory : Maxxam Analytics Inc.Consultant Project Number: 10-1177.100Sample Submission Number: B251220

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration	<i>X</i>			
Matrix Duplicate RPD	<i>X</i>			
Matrix Spike Recovery	<i>X</i>			
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration	<i>X</i>			<i>All field QC met alert limits.</i>
Trip Blank Concentration	<i>X</i>			
Field Duplicate RPD	<i>X</i>			

Has CoA been signed off (Yes/No)?:

Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?:

Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:

Yes

Were all samples analyzed within hold times (Yes/No)?:

Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:

N/A

Is Chain of Custody completed and signed (Yes/No)?:

Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?:

Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?:

No

Date Issued: \_\_\_\_\_

Date of Response: \_\_\_\_\_

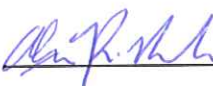
Is data considered to be reliable (Yes/No)?:

Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-NawrockiReview Date: 2013/02/21

Revision Date (if applicable): \_\_\_\_\_

Data Reviewed by (Signature): 

Revised by (Signature): \_\_\_\_\_



Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Your C.O.C. #: S003340

**Attention: Adam Wickman**  
O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

**Report Date: 2012/09/05**

This report supersedes all previous reports with the same Maxxam job number

### CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B263570**  
**Received: 2012/07/20, 14:00**


Sample Matrix: Water  
# Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS (1)	4	N/A	2012/07/25	WINSOP-00054	EPA8260C/CCME PHCCW
				WINSOP-00055	
BTEX/F1 in Water by HS GC/MS (1)	1	N/A	2012/07/26	WINSOP-00054	EPA8260C/CCME PHCCW
				WINSOP-00055	
CCME Hydrocarbons (F2-F4 in water) (1)	3	2012/07/24	2012/07/24	WINSOP-00056	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in water) (1)	2	2012/07/26	2012/07/26	WINSOP-00056	CCME PHC-CWS
Ethylene, Di, Tri & Tetraethylene glycol (2)	2	N/A	2012/07/24	BBY5SOP-00001	Based on EPA 8015B
Elements by CRC ICPMS (dissolved) (2)	5	N/A	2012/07/25	BBY7SOP-00002	EPA 6020A
PAH in Water by GC/MS (SIM) (2)	2	2012/07/24	2012/07/26	BBY8SOP-00021	EPA 8270D
Filter and HNO3 Preserve for Metals (2)	5	N/A	2012/07/25	BBY6WI-00001	EPA 200.2
VOCs in Water by HS GC/MS (2)	3	2012/07/23	2012/07/24	BBY8-SOP-0009	EPA 8260C
VOCs in Water by HS GC/MS (2)	2	2012/07/23	2012/07/25	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Winnipeg  
(2) This test was performed by Maxxam Vancouver

#### Encryption Key

 Shawn Worthing  
05 Sep 2012 13:39:40 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
Email: JKochan@maxxam.ca  
Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B263570  
Report Date: 2012/09/05

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		DZ4277	DZ4278	DZ4279	DZ4280	DZ4281	
Sampling Date		2012/07/19 09:30	2012/07/19 10:00	2012/07/19 10:30	2012/07/19 11:00	2012/07/19 11:00	
COC Number		S003340	S003340	S003340	S003340	S003340	
	<b>UNITS</b>	<b>BH1</b>	<b>BH2</b>	<b>BH25</b>	<b>BH-21</b>	<b>DUP-1</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>							
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	FIELD	ONSITE



Maxxam Job #: B263570  
Report Date: 2012/09/05

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		DZ4277	DZ4278	DZ4279		DZ4280		
Sampling Date		2012/07/19 09:30	2012/07/19 10:00	2012/07/19 10:30		2012/07/19 11:00		
COC Number		S003340	S003340	S003340		S003340		
	UNITS	BH1	BH2	BH25	QC Batch	BH-21	RDL	QC Batch

Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/L	<0.15	<0.15	2.3	6028261	0.25	0.15	6036148
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	86	88	85	6028261	91	N/A	6036148

N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		DZ4280	DZ4281		
Sampling Date		2012/07/19 11:00	2012/07/19 11:00		
COC Number		S003340	S003340		
	UNITS	BH-21 Lab-Dup	DUP-1	RDL	QC Batch

Ext. Pet. Hydrocarbon					
F2 (C10-C16 Hydrocarbons)	mg/L	0.18	<0.15	0.15	6036148
Surrogate Recovery (%)					
O-TERPHENYL (sur.)	%	86	92	N/A	6036148

N/A = Not Applicable  
RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate



Maxxam Job #: B263570  
Report Date: 2012/09/05

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### GLYCOLS BY GC-FID (WATER)

Maxxam ID		DZ4280	DZ4281		
Sampling Date		2012/07/19 11:00	2012/07/19 11:00		
COC Number		S003340	S003340		
	UNITS	BH-21	DUP-1	RDL	QC Batch

Glycols					
Ethylene Glycol	mg/L	<10	<10	10	6031243
Propylene Glycol	mg/L	<10	<10	10	6031243
Surrogate Recovery (%)					
SULFOLANE (sur.)	%	107	104	N/A	6031243

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B263570  
Report Date: 2012/09/05

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### SEMIVOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DZ4280		DZ4281		
Sampling Date		2012/07/19 11:00		2012/07/19 11:00		
COC Number		S003340		S003340		
	UNITS	BH-21	RDL	DUP-1	RDL	QC Batch
<b>Polycyclic Aromatics</b>						
Naphthalene	ug/L	<0.30 (1)	0.30	<0.46 (1)	0.46	6031675
Acenaphthene	ug/L	<0.080 (1)	0.080	<0.16 (1)	0.16	6031675
Fluorene	ug/L	<0.050	0.050	<0.078 (1)	0.078	6031675
Phenanthrene	ug/L	<0.050	0.050	<0.050	0.050	6031675
Anthracene	ug/L	<0.010	0.010	<0.010	0.010	6031675
Fluoranthene	ug/L	<0.020	0.020	<0.020	0.020	6031675
Pyrene	ug/L	<0.020	0.020	<0.020	0.020	6031675
Benzo(a)anthracene	ug/L	<0.010	0.010	<0.010	0.010	6031675
Benzo(a)pyrene	ug/L	<0.0090	0.0090	<0.0090	0.0090	6031675
<b>Surrogate Recovery (%)</b>						
D8-ACENAPHTHYLENE (sur.)	%	99	N/A	82	N/A	6031675
D8-NAPHTHALENE (sur.)	%	91	N/A	74	N/A	6031675
N/A = Not Applicable RDL = Reportable Detection Limit ( 1 ) RDL raised due to sample matrix interference.						



Maxxam Job #: B263570  
Report Date: 2012/09/05

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		DZ4277	DZ4278		DZ4279	DZ4280		
Sampling Date		2012/07/19 09:30	2012/07/19 10:00		2012/07/19 10:30	2012/07/19 11:00		
COC Number		S003340	S003340		S003340	S003340		
	UNITS	BH1	BH2	RDL	BH25	BH-21	RDL	QC Batch

Dissolved Metals by ICPMS								
Dissolved Arsenic (As)	ug/L	N/A	N/A	N/A	N/A	2.04	0.10	6029115
Dissolved Barium (Ba)	ug/L	N/A	N/A	N/A	N/A	155	1.0	6029115
Dissolved Chromium (Cr)	ug/L	N/A	N/A	N/A	N/A	<1.0	1.0	6029115
Dissolved Copper (Cu)	ug/L	N/A	N/A	N/A	N/A	3.53	0.20	6029115
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	<0.20	<0.20	0.20	6029115
Dissolved Zinc (Zn)	ug/L	N/A	N/A	N/A	N/A	7.9	5.0	6029115

N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		DZ4281		
Sampling Date		2012/07/19 11:00		
COC Number		S003340		
	UNITS	DUP-1	RDL	QC Batch

Dissolved Metals by ICPMS				
Dissolved Arsenic (As)	ug/L	2.50	0.10	6029115
Dissolved Barium (Ba)	ug/L	214	1.0	6029115
Dissolved Chromium (Cr)	ug/L	<1.0	1.0	6029115
Dissolved Copper (Cu)	ug/L	2.67	0.20	6029115
Dissolved Lead (Pb)	ug/L	<0.20	0.20	6029115
Dissolved Zinc (Zn)	ug/L	6.2	5.0	6029115

RDL = Reportable Detection Limit



Maxxam Job #: B263570

Report Date: 2012/09/05

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

**VOLATILE ORGANICS BY GC-MS (WATER)**

Maxxam ID		DZ4277	DZ4277	DZ4278		
Sampling Date		2012/07/19 09:30	2012/07/19 09:30	2012/07/19 10:00		
COC Number		S003340	S003340	S003340		
	UNITS	BH1	BH1 Lab-Dup	BH2	RDL	QC Batch
<b>Volatiles</b>						
Benzene	mg/L	<0.0004	<0.0004	<0.0004	0.0004	6029268
Toluene	mg/L	<0.0004	<0.0004	<0.0004	0.0004	6029268
Ethylbenzene	mg/L	<0.0004	<0.0004	<0.0004	0.0004	6029268
o-Xylene	mg/L	<0.0004	<0.0004	<0.0004	0.0004	6029268
m & p-Xylene	mg/L	<0.0008	<0.0008	<0.0008	0.0008	6029268
Xylenes (Total)	mg/L	<0.0008	<0.0008	<0.0008	0.0008	6029268
F1 (C6-C10) - BTEX	mg/L	<0.3	<0.3	<0.3	0.3	6029268
(C6-C10)	mg/L	<0.3	<0.3	<0.3	0.3	6029268
1,2-dichloroethane	ug/L	2.0	N/A	<0.50	0.50	6028630
1,2-dibromoethane	ug/L	<0.20	N/A	<0.20	0.20	6028630
<b>Surrogate Recovery (%)</b>						
4-BROMOFLUOROBENZENE (sur.)	%	95	95	95	N/A	6029268
D4-1,2-DICHLOROETHANE (sur.)	%	93	99	107	N/A	6029268
D8-TOLUENE (sur.)	%	101	98	95	N/A	6029268
N/A = Not Applicable RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate						



Maxxam Job #: B263570  
Report Date: 2012/09/05

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		DZ4279		DZ4280		DZ4281		
Sampling Date		2012/07/19 10:30		2012/07/19 11:00		2012/07/19 11:00		
COC Number		S003340		S003340		S003340		
	UNITS	BH25	RDL	BH-21	RDL	DUP-1	RDL	QC Batch

<b>Volatiles</b>								
Benzene	mg/L	3.0 (1)	0.004	0.0008	0.0004	0.0015	0.0004	6029268
Toluene	mg/L	0.066	0.0004	<0.0004	0.0004	0.0006	0.0004	6029268
Ethylbenzene	mg/L	1.3	0.0004	0.0013	0.0004	0.0044	0.0004	6029268
o-Xylene	mg/L	0.073	0.0004	<0.0004	0.0004	<0.0004	0.0004	6029268
m & p-Xylene	mg/L	2.5	0.0008	<0.0008	0.0008	<0.0008	0.0008	6029268
Xylenes (Total)	mg/L	2.6	0.0008	<0.0008	0.0008	<0.0008	0.0008	6029268
F1 (C6-C10) - BTEX	mg/L	<0.3	0.3	<0.3	0.3	<0.3	0.3	6029268
(C6-C10)	mg/L	7.3	0.3	<0.3	0.3	<0.3	0.3	6029268
1,2-dichloroethane	ug/L	<0.50	0.50	<1.8 (2)	1.8	<2.8 (2)	2.8	6028630
1,2-dibromoethane	ug/L	<0.20	0.20	<0.20	0.20	<0.20	0.20	6028630
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	98	N/A	95	N/A	93	N/A	6029268
D4-1,2-DICHLOROETHANE (sur.)	%	95	N/A	103	N/A	95	N/A	6029268
D8-TOLUENE (sur.)	%	99	N/A	97	N/A	98	N/A	6029268

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Detection limits raised due to dilution to bring analyte within the calibrated range.

( 2 ) RDL raised due to sample matrix interference.



Maxxam Job #: B263570  
Report Date: 2012/09/05

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

Package 1	8.0°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

#### General Comments

Report reissued with updated sample ID "BH25" from "BH-17" as per Rebecca Beatty 2012/09/05.

#### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments

Sample DZ4277-04 Elements by CRC ICPMS (dissolved): Detection limits raised due to matrix interference.

Sample DZ4278-04 Elements by CRC ICPMS (dissolved): Detection limits raised due to matrix interference.

Results relate only to the items tested.



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB263570

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6028261 HW4	Matrix Spike	O-TERPHENYL (sur.)	2012/07/24		90	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/07/24		80	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2012/07/26		100	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/07/26		113	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2012/07/24		108	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/07/24	<0.15		mg/L	
6028630 AC2	Matrix Spike	F2 (C10-C16 Hydrocarbons)	2012/07/24	38.0		%	40
		1,2-dichloroethane	2012/07/24		92	%	70 - 130
	Spiked Blank	1,2-dibromoethane	2012/07/24		90	%	70 - 130
		1,2-dichloroethane	2012/07/24		90	%	70 - 130
	Method Blank	1,2-dibromoethane	2012/07/24		88	%	70 - 130
		1,2-dichloroethane	2012/07/24	<0.50		ug/L	
6029115 GS2	Matrix Spike	1,2-dibromoethane	2012/07/24	<0.20		ug/L	
		Dissolved Arsenic (As)	2012/07/25		NC	%	80 - 120
		Dissolved Barium (Ba)	2012/07/25		NC	%	80 - 120
		Dissolved Chromium (Cr)	2012/07/25		99	%	80 - 120
		Dissolved Copper (Cu)	2012/07/25		94	%	80 - 120
		Dissolved Lead (Pb)	2012/07/25		99	%	80 - 120
	Spiked Blank	Dissolved Zinc (Zn)	2012/07/25		107	%	80 - 120
		Dissolved Arsenic (As)	2012/07/25		101	%	80 - 120
		Dissolved Barium (Ba)	2012/07/25		96	%	80 - 120
		Dissolved Chromium (Cr)	2012/07/25		101	%	80 - 120
		Dissolved Copper (Cu)	2012/07/25		102	%	80 - 120
		Dissolved Lead (Pb)	2012/07/25		99	%	80 - 120
	Method Blank	Dissolved Zinc (Zn)	2012/07/25		123 (f)	%	80 - 120
		Dissolved Arsenic (As)	2012/07/25	<0.10		ug/L	
		Dissolved Barium (Ba)	2012/07/25	<1.0		ug/L	
		Dissolved Chromium (Cr)	2012/07/25	<1.0		ug/L	
		Dissolved Copper (Cu)	2012/07/25	<0.20		ug/L	
		Dissolved Lead (Pb)	2012/07/25	<0.20		ug/L	
6029268 HW4	Matrix Spike [DZ4278-01]	Dissolved Zinc (Zn)	2012/07/25	<5.0		ug/L	
		4-BROMOFLUOROBENZENE (sur.)	2012/07/25		99	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2012/07/25		86	%	60 - 140
		D8-TOLUENE (sur.)	2012/07/25		101	%	60 - 140
		Benzene	2012/07/25		79	%	70 - 130
		Toluene	2012/07/25		85	%	70 - 130
		Ethylbenzene	2012/07/25		91	%	70 - 130
		o-Xylene	2012/07/25		92	%	70 - 130
		m & p-Xylene	2012/07/25		92	%	70 - 130
		(C6-C10)	2012/07/25		85	%	70 - 130
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/07/25		101	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2012/07/25		94	%	60 - 140
		D8-TOLUENE (sur.)	2012/07/25		99	%	60 - 140
		Benzene	2012/07/25		83	%	70 - 130
		Toluene	2012/07/25		87	%	70 - 130
		Ethylbenzene	2012/07/25		92	%	70 - 130
		o-Xylene	2012/07/25		94	%	70 - 130
		m & p-Xylene	2012/07/25		93	%	70 - 130
		(C6-C10)	2012/07/25		111	%	70 - 130
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/07/25		94	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2012/07/25		87	%	60 - 140
		D8-TOLUENE (sur.)	2012/07/25		104	%	60 - 140
		Benzene	2012/07/25	<0.0004		mg/L	
		Toluene	2012/07/25	<0.0004		mg/L	



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB263570

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6029268 HW4	Method Blank	Ethylbenzene	2012/07/25	<0.0004		mg/L	
		o-Xylene	2012/07/25	<0.0004		mg/L	
		m & p-Xylene	2012/07/25	<0.0008		mg/L	
		Xylenes (Total)	2012/07/25	<0.0008		mg/L	
		F1 (C6-C10) - BTEX	2012/07/25	<0.3		mg/L	
		(C6-C10)	2012/07/25	<0.3		mg/L	
	RPD [DZ4277-01]	Benzene	2012/07/25	NC		%	40
		Toluene	2012/07/25	NC		%	40
		Ethylbenzene	2012/07/25	NC		%	40
		o-Xylene	2012/07/25	NC		%	40
		m & p-Xylene	2012/07/25	NC		%	40
		Xylenes (Total)	2012/07/25	NC		%	40
		F1 (C6-C10) - BTEX	2012/07/25	NC		%	40
		(C6-C10)	2012/07/25	NC		%	40
6031243 SS9	Matrix Spike	SULFOLANE (sur.)	2012/07/24		108	%	70 - 130
		Ethylene Glycol	2012/07/24		88	%	70 - 130
		Propylene Glycol	2012/07/24		87	%	70 - 130
	Spiked Blank	SULFOLANE (sur.)	2012/07/24		108	%	70 - 130
		Ethylene Glycol	2012/07/24		101	%	70 - 130
		Propylene Glycol	2012/07/24		101	%	70 - 130
	Method Blank	SULFOLANE (sur.)	2012/07/24		85	%	70 - 130
		Ethylene Glycol	2012/07/24	<10		mg/L	
		Propylene Glycol	2012/07/24	<10		mg/L	
	RPD	Ethylene Glycol	2012/07/24	NC		%	30
		Propylene Glycol	2012/07/24	NC		%	30
6031675 JP1	Matrix Spike	D8-ACENAPHTHYLENE (sur.)	2012/07/25		75	%	50 - 130
		D8-NAPHTHALENE (sur.)	2012/07/25		72	%	50 - 130
		Naphthalene	2012/07/25		81	%	50 - 130
		Acenaphthene	2012/07/25		89	%	50 - 130
		Fluorene	2012/07/25		81	%	50 - 130
		Phenanthrene	2012/07/25		86	%	60 - 130
		Anthracene	2012/07/25		80	%	60 - 130
		Fluoranthene	2012/07/25		100	%	60 - 130
		Pyrene	2012/07/25		104	%	60 - 130
		Benzo(a)anthracene	2012/07/25		75	%	60 - 130
		Benzo(a)pyrene	2012/07/25		87	%	60 - 130
	Spiked Blank	D8-ACENAPHTHYLENE (sur.)	2012/07/25		89	%	50 - 130
		D8-NAPHTHALENE (sur.)	2012/07/25		85	%	50 - 130
		Naphthalene	2012/07/25		82	%	50 - 130
		Acenaphthene	2012/07/25		89	%	50 - 130
		Fluorene	2012/07/25		81	%	50 - 130
		Phenanthrene	2012/07/25		85	%	60 - 130
		Anthracene	2012/07/25		84	%	60 - 130
		Fluoranthene	2012/07/25		98	%	60 - 130
		Pyrene	2012/07/25		102	%	60 - 130
		Benzo(a)anthracene	2012/07/25		77	%	60 - 130
		Benzo(a)pyrene	2012/07/25		89	%	60 - 130
	Method Blank	D8-ACENAPHTHYLENE (sur.)	2012/07/25		89	%	50 - 130
		D8-NAPHTHALENE (sur.)	2012/07/25		86	%	50 - 130
		Naphthalene	2012/07/25	<0.10		ug/L	
		Acenaphthene	2012/07/25	<0.050		ug/L	
		Fluorene	2012/07/25	<0.050		ug/L	
		Phenanthrene	2012/07/25	<0.050		ug/L	
		Anthracene	2012/07/25	<0.010		ug/L	
		Fluoranthene	2012/07/25	<0.020		ug/L	



O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Attention: Adam Wickman  
 Client Project #:  
 P.O. #:  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB263570

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6031675 JP1	Method Blank	Pyrene	2012/07/25	<0.020		ug/L	
		Benzo(a)anthracene	2012/07/25	<0.010		ug/L	
		Benzo(a)pyrene	2012/07/25	<0.0090		ug/L	
	RPD	Naphthalene	2012/07/26	NC		%	40
		Acenaphthene	2012/07/26	NC		%	40
		Fluorene	2012/07/26	NC		%	40
		Phenanthrene	2012/07/26	NC		%	40
		Anthracene	2012/07/26	NC		%	40
		Fluoranthene	2012/07/26	NC		%	40
		Pyrene	2012/07/26	NC		%	40
		Benzo(a)anthracene	2012/07/26	NC		%	40
		Benzo(a)pyrene	2012/07/26	NC		%	40
6036148 HW4	Matrix Spike	O-TERPHENYL (sur.)	2012/07/26		85	%	50 - 130
	[DZ4281-02]	F2 (C10-C16 Hydrocarbons)	2012/07/26		90	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2012/07/26		104	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/07/26		106	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2012/07/26		103	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/07/26	<0.15		mg/L	
	RPD [DZ4280-02]	F2 (C10-C16 Hydrocarbons)	2012/07/26	NC		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

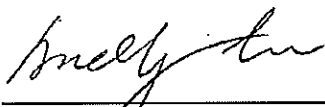
( 1 ) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



**Validation Signature Page****Maxxam Job #: B263570**

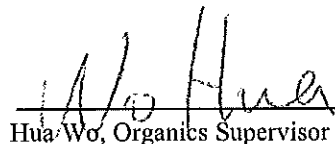
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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Andy Lu, Data Validation Coordinator



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Hua Wo, Organics Supervisor

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



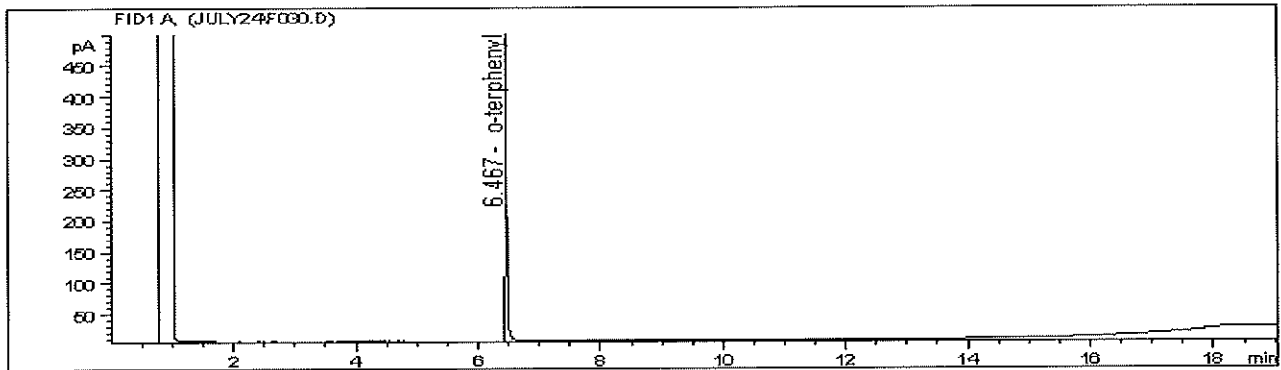




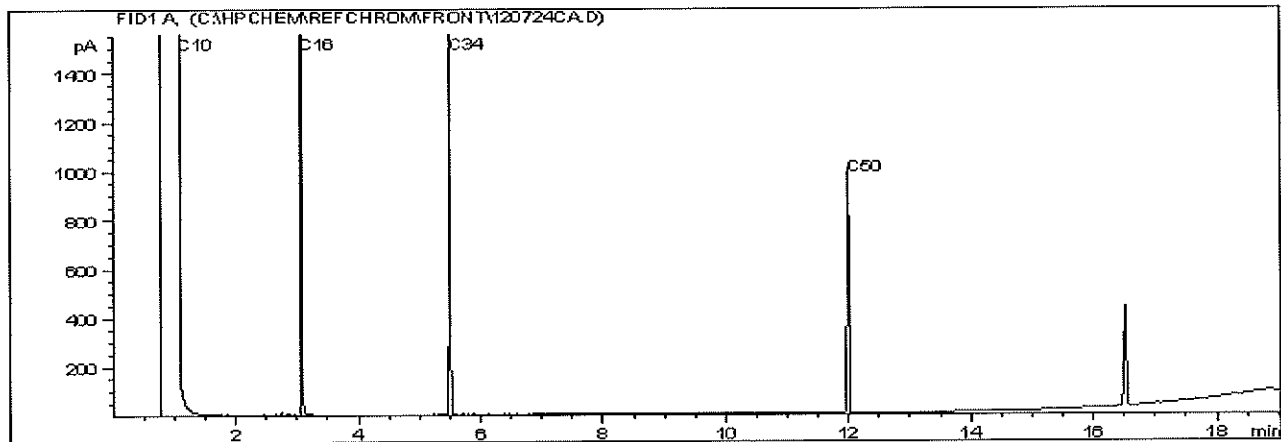
Report Date: 2012/09/05  
Maxxam Job #: B263570  
Maxxam Sample: DZ4277

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH1

CCME Hydrocarbons (F2-F4 in water) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

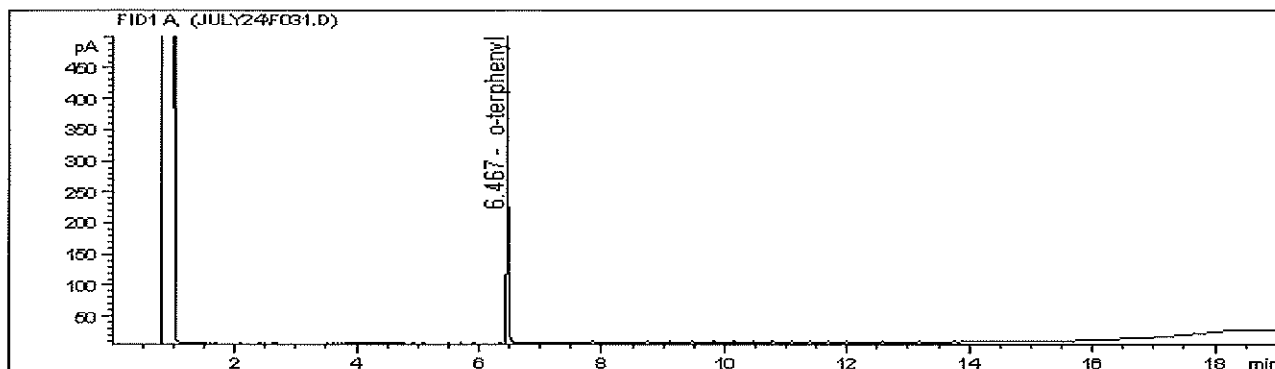


Report Date: 2012/09/05  
 Maxxam Job #: B263570  
 Maxxam Sample: DZ4278

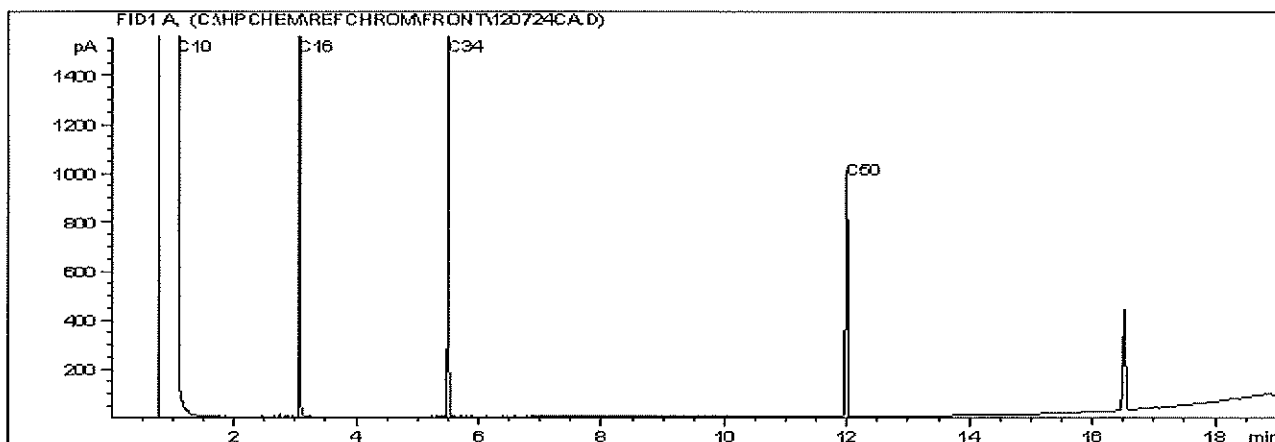
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH2

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

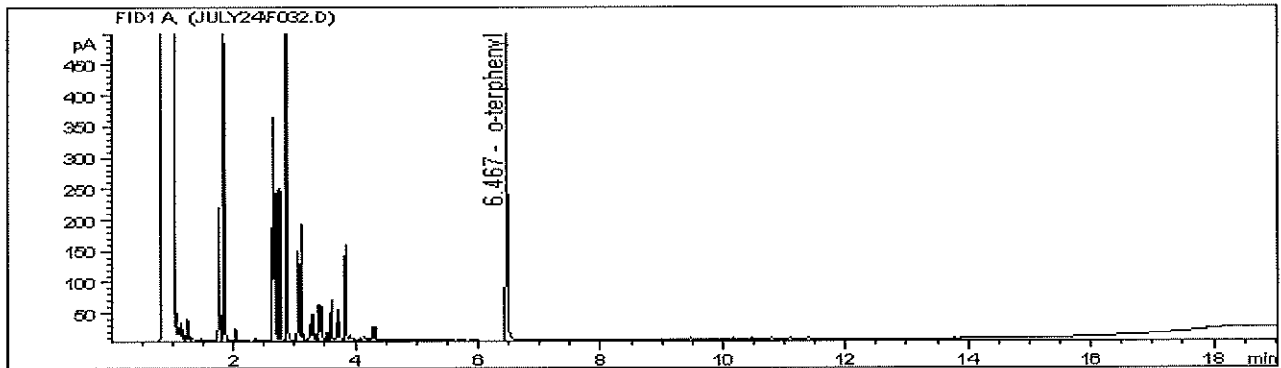
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



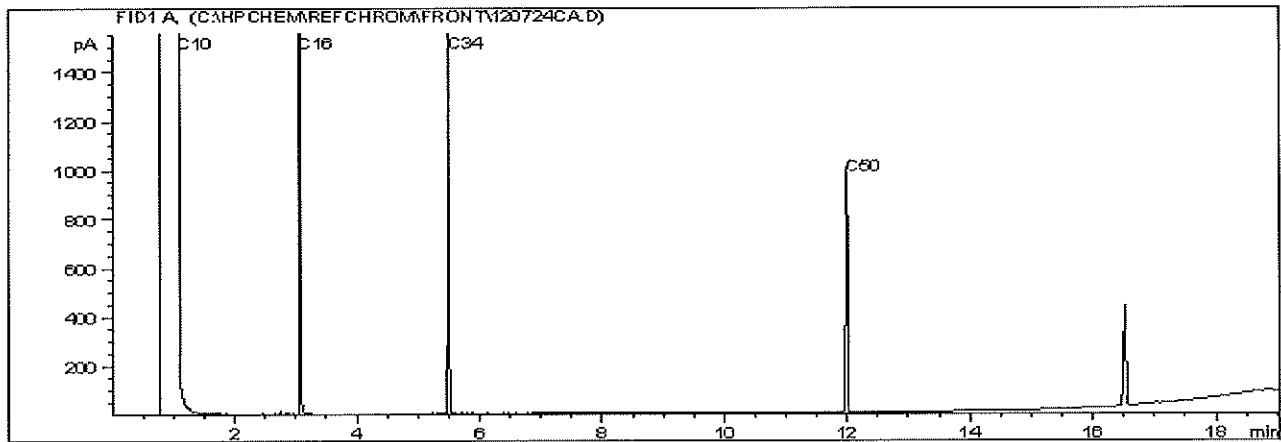
Report Date: 2012/09/05  
Maxxam Job #: B263570  
Maxxam Sample: DZ4279

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH25

CCME Hydrocarbons (F2-F4 In water) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

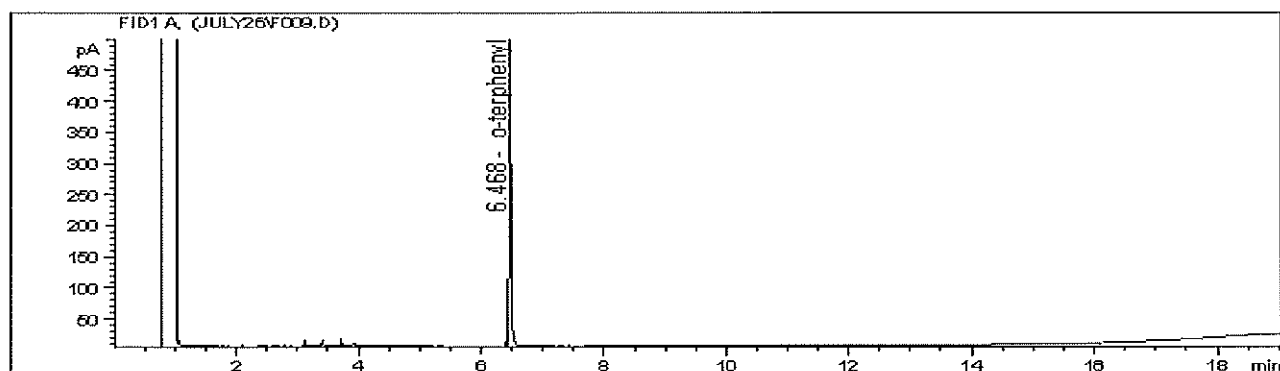


Report Date: 2012/09/05  
 Maxxam Job #: B263570  
 Maxxam Sample: DZ4280

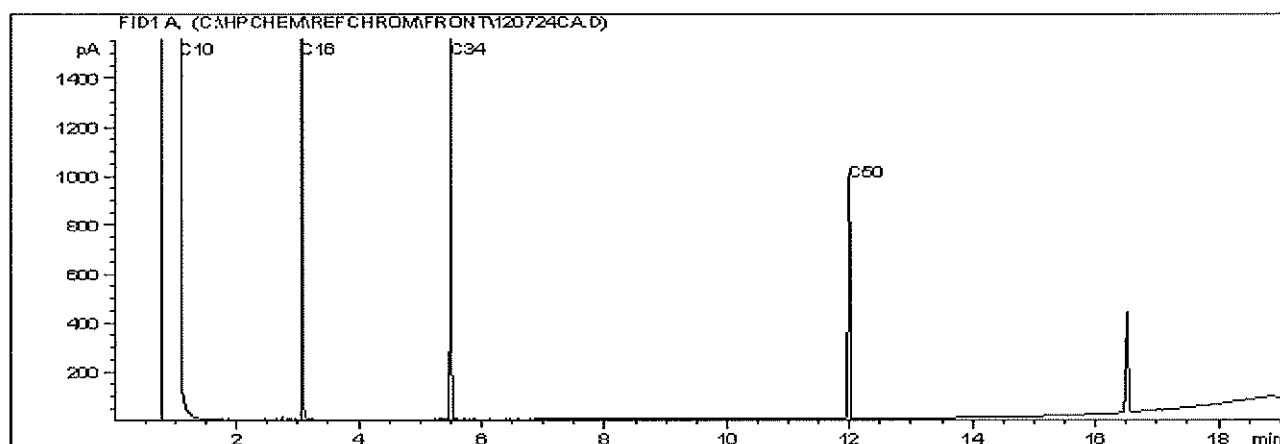
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-21

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

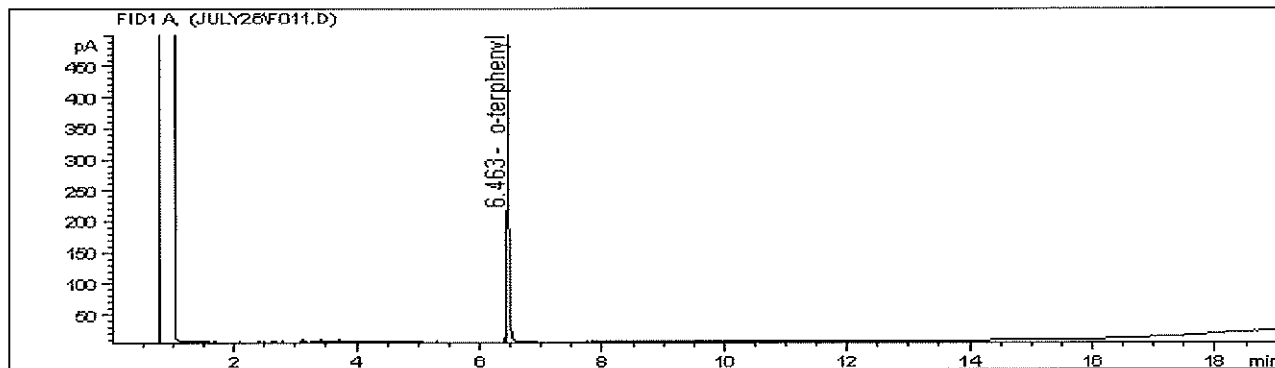


Report Date: 2012/09/05  
 Maxxam Job #: B263570  
 Maxxam Sample: DZ4281

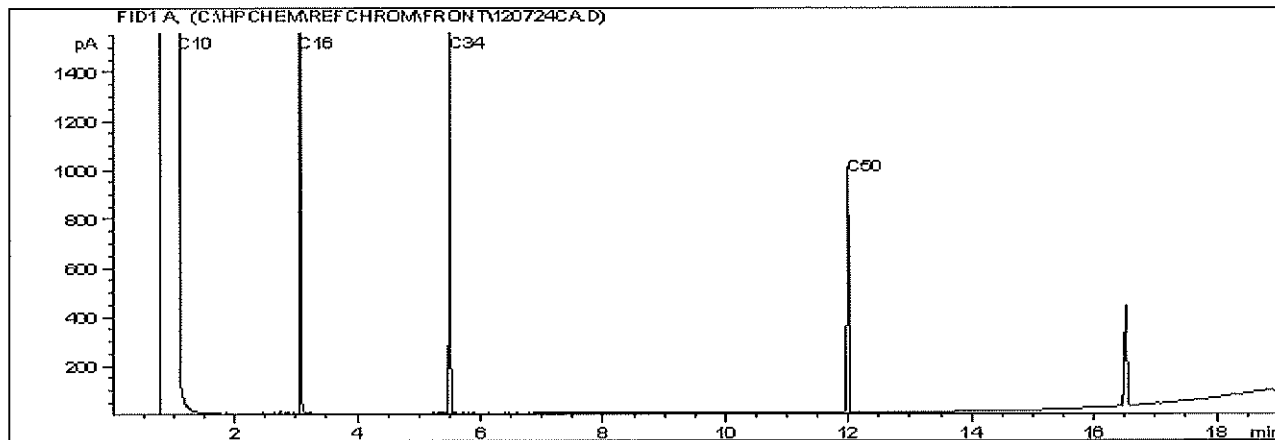
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: DUP-1

## CCME Hydrocarbons (F2-F4 In water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
 Varsol: C8 - C12  
 Kerosene: C7 - C16

Diesel: C8 - C22  
 Lubricating Oils: C20 - C40  
 Crude Oils: C3 - C60+

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



# **DATA QUALITY REVIEW CHECKLIST**

Consultant: Parsons

Sampling Date: 2012/07/19

Location: 208 St. Anne's Road, Winnipeg, MB

Laboratory : Maxxam Analytics Inc.

Consultant Project Number: 10-1177.100

Sample Submission Number: B263570

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration	<i>X</i>			
Matrix Duplicate RPD	<i>X</i>			
Matrix Spike Recovery	<i>X</i>			
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<i>X</i>	<i>All field QC met alert limits.</i>
Trip Blank Concentration			<i>X</i>	
Field Duplicate RPD	<i>X</i>			

Has CoA been signed off (Yes/No)?:

Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?:

Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:

Yes

Were all samples analyzed within hold times (Yes/No)?:

Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:

N/A

Is Chain of Custody completed and signed (Yes/No)?:

Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?:

Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?:

No

Date Issued: \_\_\_\_\_


Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?:

Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-Naurocki

Data Reviewed by (Signature): 

Review Date: 2013/02/21

Revision Date (if applicable): \_\_\_\_\_

Revised by (Signature): \_\_\_\_\_



Your Project #: 10-1177.100  
Site#: 63955  
Site Location: 208 ST ANNE'S ROAD, WINNIPEG MB  
Your C.O.C. #: 31127903

**Attention: Adam Wickman**  
PARSONS  
7 Terracon Place  
WINNIPEG, MB  
CANADA R2J 4B3

**Report Date: 2012/09/05**

This report supersedes all previous reports with the same Maxxam job number

### CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B272641**

**Received: 2012/08/16, 15:30**

Sample Matrix: Water


# Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS (1)	1	N/A	2012/08/17	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCW
CCME Hydrocarbons (F2-F4 in water) (1)	1	2012/08/17	2012/08/17	WINSOP-00056	CCME PHC-CWS
Elements by CRC ICPMS (dissolved) (2)	1	N/A	2012/08/18	BBY7SOP-00002	EPA 6020A
VOCs in Water by HS GC/MS (2)	1	2012/08/17	2012/08/17	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) This test was performed by Maxxam Winnipeg  
(2) This test was performed by Maxxam Vancouver

#### Encryption Key

 Shawn Worthing  
05 Sep 2012 09:07:31 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
Email: JKochan@maxxam.ca  
Phone# (204) 772-7276 Ext:2209

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B272641  
Report Date: 2012/09/05

PARSONS  
Client Project #: 10-1177.100  
Site Location: 208 ST ANNE'S ROAD, WINNIPEG MB  
Sampler Initials: JP

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		EF2286		
Sampling Date		2012/08/16 14:00		
COC Number		31127903		
	UNITS	BH17	RDL	QC Batch

Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/L	0.52	0.15	6090654
Surrogate Recovery (%)				
O-TERPHENYL (sur.)	%	100	N/A	6090654

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B272641  
Report Date: 2012/09/05

PARSONS  
Client Project #: 10-1177.100  
Site Location: 208 ST ANNE'S ROAD, WINNIPEG MB  
Sampler Initials: JP

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		EF2286		
Sampling Date		2012/08/16 14:00		
COC Number		31127903		
	UNITS	BH17	RDL	QC Batch

Dissolved Metals by ICPMS				
Dissolved Lead (Pb)	ug/L	ND	0.20	6091454
ND = Not detected RDL = Reportable Detection Limit				



Maxxam Job #: B272641  
Report Date: 2012/09/05

PARSONS  
Client Project #: 10-1177.100  
Site Location: 208 ST ANNE'S ROAD, WINNIPEG MB  
Sampler Initials: JP

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		EF2286		
Sampling Date		2012/08/16 14:00		
COC Number		31127903		
	UNITS	BH17	RDL	QC Batch

<b>Volatiles</b>				
Benzene	ug/L	2.1	0.4	6086595
Toluene	ug/L	0.6	0.4	6086595
Ethylbenzene	ug/L	11	0.4	6086595
o-Xylene	ug/L	ND	0.4	6086595
m & p-Xylene	ug/L	10	0.8	6086595
Xylenes (Total)	ug/L	10	0.8	6086595
F1 (C6-C10) - BTEX	ug/L	ND	300	6086595
(C6-C10)	ug/L	ND	300	6086595
1,2-dichloroethane	ug/L	ND	0.50	6091718
1,2-dibromoethane	ug/L	ND	0.20	6091718
<b>Surrogate Recovery (%)</b>				
4-BROMOFLUOROBENZENE (sur.)	%	94	N/A	6086595
D4-1,2-DICHLOROETHANE (sur.)	%	112	N/A	6086595
D8-TOLUENE (sur.)	%	94	N/A	6086595
1,4-Difluorobenzene (sur.)	%	108	N/A	6091718
4-BROMOFLUOROBENZENE (sur.)	%	95	N/A	6091718
D4-1,2-DICHLOROETHANE (sur.)	%	100	N/A	6091718

ND = Not detected  
N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B272641  
Report Date: 2012/09/05

PARSONS  
Client Project #: 10-1177.100  
Site Location: 208 ST ANNE'S ROAD, WINNIPEG MB  
Sampler Initials: JP

Package 1	8.3°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

#### General Comments

Results relate only to the items tested.



PARSONS  
Attention: Adam Wickman  
Client Project #: 10-1177.100  
P.O. #:  
Site Location: 208 ST ANNE'S ROAD, WINNIPEG MB

### Quality Assurance Report

Maxxam Job Number: NB272641

QA/QC		Date						
Batch			Analyzed					
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits	
6086595 HW4	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2012/08/17		97	%	60 - 140	
		D4-1,2-DICHLOROETHANE (sur.)	2012/08/17		111	%	60 - 140	
		D8-TOLUENE (sur.)	2012/08/17		96	%	60 - 140	
		Benzene	2012/08/17		NC	%	70 - 130	
		Toluene	2012/08/17		120	%	70 - 130	
		Ethylbenzene	2012/08/17		125	%	70 - 130	
		o-Xylene	2012/08/17		122	%	70 - 130	
		m & p-Xylene	2012/08/17		129	%	70 - 130	
		(C6-C10)	2012/08/17		NC	%	70 - 130	
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/08/17		97	%	60 - 140	
		D4-1,2-DICHLOROETHANE (sur.)	2012/08/17		106	%	60 - 140	
		D8-TOLUENE (sur.)	2012/08/17		93	%	60 - 140	
		Benzene	2012/08/17		105	%	70 - 130	
		Toluene	2012/08/17		105	%	70 - 130	
		Ethylbenzene	2012/08/17		108	%	70 - 130	
		o-Xylene	2012/08/17		109	%	70 - 130	
		m & p-Xylene	2012/08/17		112	%	70 - 130	
		(C6-C10)	2012/08/17		77	%	70 - 130	
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/08/17		95	%	60 - 140	
		D4-1,2-DICHLOROETHANE (sur.)	2012/08/17		104	%	60 - 140	
		D8-TOLUENE (sur.)	2012/08/17		96	%	60 - 140	
		Benzene	2012/08/17	ND, RDL=0.4		ug/L		
		Toluene	2012/08/17	ND, RDL=0.4		ug/L		
		Ethylbenzene	2012/08/17	ND, RDL=0.4		ug/L		
		o-Xylene	2012/08/17	ND, RDL=0.4		ug/L		
		m & p-Xylene	2012/08/17	ND, RDL=0.8		ug/L		
		Xylenes (Total)	2012/08/17	ND, RDL=0.8		ug/L		
		F1 (C6-C10) - BTEX	2012/08/17	ND, RDL=300		ug/L		
		(C6-C10)	2012/08/17	ND, RDL=300		ug/L		
	RPD	Benzene	2012/08/17	NC		%	40	
		Toluene	2012/08/17	NC		%	40	
		Ethylbenzene	2012/08/17	NC		%	40	
		o-Xylene	2012/08/17	NC		%	40	
		m & p-Xylene	2012/08/17	NC		%	40	
		Xylenes (Total)	2012/08/17	NC		%	40	
		F1 (C6-C10) - BTEX	2012/08/17	NC		%	40	
		(C6-C10)	2012/08/17	NC		%	40	
	Matrix Spike	O-TERPHENYL (sur.)	2012/08/17		98	%	50 - 130	
		F2 (C10-C16 Hydrocarbons)	2012/08/17		102	%	50 - 130	
	Spiked Blank	O-TERPHENYL (sur.)	2012/08/17		100	%	50 - 130	
		F2 (C10-C16 Hydrocarbons)	2012/08/17		100	%	80 - 120	
	Method Blank	O-TERPHENYL (sur.)	2012/08/17		82	%	50 - 130	
		F2 (C10-C16 Hydrocarbons)	2012/08/17	ND, RDL=0.15		mg/L		
	RPD [EF2286-02]	F2 (C10-C16 Hydrocarbons)	2012/08/17	NC		%	40	
6091454 JT3	Matrix Spike	Dissolved Lead (Pb)	2012/08/18		96	%	80 - 120	
	Spiked Blank	Dissolved Lead (Pb)	2012/08/18		97	%	80 - 120	
	Method Blank	Dissolved Lead (Pb)	2012/08/18	ND, RDL=0.20		ug/L		
6091718 AC2	Matrix Spike	1,4-Difluorobenzene (sur.)	2012/08/18		98	%	70 - 130	
		4-BROMOFLUOROBENZENE (sur.)	2012/08/18		101	%	70 - 130	
		D4-1,2-DICHLOROETHANE (sur.)	2012/08/18		98	%	70 - 130	
		1,2-dichloroethane	2012/08/18		119	%	70 - 130	
		1,2-dibromoethane	2012/08/18		122	%	70 - 130	
	Spiked Blank	1,4-Difluorobenzene (sur.)	2012/08/17		99	%	70 - 130	
		4-BROMOFLUOROBENZENE (sur.)	2012/08/17		100	%	70 - 130	
		D4-1,2-DICHLOROETHANE (sur.)	2012/08/17		98	%	70 - 130	



PARSONS  
 Attention: Adam Wickman  
 Client Project #: 10-1177.100  
 P.O. #:  
 Site Location: 208 ST ANNE'S ROAD, WINNIPEG MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB272641

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6091718 AC2	Spiked Blank	1,2-dichloroethane	2012/08/17		108	%	70 - 130
		1,2-dibromoethane	2012/08/17		106	%	70 - 130
	Method Blank	1,4-Difluorobenzene (sur.)	2012/08/17		108	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/08/17		90	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/08/17		100	%	70 - 130
		1,2-dichloroethane	2012/08/17	ND, RDL=0.50		ug/L	
	RPD	1,2-dibromoethane	2012/08/17	ND, RDL=0.20		ug/L	
		1,2-dibromoethane	2012/08/17	NC		%	30

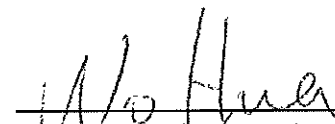
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.  
 Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.  
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.  
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.  
 Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.  
 NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.  
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.



**Validation Signature Page****Maxxam Job #: B272641**

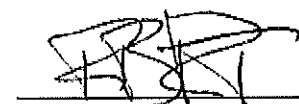
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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Hua Wo, Organics Supervisor



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Rob Reinert, Data Validation Coordinator

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### DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2012/08/16</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory : <u>Maxxam Analytics Inc.</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B272641</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration	<i>X</i>			
Matrix Duplicate RPD	<i>X</i>			
Matrix Spike Recovery	<i>X</i>			
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<i>X</i>	<i>No field QC were submitted.</i>
Trip Blank Concentration			<i>X</i>	
Field Duplicate RPD			<i>X</i>	

Has CoA been signed off (Yes/No)?: \_\_\_\_\_ *Yes*

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: \_\_\_\_\_ *Yes*

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: \_\_\_\_\_ *Yes*

Were all samples analyzed within hold times (Yes/No)?: \_\_\_\_\_ *Yes*

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: \_\_\_\_\_ *N/A*

Is Chain of Custody completed and signed (Yes/No)?: \_\_\_\_\_ *Yes*

Were sample temperatures acceptable when they reached lab (Yes/No)?: \_\_\_\_\_ *Yes*

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: \_\_\_\_\_ *No*

Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?: \_\_\_\_\_ *Yes*


If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-Naurocki

Review Date: 2013/02/21

Revision Date (if applicable): \_\_\_\_\_

Data Reviewed by (Signature): 

Revised by (Signature): \_\_\_\_\_



Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Your C.O.C. #: S008502

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

Report Date: 2012/10/25

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B293842**

**Received: 2012/10/17, 15:00**

Sample Matrix: Soil

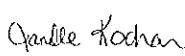
# Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract)	6	2012/10/17	2012/10/20	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCW
BTEX/MTBE Soil LH, VH, F1 SIM/MS (1)	2	2012/10/19	2012/10/24	BBY8-SOP-00010	EPA SW846 8260C
Volatile F1-BTEX (1)	2	N/A	2012/10/24	BBY WI-00033	BC MOE Lab Method
CCME Hydrocarbons (F2-F4 in soil) (1)	1	2012/10/19	2012/10/24	BBY8SOP-00030	CCME Soil Tier 1
CCME Hydrocarbons (F2-F4 in soil) (1)	1	2012/10/19	2012/10/25	BBY8SOP-00030	CCME Soil Tier 1
CCME Hydrocarbons (F2-F4 in soil)	6	2012/10/17	2012/10/19	WINSOP-00056	CCME PHC-CWS
Elements by ICPMS (total) (1)	8	2012/10/22	2012/10/23	BBY7SOP-00001	EPA 6020A
Moisture (1)	2	N/A	2012/10/20	BBY8SOP-00017	Ont MOE -E 3139
Moisture	6	N/A	2012/10/19	WIN SOP-00060	Carter Method 51.2
pH (2:1 DI Water Extract) (1)	8	2012/10/24	2012/10/24	BBY6SOP-00028	Carter, SSMA 16.2
VOCs In Soil by HS GC/MS (1)	3	2012/10/19	2012/10/22	BBY8-SOP-0009	EPA 8260C
VOCs In Soil by HS GC/MS (1)	5	2012/10/19	2012/10/23	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

**Encryption Key**

 Janelle Kochan  
26 Oct 2012 16:46:25 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
Email: JKochan@maxxam.ca  
Phone# (204) 772-7276 Ext:2209

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Total cover pages: 1



Maxxam Job #: B293842  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		ET5011	ET5012	ET5013	ET5014		
Sampling Date		2012/10/16 10:30	2012/10/16 10:45	2012/10/16 11:00	2012/10/16 11:15		
COC Number		S008502	S008502	S008502	S008502		
	UNITS	BH-30-3.7-4.3	BH-31-0.6-1.2	BH-31-1.8-2.4	BH-31-3.1-3.7	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	33	20	26	27	0.3	6263346
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	<20	<20	<20	110	20	6263340
F3 (C16-C34 Hydrocarbons)	mg/kg	<20	<20	26	<20	20	6263340
F4 (C34-C50 Hydrocarbons)	mg/kg	<20	<20	<20	<20	20	6263340
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	6263340
<b>Volatiles</b>							
Benzene	mg/kg	<0.0050	0.039	<0.0050	<0.0050	0.0050	6263271
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	6263271
Ethylbenzene	mg/kg	0.13	0.040	<0.010	<0.010	0.010	6263271
Xylenes (Total)	mg/kg	0.10	<0.040	<0.040	<0.040	0.040	6263271
m & p-Xylene	mg/kg	0.10	<0.040	<0.040	<0.040	0.040	6263271
o-Xylene	mg/kg	<0.020	<0.020	<0.020	<0.020	0.020	6263271
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	6263271
F1 (C6-C10) - BTEX	mg/kg	<10	12	<10	27	10	6263271
(C6-C10)	mg/kg	<10	12	<10	27	10	6263271
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	101	102	100	105	N/A	6263271
D10-ETHYLBENZENE (sur.)	%	105	110	113	113	N/A	6263271
D4-1,2-DICHLOROETHANE (sur.)	%	88	85	87	89	N/A	6263271
D8-TOLUENE (sur.)	%	106	106	106	104	N/A	6263271
O-TERPHENYL (sur.)	%	84	88	52	93	N/A	6263340
N/A = Not Applicable RDL = Reportable Detection Limit							



Maxxam Job #: B293842  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		ET5015	ET5016		
Sampling Date		2012/10/16 11:30	2012/10/16 11:30		
COC Number		S008502	S008502		
	<b>UNITS</b>	<b>BH-31-4.3-4.9</b>	<b>DUP-31</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>					
Moisture	%	27	25	0.3	6263346
<b>Ext. Pet. Hydrocarbon</b>					
F2 (C10-C16 Hydrocarbons)	mg/kg	72	160	20	6263340
F3 (C16-C34 Hydrocarbons)	mg/kg	<20	37	20	6263340
F4 (C34-C50 Hydrocarbons)	mg/kg	<20	<20	20	6263340
Reached Baseline at C50	mg/kg	Yes	Yes	N/A	6263340
<b>Volatiles</b>					
Benzene	mg/kg	<0.0050	<0.0050	0.0050	6263271
Toluene	mg/kg	<0.020	<0.020	0.020	6263271
Ethylbenzene	mg/kg	<0.010	<0.010	0.010	6263271
Xylenes (Total)	mg/kg	<0.040	<0.040	0.040	6263271
m & p-Xylene	mg/kg	<0.040	<0.040	0.040	6263271
o-Xylene	mg/kg	<0.020	<0.020	0.020	6263271
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	0.10	6263271
F1 (C6-C10) - BTEX	mg/kg	<10	25	10	6263271
(C6-C10)	mg/kg	<10	25	10	6263271
<b>Surrogate Recovery (%)</b>					
4-BROMOFLUOROBENZENE (sur.)	%	101	98	N/A	6263271
D10-ETHYLBENZENE (sur.)	%	116	114	N/A	6263271
D4-1,2-DICHLOROETHANE (sur.)	%	84	92	N/A	6263271
D8-TOLUENE (sur.)	%	107	103	N/A	6263271
O-TERPHENYL (sur.)	%	78	61	N/A	6263340
N/A = Not Applicable RDL = Reportable Detection Limit					



Maxxam Job #: B293842  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		ET5009	ET5010	ET5011	ET5012	ET5013		
Sampling Date		2012/10/16 10:00	2012/10/16 10:15	2012/10/16 10:30	2012/10/16 10:45	2012/10/16 11:00		
COC Number		S008502	S008502	S008502	S008502	S008502		
	UNITS	BH-30-1.2-1.8	BH-30-2.4-3.1	BH-30-3.7-4.3	BH-31-0.6-1.2	BH-31-1.8-2.4	RDL	QC Batch

Physical Properties								
Soluble (2:1) pH	pH Units	9.04	8.96	7.89	8.47	8.59	0.010	6275174

RDL = Reportable Detection Limit

Maxxam ID		ET5014	ET5015	ET5016		
Sampling Date		2012/10/16 11:15	2012/10/16 11:30	2012/10/16 11:30		
COC Number		S008502	S008502	S008502		
	UNITS	BH-31-3.1-3.7	BH-31-4.3-4.9	DUP-31	RDL	QC Batch

Physical Properties						
Soluble (2:1) pH	pH Units	8.55	8.47	8.66	0.010	6275444

RDL = Reportable Detection Limit



Maxxam Job #: B293842  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### PHYSICAL TESTING (SOIL)

Maxxam ID		ET5009	ET5010		
Sampling Date		2012/10/16 10:00	2012/10/16 10:15		
COC Number		S008502	S008502		
	UNITS	BH-30-1.2-1.8	BH-30-2.4-3.1	RDL	QC Batch

Physical Properties					
Moisture	%	2.4	2.8	0.30	6268164

RDL = Reportable Detection Limit



Maxxam Job #: B293842  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		ET5009	ET5010	ET5011	ET5012		
Sampling Date		2012/10/16 10:00	2012/10/16 10:15	2012/10/16 10:30	2012/10/16 10:45		
COC Number		S008502	S008502	S008502	S008502		
	UNITS	BH-30-1.2-1.8	BH-30-2.4-3.1	BH-30-3.7-4.3	BH-31-0.6-1.2	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	2.02	1.97	15.8	21.1	0.10	6275171

RDL = Reportable Detection Limit

Maxxam ID		ET5013		ET5014	ET5015	ET5016		
Sampling Date		2012/10/16 11:00		2012/10/16 11:15	2012/10/16 11:30	2012/10/16 11:30		
COC Number		S008502		S008502	S008502	S008502		
	UNITS	BH-31-1.8-2.4	QC Batch	BH-31-3.1-3.7	BH-31-4.3-4.9	DUP-31	RDL	QC Batch

Total Metals by ICPMS								
Total Lead (Pb)	mg/kg	13.0	6275171	13.3	12.7	11.5	0.10	6275439

RDL = Reportable Detection Limit



Maxxam Job #: B293842  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		ET5009		ET5010		ET5011		ET5012		
Sampling Date		2012/10/16 10:00		2012/10/16 10:15		2012/10/16 10:30		2012/10/16 10:45		
COC Number		S008502		S008502		S008502		S008502		
	UNITS	BH-30-1.2-1.8	QC Batch	BH-30-2.4-3.1		BH-30-3.7-4.3	QC Batch	BH-31-0.6-1.2	RDL	QC Batch

<b>Volatiles</b>										
1,2-dichloroethane	mg/kg	<0.025	6275009	<0.025		<0.025	6282437	<0.025	0.025	6275009
1,2-dibromoethane	mg/kg	<0.025	6275009	<0.025		<0.025	6282437	<0.025	0.025	6275009

RDL = Reportable Detection Limit

Maxxam ID		ET5013		ET5014		ET5015		ET5016		
Sampling Date		2012/10/16 11:00		2012/10/16 11:15		2012/10/16 11:30		2012/10/16 11:30		
COC Number		S008502		S008502		S008502		S008502		
	UNITS	BH-31-1.8-2.4	QC Batch	BH-31-3.1-3.7	QC Batch	BH-31-4.3-4.9		DUP-31	RDL	QC Batch

<b>Volatiles</b>										
1,2-dichloroethane	mg/kg	<0.025	6282437	<0.025	6275009	<0.025		<0.025	0.025	6282437
1,2-dibromoethane	mg/kg	<0.025	6282437	<0.025	6275009	<0.025		<0.025	0.025	6282437

RDL = Reportable Detection Limit



Maxxam Job #: B293842  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### CCME BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		ET5009		ET5010		
Sampling Date		2012/10/16 10:00		2012/10/16 10:15		
COC Number		S008502		S008502		
	UNITS	BH-30-1.2-1.8	QC Batch	BH-30-2.4-3.1	RDL	QC Batch

<b>Calculated Parameters</b>						
F1 (C6-C10) - BTEX	mg/kg	<10	6263367	<10	10	6263367
<b>Ext. Pet. Hydrocarbon</b>						
F2 (C10-C16 Hydrocarbons)	mg/kg	19	6286579	<10	10	6284383
F3 (C16-C34 Hydrocarbons)	mg/kg	420	6286579	85	10	6284383
F4 (C34-C50 Hydrocarbons)	mg/kg	65	6286579	28	10	6284383
Reached Baseline at C50	mg/kg	Yes	6286579	Yes	N/A	6284383
<b>Volatiles</b>						
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	6277386	<0.10	0.10	6277386
Benzene	mg/kg	<0.0050	6277386	<0.0050	0.0050	6277386
Toluene	mg/kg	<0.020	6277386	<0.020	0.020	6277386
Ethylbenzene	mg/kg	<0.010	6277386	0.011	0.010	6277386
m & p-Xylene	mg/kg	<0.040	6277386	0.046	0.040	6277386
o-Xylene	mg/kg	<0.040	6277386	<0.040	0.040	6277386
Xylenes (Total)	mg/kg	<0.040	6277386	0.046	0.040	6277386
(C6-C10)	mg/kg	<10	6277386	<10	10	6277386
<b>Surrogate Recovery (%)</b>						
1,4-Difluorobenzene (sur.)	%	105	6277386	105	N/A	6277386
4-BROMOFLUOROBENZENE (sur.)	%	98	6277386	96	N/A	6277386
D10-ETHYLBENZENE (sur.)	%	83	6277386	85	N/A	6277386
D4-1,2-DICHLOROETHANE (sur.)	%	104	6277386	98	N/A	6277386
O-TERPHENYL (sur.)	%	87	6286579	88	N/A	6284383

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B293842  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

Package 1	6.2°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB293842

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6263271	HW4	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2012/10/20	101	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/10/20	110	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/10/20	82	%	60 - 140
			D8-TOLUENE (sur.)	2012/10/20	108	%	60 - 140
			Benzene	2012/10/20	98	%	60 - 140
			Toluene	2012/10/20	102	%	60 - 140
			Ethylbenzene	2012/10/20	115	%	60 - 140
			m & p-Xylene	2012/10/20	111	%	60 - 140
			o-Xylene	2012/10/20	105	%	60 - 140
			Methyl-tert-butylether (MTBE)	2012/10/20	84	%	60 - 140
			(C6-C10)	2012/10/20	116	%	60 - 140
		Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/10/20	101	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/10/20	109	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/10/20	83	%	60 - 140
			D8-TOLUENE (sur.)	2012/10/20	107	%	60 - 140
			Benzene	2012/10/20	97	%	60 - 140
			Toluene	2012/10/20	100	%	60 - 140
			Ethylbenzene	2012/10/20	113	%	60 - 140
			m & p-Xylene	2012/10/20	109	%	60 - 140
			o-Xylene	2012/10/20	103	%	60 - 140
			Methyl-tert-butylether (MTBE)	2012/10/20	83	%	60 - 140
			(C6-C10)	2012/10/20	87	%	60 - 140
		Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/10/20	103	%	60 - 140
			D10-ETHYLBENZENE (sur.)	2012/10/20	107	%	30 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2012/10/20	89	%	60 - 140
			D8-TOLUENE (sur.)	2012/10/20	106	%	60 - 140
			Benzene	2012/10/20	<0.0050	mg/kg	
			Toluene	2012/10/20	<0.020	mg/kg	
			Ethylbenzene	2012/10/20	<0.010	mg/kg	
			Xylenes (Total)	2012/10/20	<0.040	mg/kg	
			m & p-Xylene	2012/10/20	<0.040	mg/kg	
			o-Xylene	2012/10/20	<0.020	mg/kg	
			Methyl-tert-butylether (MTBE)	2012/10/20	<0.10	mg/kg	
			F1 (C6-C10) - BTEX	2012/10/20	<10	mg/kg	
			(C6-C10)	2012/10/20	<10	mg/kg	
		RPD	Benzene	2012/10/20	NC	%	50
			Toluene	2012/10/20	NC	%	50
			Ethylbenzene	2012/10/20	NC	%	50
			Xylenes (Total)	2012/10/20	NC	%	50
			m & p-Xylene	2012/10/20	NC	%	50
			o-Xylene	2012/10/20	NC	%	50
			Methyl-tert-butylether (MTBE)	2012/10/20	NC	%	N/A
			F1 (C6-C10) - BTEX	2012/10/20	NC	%	50
			(C6-C10)	2012/10/20	NC	%	50
6263340	HW4	Matrix Spike	O-TERPHENYL (sur.)	2012/10/19	76	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/10/19	81	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2012/10/19	87	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2012/10/19	96	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2012/10/19	79	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/10/19	86	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2012/10/19	92	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2012/10/19	92	%	80 - 120
		Method Blank	O-TERPHENYL (sur.)	2012/10/19	86	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2012/10/19	<20	mg/kg	
			F3 (C16-C34 Hydrocarbons)	2012/10/19	<20	mg/kg	



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB293842

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6263340 HW4	Method Blank RPD	F4 (C34-C50 Hydrocarbons)	2012/10/19	<20		mg/kg	
		F2 (C10-C16 Hydrocarbons)	2012/10/19	NC		%	50
		F3 (C16-C34 Hydrocarbons)	2012/10/19	NC		%	50
		F4 (C34-C50 Hydrocarbons)	2012/10/19	NC		%	50
6263346 ML8	Method Blank RPD	Moisture	2012/10/19	<0.3		%	
		Moisture	2012/10/19	12.6		%	20
6268164 CG5	Method Blank RPD	Moisture	2012/10/20	<0.30		%	
		Moisture	2012/10/20	2.7		%	20
6275009 AC2	Matrix Spike	1,2-dichloroethane	2012/10/22		116	%	60 - 140
		1,2-dibromoethane	2012/10/22		118	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2012/10/22		105	%	60 - 140
		1,2-dibromoethane	2012/10/22		101	%	60 - 140
	Method Blank	1,2-dichloroethane	2012/10/22	<0.025		mg/kg	
		1,2-dibromoethane	2012/10/22	<0.025		mg/kg	
	RPD	1,2-dichloroethane	2012/10/22	NC		%	40
6275171 DJ	Matrix Spike	Total Lead (Pb)	2012/10/23		100	%	75 - 125
	QC Standard	Total Lead (Pb)	2012/10/23		94	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2012/10/23		96	%	75 - 125
	Method Blank	Total Lead (Pb)	2012/10/23	<0.10		mg/kg	
	RPD	Total Lead (Pb)	2012/10/23	3.8		%	35
6275174 NS6	Spiked Blank RPD	Soluble (2:1) pH	2012/10/24		102	%	96 - 104
		Soluble (2:1) pH	2012/10/24	0.5		%	20
6275439 DJ	Matrix Spike	Total Lead (Pb)	2012/10/23		96	%	75 - 125
	QC Standard	Total Lead (Pb)	2012/10/23		99	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2012/10/23		99	%	75 - 125
	Method Blank	Total Lead (Pb)	2012/10/23	<0.10		mg/kg	
	RPD	Total Lead (Pb)	2012/10/23	0.2		%	35
6275444 NS6	Spiked Blank RPD	Soluble (2:1) pH	2012/10/24		102	%	96 - 104
		Soluble (2:1) pH	2012/10/24	2.7		%	20
6277386 KPA	Matrix Spike	1,4-Difluorobenzene (sur.)	2012/10/24		104	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/10/24		96	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2012/10/24		87	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/24		100	%	70 - 130
		Benzene	2012/10/24		92	%	60 - 140
		Toluene	2012/10/24		90	%	60 - 140
		Ethylbenzene	2012/10/24		88	%	60 - 140
		m & p-Xylene	2012/10/24		84	%	60 - 140
		o-Xylene	2012/10/24		86	%	60 - 140
		1,4-Difluorobenzene (sur.)	2012/10/24		105	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/10/24		97	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2012/10/24		80	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/24		99	%	70 - 130
		Benzene	2012/10/24		84	%	60 - 140
		Toluene	2012/10/24		84	%	60 - 140
	Spiked Blank	Ethylbenzene	2012/10/24		82	%	60 - 140
		m & p-Xylene	2012/10/24		79	%	60 - 140
		o-Xylene	2012/10/24		78	%	60 - 140
		(C6-C10)	2012/10/24		81	%	60 - 140
		1,4-Difluorobenzene (sur.)	2012/10/24		104	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2012/10/24		99	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2012/10/24		86	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/24		103	%	70 - 130
		Methyl-tert-butylether (MTBE)	2012/10/24	<0.10		mg/kg	
		Benzene	2012/10/24	<0.0050		mg/kg	
		Toluene	2012/10/24	<0.020		mg/kg	
	Method Blank						



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB293842

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6277386 KPA	Method Blank	Ethylbenzene	2012/10/24	<0.010		mg/kg	
		m & p-Xylene	2012/10/24	<0.040		mg/kg	
		o-Xylene	2012/10/24	<0.040		mg/kg	
		Xylenes (Total)	2012/10/24	<0.040		mg/kg	
		(C6-C10)	2012/10/24	<10		mg/kg	
	RPD	Benzene	2012/10/24	NC		%	40
		Toluene	2012/10/24	NC		%	40
		Ethylbenzene	2012/10/24	NC		%	40
		m & p-Xylene	2012/10/24	NC		%	40
		o-Xylene	2012/10/24	NC		%	40
		Xylenes (Total)	2012/10/24	NC		%	40
		(C6-C10)	2012/10/24	NC		%	40
6282437 KPA	Matrix Spike	1,2-dichloroethane	2012/10/24		82	%	60 - 140
		1,2-dibromoethane	2012/10/24		88	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2012/10/23		85	%	60 - 140
		1,2-dibromoethane	2012/10/23		85	%	60 - 140
	Method Blank	1,2-dichloroethane	2012/10/23	<0.025		mg/kg	
		1,2-dibromoethane	2012/10/23	<0.025		mg/kg	
	RPD	1,2-dichloroethane	2012/10/24	NC		%	40
		1,2-dibromoethane	2012/10/24	NC		%	40
	Matrix Spike	O-TERPHENYL (sur.)	2012/10/24		94	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/24		93	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2012/10/24		103	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2012/10/24		103	%	50 - 130
		Reached Baseline at C50	2012/10/24		YES	%	N/A
	Spiked Blank	O-TERPHENYL (sur.)	2012/10/24		88	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/24		87	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2012/10/24		96	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2012/10/24		107	%	80 - 120
6284383 IT1	Method Blank	Reached Baseline at C50	2012/10/24		YES	%	N/A
		O-TERPHENYL (sur.)	2012/10/24		89	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/24	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2012/10/24	<10		mg/kg	
	RPD	F4 (C34-C50 Hydrocarbons)	2012/10/24	<10		mg/kg	
		Reached Baseline at C50	2012/10/24	YES		mg/kg	
		F2 (C10-C16 Hydrocarbons)	2012/10/24	NC		%	40
		F3 (C16-C34 Hydrocarbons)	2012/10/24	5.3		%	40
		F4 (C34-C50 Hydrocarbons)	2012/10/24	6.9		%	40
	Reached Baseline at C50		2012/10/24	NC		%	50
		O-TERPHENYL (sur.)	2012/10/25		94	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/25		93	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2012/10/25		97	%	50 - 130
	Spiked Blank	F4 (C34-C50 Hydrocarbons)	2012/10/25		98	%	50 - 130
		O-TERPHENYL (sur.)	2012/10/25		96	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/25		95	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2012/10/25		98	%	80 - 120
	Method Blank	F4 (C34-C50 Hydrocarbons)	2012/10/25		100	%	80 - 120
		O-TERPHENYL (sur.)	2012/10/25		103	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/25	13, RDL=10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2012/10/25	<10		mg/kg	
6286579 PN2	RPD	F4 (C34-C50 Hydrocarbons)	2012/10/25	<10		mg/kg	
		Reached Baseline at C50	2012/10/25	YES		mg/kg	
		F2 (C10-C16 Hydrocarbons)	2012/10/25	NC		%	40
		F3 (C16-C34 Hydrocarbons)	2012/10/25	NC		%	40
	Matrix Spike	F4 (C34-C50 Hydrocarbons)	2012/10/25	NC		%	40
		O-TERPHENYL (sur.)	2012/10/25				
		F2 (C10-C16 Hydrocarbons)	2012/10/25				
		F3 (C16-C34 Hydrocarbons)	2012/10/25				
	Spiked Blank	F4 (C34-C50 Hydrocarbons)	2012/10/25				
		O-TERPHENYL (sur.)	2012/10/25				



O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Attention: Adam Wickman  
 Client Project #:  
 P.O. #:  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB293842

QA/QC Batch				Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
Num Init	QC Type	Parameter						
6286579	PN2	RPD	Reached Baseline at C50	2012/10/25	NC		%	50
<p>N/A = Not Applicable</p> <p>Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.</p> <p>Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.</p> <p>QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.</p> <p>Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.</p> <p>Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.</p> <p>Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.</p> <p>NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.</p>								



**Validation Signature Page****Maxxam Job #: B293842**

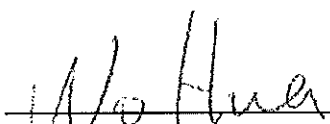
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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Andy Lu, Data Validation Coordinator



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Hua Wo, Organics Supervisor

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.







[illegible]

Figure 2.3.2.1

Report Group: 020 (E-Mail)

ackemurkkan@proton.com

**REGULATORY GUIDELINES**

☐ 211

☒ 212 *low*

☐ 213 *Regulated Controlling Agent*

☐ 214

**SUNCOR**  
ENERGY

Soil		Water		Other Analysis		# of Cancellations Submitted
Sample	Analysis	Sample	Analysis	Sample	Analysis	
10-10	X	10-10	X	10-10	X	1
10-15	X	10-15	X	10-15	X	1
10-20	X	10-20	X	10-20	X	2
10-25	X	10-25	X	10-25	X	2
10-30	X	10-30	X	10-30	X	2
10-35	X	10-35	X	10-35	X	2
10-40	X	10-40	X	10-40	X	2
10-45	X	10-45	X	10-45	X	2
10-50	X	10-50	X	10-50	X	2
10-55	X	10-55	X	10-55	X	2
10-60	X	10-60	X	10-60	X	2
10-65	X	10-65	X	10-65	X	2
10-70	X	10-70	X	10-70	X	2
10-75	X	10-75	X	10-75	X	2
10-80	X	10-80	X	10-80	X	2
10-85	X	10-85	X	10-85	X	2
10-90	X	10-90	X	10-90	X	2
10-95	X	10-95	X	10-95	X	2
11-00	X	11-00	X	11-00	X	2
11-05	X	11-05	X	11-05	X	2
11-10	X	11-10	X	11-10	X	2
11-15	X	11-15	X	11-15	X	2
11-20	X	11-20	X	11-20	X	2
11-25	X	11-25	X	11-25	X	2
11-30	X	11-30	X	11-30	X	2
11-35	X	11-35	X	11-35	X	2
11-40	X	11-40	X	11-40	X	2
11-45	X	11-45	X	11-45	X	2
11-50	X	11-50	X	11-50	X	2
11-55	X	11-55	X	11-55	X	2
11-60	X	11-60	X	11-60	X	2
11-65	X	11-65	X	11-65	X	2
11-70	X	11-70	X	11-70	X	2
11-75	X	11-75	X	11-75	X	2
11-80	X	11-80	X	11-80	X	2
11-85	X	11-85	X	11-85	X	2
11-90	X	11-90	X	11-90	X	2
11-95	X	11-95	X	11-95	X	2
12-00	X	12-00	X	12-00	X	2
12-05	X	12-05	X	12-05	X	2
12-10	X	12-10	X	12-10	X	2
12-15	X	12-15	X	12-15	X	2
12-20	X	12-20	X	12-20	X	2
12-25	X	12-25	X	12-25	X	2
12-30	X	12-30	X	12-30	X	2
12-35	X	12-35	X	12-35	X	2
12-40	X	12-40	X	12-40	X	2
12-45	X	12-45	X	12-45	X	2
12-50	X	12-50	X	12-50	X	2
12-55	X	12-55	X	12-55	X	2
12-60	X	12-60	X	12-60	X	2
12-65	X	12-65	X	12-65	X	2
12-70	X	12-70	X	12-70	X	2
12-75	X	12-75	X	12-75	X	2
12-80	X	12-80	X	12-80	X	2
12-85	X	12-85	X	12-85	X	2
12-90	X	12-90	X	12-90	X	2
12-95	X	12-95	X	12-95	X	2
13-00	X	13-00	X	13-00	X	2
13-05	X	13-05	X	13-05	X	2
13-10	X	13-10	X	13-10	X	2
13-15						

DOWNSTREAM ☒

208 St Annes Road

Winnipeg, Manitoba

63955

Senior Surfer Adviser.

☐ ☒

Other

UPSTREAM	
SEP	
School	
APE	
APC	
Senior Summer Advisor	
Vice-Morgan	Sen Peters
Morgan Brown	Jim Scott
Other	

Please indicate Filtered, Preserved or Both: F, P, F/P

PERSONNEL: SPECIALIST <i>W. L. [unclear] Allen, Burke, Amick</i> SPECIALIST: SPECIALIST	SEE PAVAGE 12/10/17 SEE PAVAGE	TIME: 11:00 11:00 TIME: 11:00
Special Instructions Headpiece may be present, please proceed with analysis.		# OF DAYS Jailed & Not Released 38

LAB USE ONLY			
Received By:	Date:	Time:	Weight and
71	11/11/04		Quantity and Description
Lab Comments:			

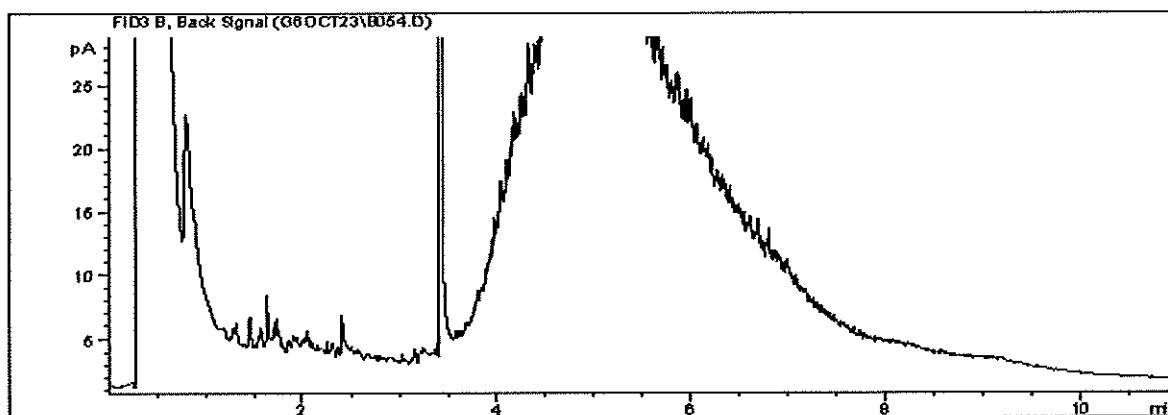


Report Date: 2012/10/25  
Maxxam Job #: B293842  
Maxxam Sample: ET5009

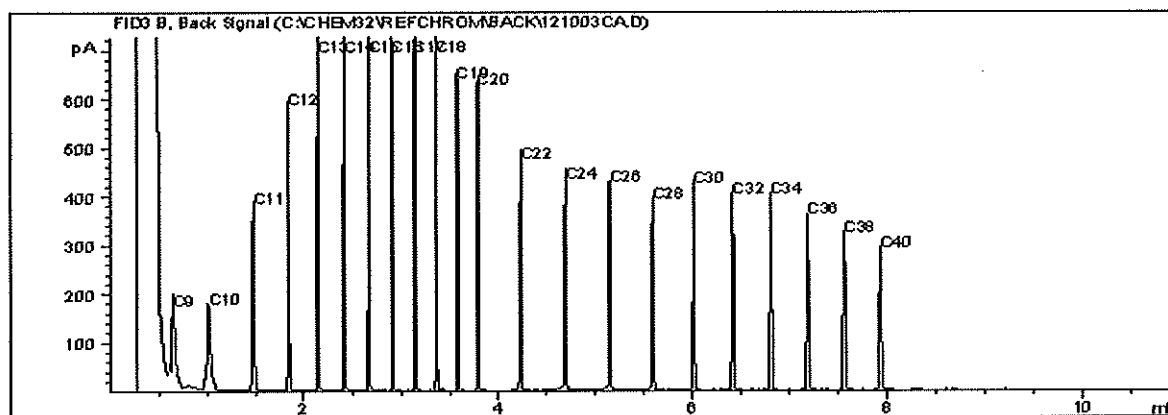
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-30-1.2-1.8

# CCME Hydrocarbons (F2-F4 In soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

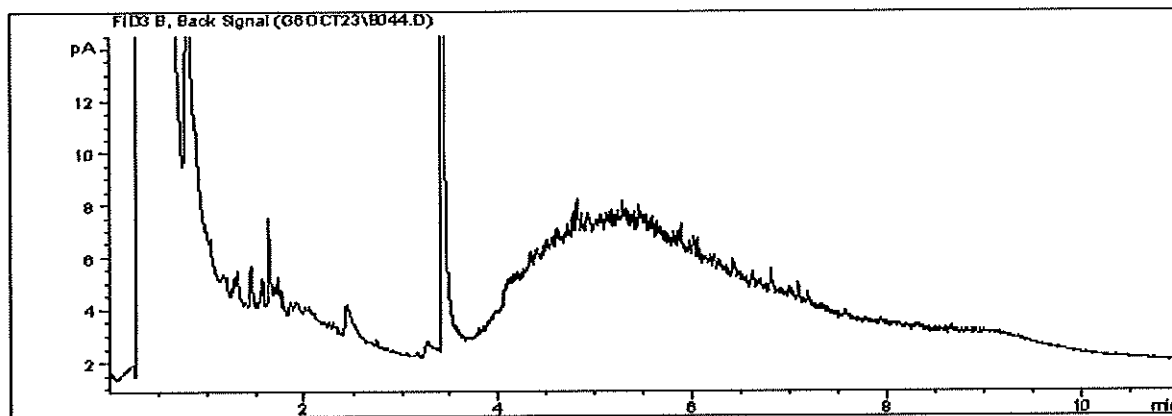


Report Date: 2012/10/25  
Maxxam Job #: B293842  
Maxxam Sample: ET5010

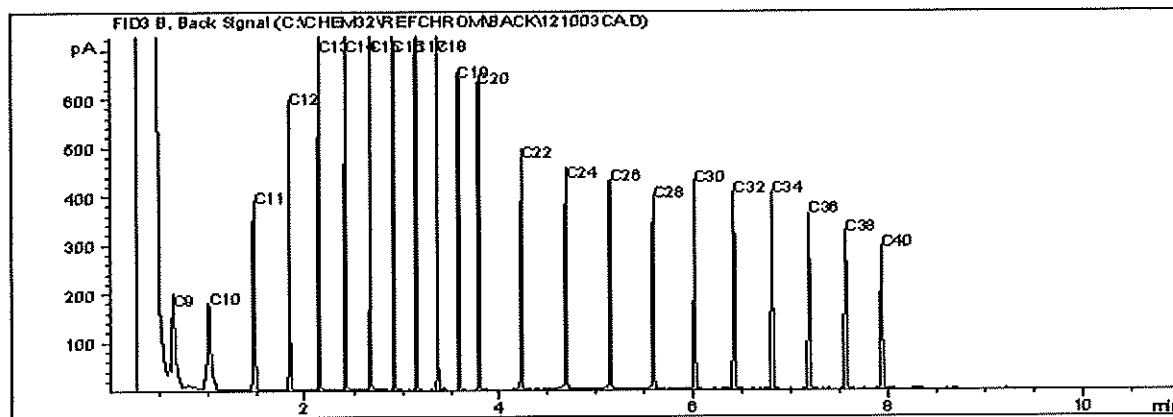
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-30-2.4-3.1

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

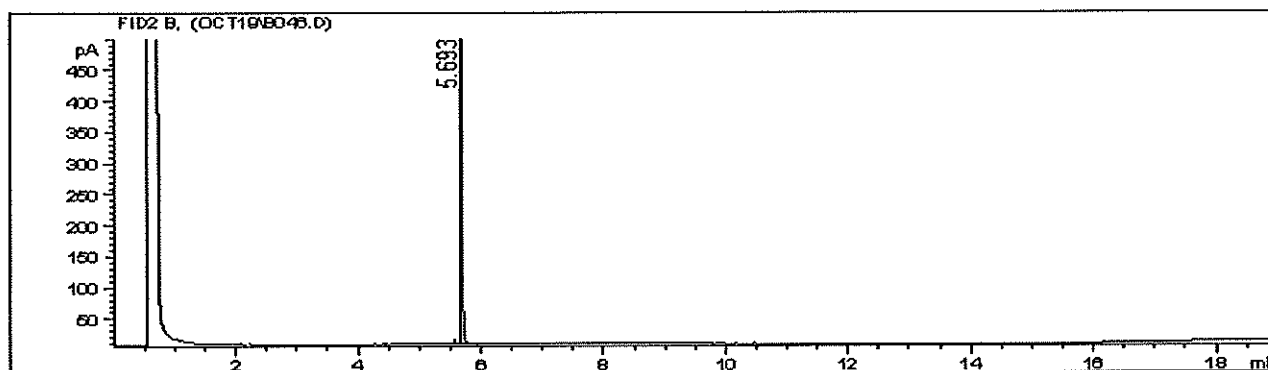


Report Date: 2012/10/25  
Maxxam Job #: B293842  
Maxxam Sample: ET5011

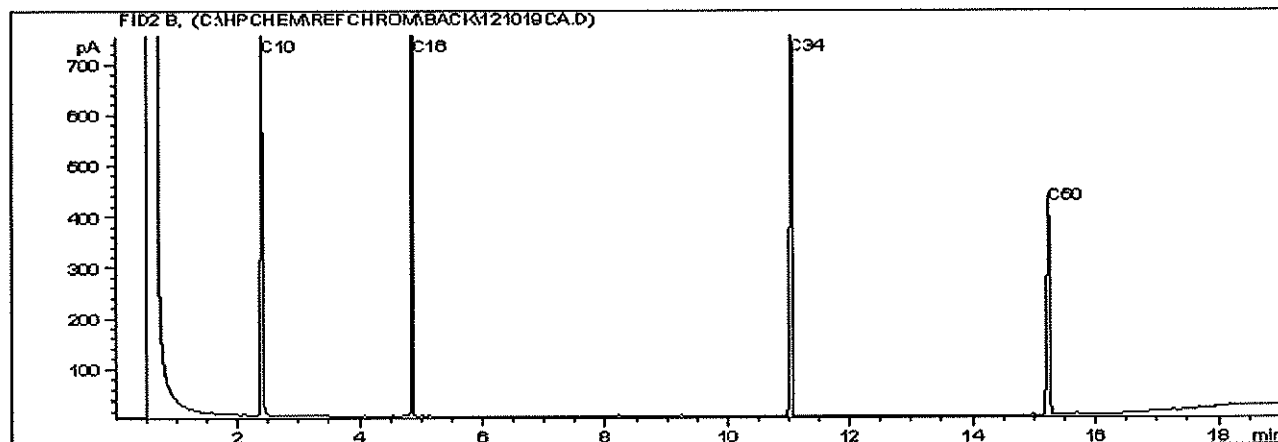
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-30-3.7-4.3

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

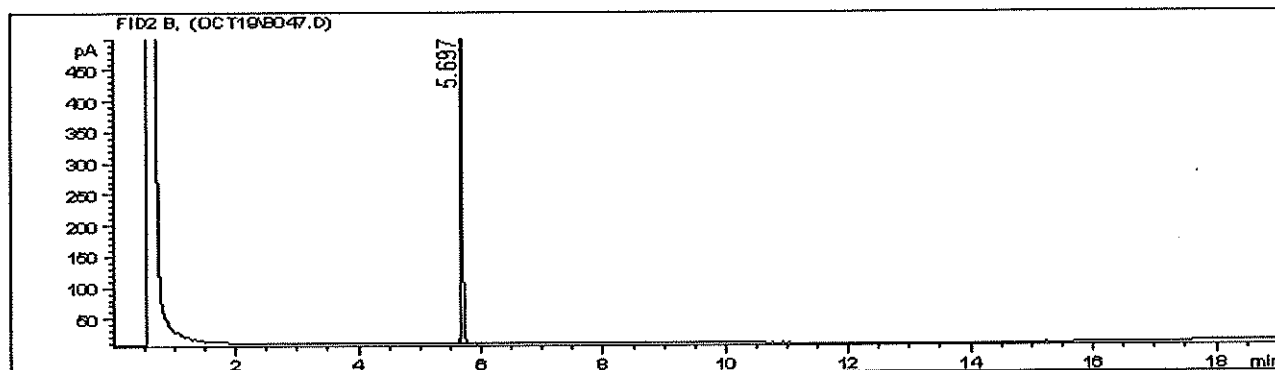


Report Date: 2012/10/25  
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 Maxxam Sample: ET5012

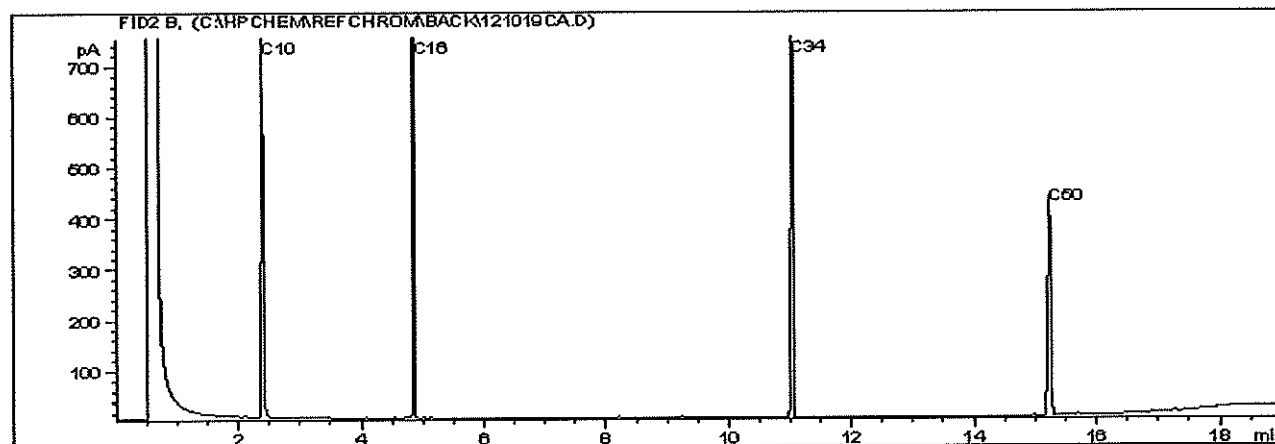
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-31-0.6-1.2

## CCME Hydrocarbons (F2-F4 In soil) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

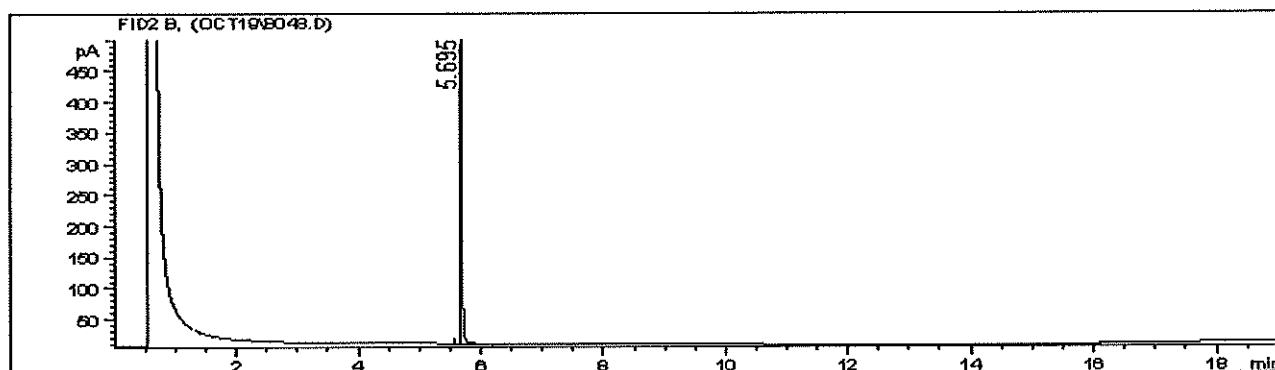


Report Date: 2012/10/25  
Maxxam Job #: B293842  
Maxxam Sample: ET5013

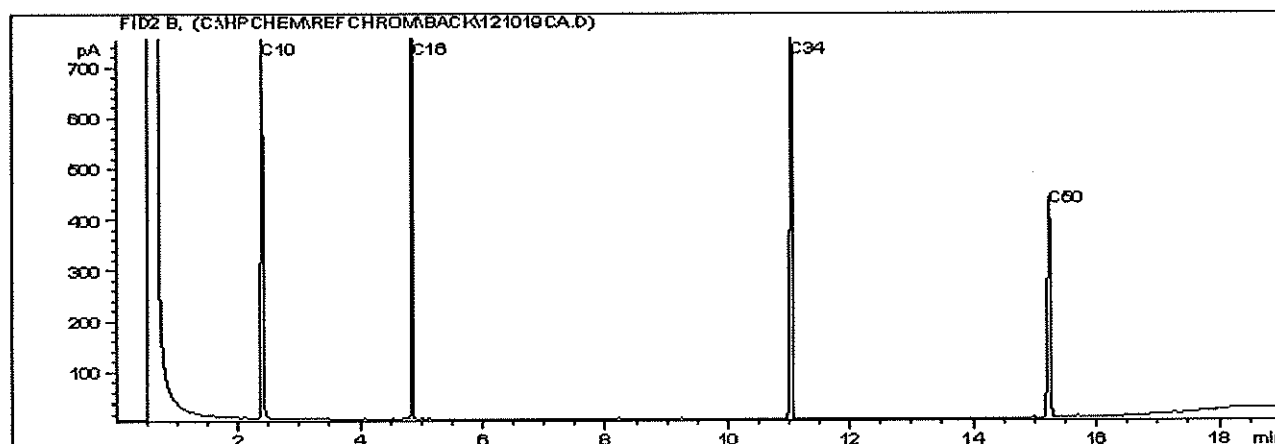
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-31-1.8-2.4

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

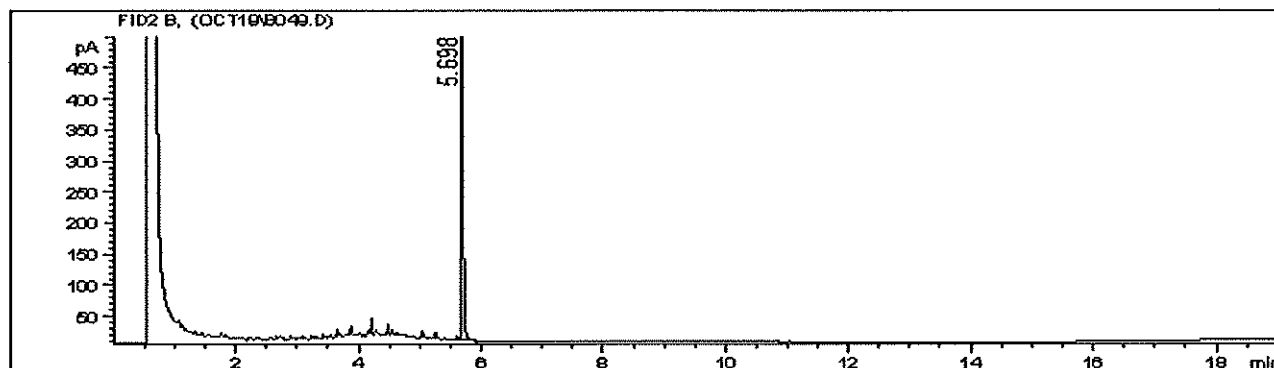


Report Date: 2012/10/25  
Maxxam Job #: B293842  
Maxxam Sample: ET5014

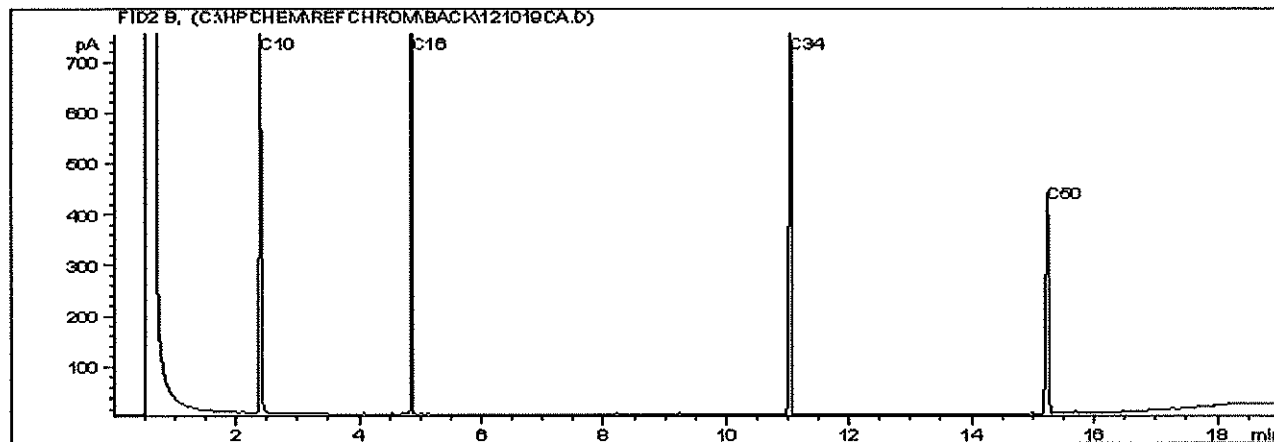
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-31-3.1-3.7

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

Page 1 of 1

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

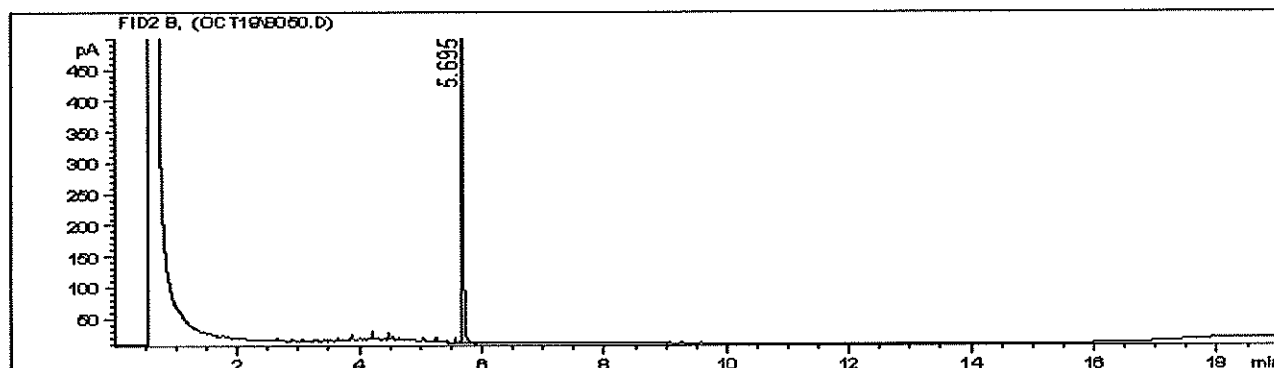


Report Date: 2012/10/25  
Maxxam Job #: B293842  
Maxxam Sample: ET5015

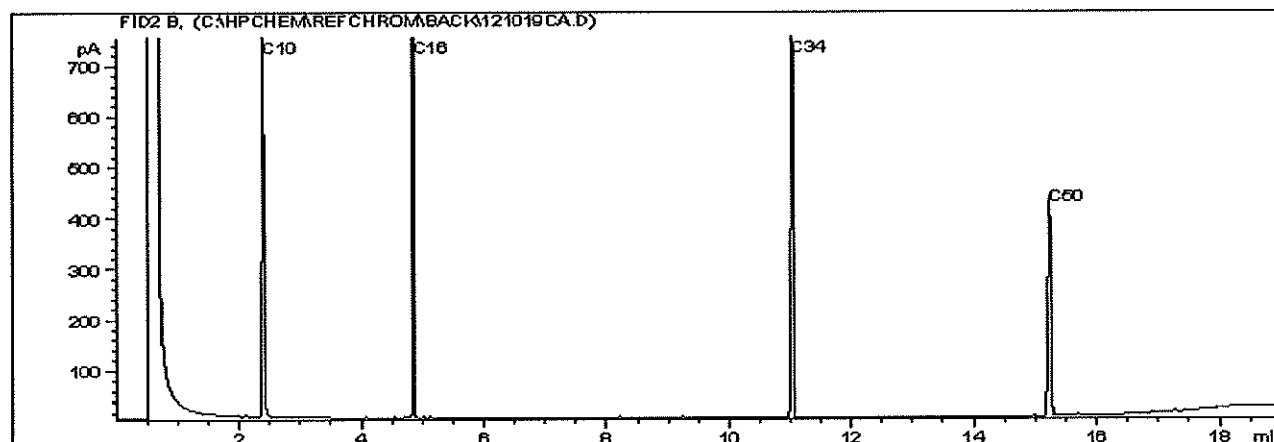
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-31-4.3-4.9

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

Page 1 of 1

**Note:** This Information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

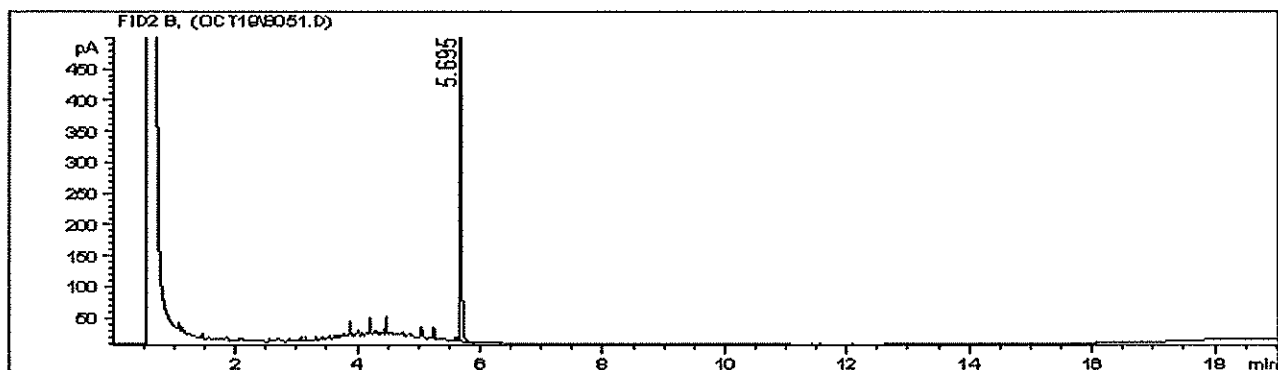


Report Date: 2012/10/25  
Maxxam Job #: B293842  
Maxxam Sample: ET5016

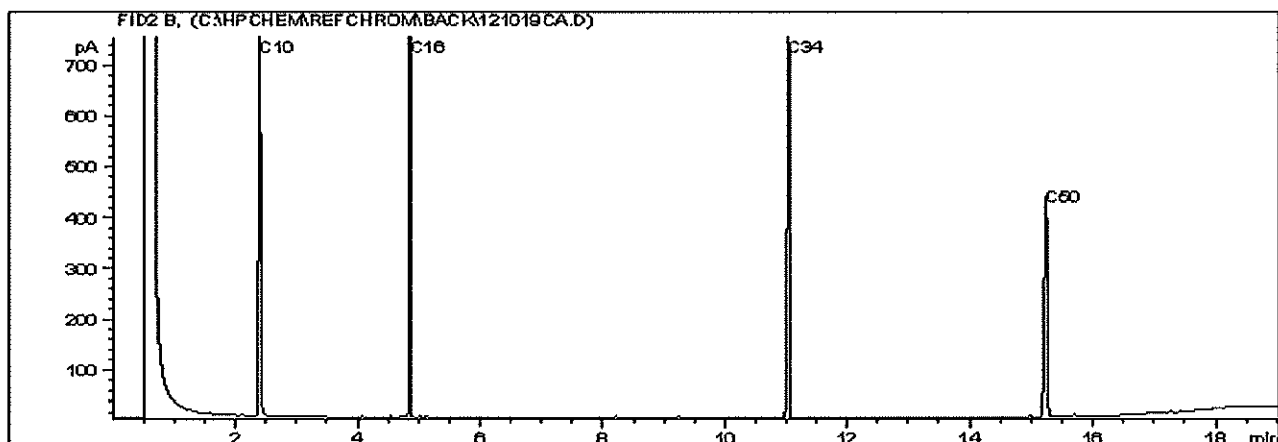
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-31

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



# DATA QUALITY REVIEW CHECKLIST

Consultant: Parsons

Sampling Date: 2012/10/16

Location: 208 St. Anne's Road, Winnipeg, MB

Laboratory : Maxxam Analytics, Winnipeg

Consultant Project Number: 10-1177.100

Sample Submission Number: B293842

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration			<i>X</i>	
Matrix Duplicate RPD	<i>X</i>			
Matrix Spike Recovery	<i>X</i>			
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<i>X</i>	<i>All field QC met alert limits.</i>
Trip Blank Concentration			<i>X</i>	
Field Duplicate RPD	<i>X</i>			

Has CoA been signed off (Yes/No)?:

Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?:

Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:

Yes

Were all samples analyzed within hold times (Yes/No)?:

Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:

Yes

Is Chain of Custody completed and signed (Yes/No)?:

Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?:

Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?:

No

Date Issued: \_\_\_\_\_

Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?:


Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-Naurocki

Review Date: 2013/02/21

Revision Date (if applicable): \_\_\_\_\_

Data Reviewed by (Signature): 

Revised by (Signature): \_\_\_\_\_



Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Your C.O.C. #: S008503

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

Report Date: 2012/10/25

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B293849**

**Received: 2012/10/17, 15:00**

Sample Matrix: Soil


# Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 by HS GC/MS (MeOH extract)	1	2012/10/17	2012/10/20	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCWS
BTEX/F1 by HS GC/MS (MeOH extract)	3	2012/10/18	2012/10/20	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCWS
BTEX/F1 by HS GC/MS (MeOH extract)	3	2012/10/19	2012/10/23	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCWS
CCME Hydrocarbons (F2-F4 in soil)	1	2012/10/17	2012/10/19	WINSOP-00056	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	3	2012/10/18	2012/10/19	WINSOP-00056	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in soil)	3	2012/10/19	2012/10/22	WINSOP-00056	CCME PHC-CWS
CCME Hydrocarbons (F4G in soil)	1	2012/10/17	2012/10/24		CCME PHC-CWS
Elements by ICPMS (total) (1)	4	2012/10/22	2012/10/23	BBY7SOP-00001	EPA 6020A
Elements by ICPMS (total) (1)	3	2012/10/23	2012/10/23	BBY7SOP-00001	EPA 6020A
Moisture	4	N/A	2012/10/19	WIN SOP-00060	Carter Method 51.2
Moisture	3	N/A	2012/10/22	WIN SOP-00060	Carter Method 51.2
pH (2:1 DI Water Extract) (1)	3	2012/10/23	2012/10/23	BBY6SOP-00028	Carter, SSMA 16.2
pH (2:1 DI Water Extract) (1)	4	2012/10/24	2012/10/24	BBY6SOP-00028	Carter, SSMA 16.2
VOCs in Soil by HS GC/MS (1)	5	2012/10/19	2012/10/22	BBY8-SOP-0009	EPA 8260C
VOCs in Soil by HS GC/MS (1)	2	2012/10/19	2012/10/23	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

**Encryption Key**

 Janelle Kochan  
26 Oct 2012 15:53:49 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
Email: JKochan@maxxam.ca  
Phone# (204) 772-7276 Ext:2209

=====



Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Your C.O.C. #: S008503

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

**Report Date: 2012/10/25**

**CERTIFICATE OF ANALYSIS**

-2-

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 2

Page 2 of 24



Maxxam Job #: B293849  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		ET5068		ET5069	ET5069		
Sampling Date		2012/10/16 11:45		2012/10/16 12:00	2012/10/16 12:00		
COC Number		S008503		S008503	S008503		
	UNITS	BH-32-1.2-1.8	QC Batch	BH-32-2.4-3.1	BH-32-2.4-3.1 Lab-Dup	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	12	6263346	28	N/A	0.3	6264203
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	130	6263340	<20	<20	20	6264179
F3 (C16-C34 Hydrocarbons)	mg/kg	310	6263340	<20	<20	20	6264179
F4 (C34-C50 Hydrocarbons)	mg/kg	2100	6263340	<20	<20	20	6264179
Reached Baseline at C50	mg/kg	No	6263340	Yes	Yes	N/A	6264179
<b>Volatiles</b>							
Benzene	mg/kg	0.075	6263271	<0.0050	<0.0050	0.0050	6264177
Toluene	mg/kg	0.046	6263271	<0.020	<0.020	0.020	6264177
Ethylbenzene	mg/kg	0.078	6263271	<0.010	<0.010	0.010	6264177
Xylenes (Total)	mg/kg	2.9	6263271	<0.040	<0.040	0.040	6264177
m & p-Xylene	mg/kg	2.6	6263271	<0.040	<0.040	0.040	6264177
o-Xylene	mg/kg	0.22	6263271	<0.020	<0.020	0.020	6264177
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	6263271	<0.10	<0.10	0.10	6264177
F1 (C6-C10) - BTEX	mg/kg	36	6263271	<10	<10	10	6264177
(C6-C10)	mg/kg	39	6263271	<10	<10	10	6264177
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	103	6263271	103	103	N/A	6264177
D10-ETHYLBENZENE (sur.)	%	113	6263271	110	103	N/A	6264177
D4-1,2-DICHLOROETHANE (sur.)	%	84	6263271	89	99	N/A	6264177
D8-TOLUENE (sur.)	%	106	6263271	108	103	N/A	6264177
O-TERPHENYL (sur.)	%	86	6263340	92	98	N/A	6264179
N/A = Not Applicable RDL = Reportable Detection Limit							



Maxxam Job #: B293849  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		ET5070	ET5071		ET5072		
Sampling Date		2012/10/16 12:15	2012/10/16 12:30		2012/10/16 12:30		
COC Number		S008503	S008503		S008503		
	UNITS	BH-32-3.7-4.3	BH-33-1.2-1.8	QC Batch	DUP-33	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	31	20	6264203	19	0.3	6269454
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	98	<20	6264179	<20	20	6269450
F3 (C16-C34 Hydrocarbons)	mg/kg	<20	24	6264179	<20	20	6269450
F4 (C34-C50 Hydrocarbons)	mg/kg	<20	<20	6264179	<20	20	6269450
Reached Baseline at C50	mg/kg	Yes	Yes	6264179	Yes	N/A	6269450
<b>Volatiles</b>							
Benzene	mg/kg	<0.0050	0.17	6264177	0.29	0.0050	6269408
Toluene	mg/kg	<0.020	<0.020	6264177	<0.020	0.020	6269408
Ethylbenzene	mg/kg	<0.010	0.18	6264177	0.26	0.010	6269408
Xylenes (Total)	mg/kg	<0.040	0.30	6264177	0.49	0.040	6269408
m & p-Xylene	mg/kg	<0.040	0.30	6264177	0.49	0.040	6269408
o-Xylene	mg/kg	<0.020	<0.020	6264177	<0.020	0.020	6269408
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	6264177	<0.10	0.10	6269408
F1 (C6-C10) - BTEX	mg/kg	<10	11	6264177	<10	10	6269408
(C6-C10)	mg/kg	<10	11	6264177	<10	10	6269408
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	102	101	6264177	102	N/A	6269408
D10-ETHYLBENZENE (sur.)	%	115	106	6264177	90	N/A	6269408
D4-1,2-DICHLOROETHANE (sur.)	%	80	86	6264177	140	N/A	6269408
D8-TOLUENE (sur.)	%	110	106	6264177	91	N/A	6269408
O-TERPHENYL (sur.)	%	93	89	6264179	91	N/A	6269450
N/A = Not Applicable RDL = Reportable Detection Limit							



Maxxam Job #: B293849  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		ET5072	ET5073	ET5074	ET5074		
Sampling Date		2012/10/16 12:30	2012/10/16 12:45	2012/10/16 13:00	2012/10/16 13:00		
COC Number		S008503	S008503	S008503	S008503		
	UNITS	DUP-33 Lab-Dup	BH-33-2.4-3.1	BH-33-3.7-4.3	BH-33-3.7-4.3 Lab-Dup	RDL	QC Batch

<b>Physical Properties</b>							
Moisture	%	N/A	32	35	35	0.3	6269454
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	<20	<20	<20	N/A	20	6269450
F3 (C16-C34 Hydrocarbons)	mg/kg	<20	<20	<20	N/A	20	6269450
F4 (C34-C50 Hydrocarbons)	mg/kg	<20	<20	<20	N/A	20	6269450
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	N/A	N/A	6269450
<b>Volatiles</b>							
Benzene	mg/kg	0.25	0.013	<0.0050	N/A	0.0050	6269408
Toluene	mg/kg	<0.020	<0.020	<0.020	N/A	0.020	6269408
Ethylbenzene	mg/kg	0.33	<0.010	<0.010	N/A	0.010	6269408
Xylenes (Total)	mg/kg	0.61	<0.040	<0.040	N/A	0.040	6269408
m & p-Xylene	mg/kg	0.61	<0.040	<0.040	N/A	0.040	6269408
o-Xylene	mg/kg	<0.020	<0.020	<0.020	N/A	0.020	6269408
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	N/A	0.10	6269408
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	N/A	10	6269408
(C6-C10)	mg/kg	<10	<10	<10	N/A	10	6269408
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	99	100	99	N/A	N/A	6269408
D10-ETHYLBENZENE (sur.)	%	115	113	115	N/A	N/A	6269408
D4-1,2-DICHLOROETHANE (sur.)	%	90	93	89	N/A	N/A	6269408
D8-TOLUENE (sur.)	%	105	103	105	N/A	N/A	6269408
O-TERPHENYL (sur.)	%	81	69	82	N/A	N/A	6269450
N/A = Not Applicable RDL = Reportable Detection Limit Lab-Dup = Laboratory Initiated Duplicate							



Maxxam Job #: B293849  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		ET5068	ET5069	ET5070	ET5071		
Sampling Date		2012/10/16 11:45	2012/10/16 12:00	2012/10/16 12:15	2012/10/16 12:30		
COC Number		S008503	S008503	S008503	S008503		
	<b>UNITS</b>	<b>BH-32-1.2-1.8</b>	<b>BH-32-2.4-3.1</b>	<b>BH-32-3.7-4.3</b>	<b>BH-33-1.2-1.8</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>							
Soluble (2:1) pH	pH Units	8.41	8.42	9.37	8.78	0.010	6275444

RDL = Reportable Detection Limit

Maxxam ID		ET5072	ET5073	ET5074		
Sampling Date		2012/10/16 12:30	2012/10/16 12:45	2012/10/16 13:00		
COC Number		S008503	S008503	S008503		
	<b>UNITS</b>	<b>DUP-33</b>	<b>BH-33-2.4-3.1</b>	<b>BH-33-3.7-4.3</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Physical Properties</b>						
Soluble (2:1) pH	pH Units	8.60	8.21	8.04	0.010	6280960

RDL = Reportable Detection Limit



Maxxam Job #: B293849  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		ET5068		
Sampling Date		2012/10/16 11:45		
COC Number		S008503		
	UNITS	BH-32-1.2-1.8	RDL	QC Batch

Ext. Pet. Hydrocarbon				
F4G-SG (Heavy Hydrocarbons-Grav.)	mg/kg	10000	500	6282156
RDL = Reportable Detection Limit				



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Maxxam Job #: B293849  
Report Date: 2012/10/25

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

## ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		ET5068	ET5069	ET5070	ET5071		
Sampling Date		2012/10/16 11:45	2012/10/16 12:00	2012/10/16 12:15	2012/10/16 12:30		
COC Number		S008503	S008503	S008503	S008503		
	UNITS	BH-32-1.2-1.8	BH-32-2.4-3.1	BH-32-3.7-4.3	BH-33-1.2-1.8	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	19.6	14.4	9.57	7.01	0.10	6275439

RDL = Reportable Detection Limit

Maxxam ID		ET5072	ET5073	ET5074		
Sampling Date		2012/10/16 12:30	2012/10/16 12:45	2012/10/16 13:00		
COC Number		S008503	S008503	S008503		
	UNITS	DUP-33	BH-33-2.4-3.1	BH-33-3.7-4.3	RDL	QC Batch

Total Metals by ICPMS						
Total Lead (Pb)	mg/kg	6.40	16.1	15.5	0.10	6280956

RDL = Reportable Detection Limit



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Maxxam Job #: B293849  
Report Date: 2012/10/25

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AW

**VOLATILE ORGANICS BY GC-MS (SOIL)**

Maxxam ID		ET5068	ET5069	ET5070		ET5071		
Sampling Date		2012/10/16 11:45	2012/10/16 12:00	2012/10/16 12:15		2012/10/16 12:30		
COC Number		S008503	S008503	S008503		S008503		
	UNITS	BH-32-1.2-1.8	BH-32-2.4-3.1	BH-32-3.7-4.3	QC Batch	BH-33-1.2-1.8	RDL	QC Batch

<b>Volatiles</b>								
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	6275009	<0.025	0.025	6282437
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	6275009	<0.025	0.025	6282437

RDL = Reportable Detection Limit

Maxxam ID		ET5072		ET5073		ET5074		
Sampling Date		2012/10/16 12:30		2012/10/16 12:45		2012/10/16 13:00		
COC Number		S008503		S008503		S008503		
	UNITS	DUP-33	QC Batch	BH-33-2.4-3.1	QC Batch	BH-33-3.7-4.3	RDL	QC Batch

<b>Volatiles</b>								
1,2-dichloroethane	mg/kg	<0.025	6275009	<0.025	6282437	<0.025	0.025	6275009
1,2-dibromoethane	mg/kg	<0.025	6275009	<0.025	6282437	<0.025	0.025	6275009

RDL = Reportable Detection Limit



Maxxam Job #: B293849  
Report Date: 2012/10/25

O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
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Package 1	6.2°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB293849

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6263271 HW4	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2012/10/20		101	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/20		110	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/20		82	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/20		108	%	60 - 140
		Benzene	2012/10/20		98	%	60 - 140
		Toluene	2012/10/20		102	%	60 - 140
		Ethylbenzene	2012/10/20		115	%	60 - 140
		m & p-Xylene	2012/10/20		111	%	60 - 140
		o-Xylene	2012/10/20		105	%	60 - 140
		Methyl-tert-butylether (MTBE)	2012/10/20		84	%	60 - 140
		(C6-C10)	2012/10/20		116	%	60 - 140
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/10/20		101	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/20		109	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/20		83	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/20		107	%	60 - 140
		Benzene	2012/10/20		97	%	60 - 140
		Toluene	2012/10/20		100	%	60 - 140
		Ethylbenzene	2012/10/20		113	%	60 - 140
		m & p-Xylene	2012/10/20		109	%	60 - 140
		o-Xylene	2012/10/20		103	%	60 - 140
		Methyl-tert-butylether (MTBE)	2012/10/20		83	%	60 - 140
		(C6-C10)	2012/10/20		87	%	60 - 140
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/10/20		103	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/20		107	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/20		89	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/20		106	%	60 - 140
		Benzene	2012/10/20	<0.0050		mg/kg	
		Toluene	2012/10/20	<0.020		mg/kg	
		Ethylbenzene	2012/10/20	<0.010		mg/kg	
		Xylenes (Total)	2012/10/20	<0.040		mg/kg	
		m & p-Xylene	2012/10/20	<0.040		mg/kg	
		o-Xylene	2012/10/20	<0.020		mg/kg	
		Methyl-tert-butylether (MTBE)	2012/10/20	<0.10		mg/kg	
		F1 (C6-C10) - BTEX	2012/10/20	<10		mg/kg	
		(C6-C10)	2012/10/20	<10		mg/kg	
	RPD	Benzene	2012/10/20	NC		%	50
		Toluene	2012/10/20	NC		%	50
		Ethylbenzene	2012/10/20	NC		%	50
		Xylenes (Total)	2012/10/20	NC		%	50
		m & p-Xylene	2012/10/20	NC		%	50
		o-Xylene	2012/10/20	NC		%	50
		Methyl-tert-butylether (MTBE)	2012/10/20	NC		%	N/A
		F1 (C6-C10) - BTEX	2012/10/20	NC		%	50
		(C6-C10)	2012/10/20	NC		%	50
6263340 HW4	Matrix Spike	O-TERPHENYL (sur.)	2012/10/19		76	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/19		81	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2012/10/19		87	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2012/10/19		96	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2012/10/19		79	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/19		86	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2012/10/19		92	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2012/10/19		92	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2012/10/19		86	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/19	<20		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2012/10/19	<20		mg/kg	



O'CONNOR ASSOCIATES ENVIRONMENTAL  
Attention: Adam Wickman  
Client Project #:  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB293849

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6263340 HW4	Method Blank	F4 (C34-C50 Hydrocarbons)	2012/10/19	<20		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2012/10/19	NC		%	50
		F3 (C16-C34 Hydrocarbons)	2012/10/19	NC		%	50
		F4 (C34-C50 Hydrocarbons)	2012/10/19	NC		%	50
6263346 ML8	Method Blank	Moisture	2012/10/19	<0.3		%	
	RPD	Moisture	2012/10/19	12.6		%	20
6264177 HW4	Matrix Spike [ET5070-01]	4-BROMOFLUOROBENZENE (sur.)	2012/10/19		100	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/19		116	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/19		86	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/19		106	%	60 - 140
		Benzene	2012/10/19		106	%	60 - 140
		Toluene	2012/10/19		107	%	60 - 140
		Ethylbenzene	2012/10/19		123	%	60 - 140
		m & p-Xylene	2012/10/19		117	%	60 - 140
		o-Xylene	2012/10/19		111	%	60 - 140
		Methyl-tert-butylether (MTBE)	2012/10/19		89	%	60 - 140
		(C6-C10)	2012/10/19		86	%	60 - 140
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/10/19		101	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/19		100	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/19		92	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/19		84	%	60 - 140
		Benzene	2012/10/19		98	%	60 - 140
		Toluene	2012/10/19		92	%	60 - 140
		Ethylbenzene	2012/10/19		102	%	60 - 140
		m & p-Xylene	2012/10/19		99	%	60 - 140
		o-Xylene	2012/10/19		96	%	60 - 140
		Methyl-tert-butylether (MTBE)	2012/10/19		85	%	60 - 140
		(C6-C10)	2012/10/19		123	%	60 - 140
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/10/19		100	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/19		97	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/19		103	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/19		81	%	60 - 140
		Benzene	2012/10/19	<0.0050		mg/kg	
		Toluene	2012/10/19	<0.020		mg/kg	
		Ethylbenzene	2012/10/19	<0.010		mg/kg	
		Xylenes (Total)	2012/10/19	<0.040		mg/kg	
		m & p-Xylene	2012/10/19	<0.040		mg/kg	
		o-Xylene	2012/10/19	<0.020		mg/kg	
		Methyl-tert-butylether (MTBE)	2012/10/19	<0.10		mg/kg	
		F1 (C6-C10) - BTEX	2012/10/19	<10		mg/kg	
		(C6-C10)	2012/10/19	<10		mg/kg	
	RPD [ET5069-01]	Benzene	2012/10/20	NC		%	50
		Toluene	2012/10/20	NC		%	50
		Ethylbenzene	2012/10/20	NC		%	50
		Xylenes (Total)	2012/10/20	NC		%	50
		m & p-Xylene	2012/10/20	NC		%	50
		o-Xylene	2012/10/20	NC		%	50
		Methyl-tert-butylether (MTBE)	2012/10/20	NC		%	N/A
		F1 (C6-C10) - BTEX	2012/10/20	NC		%	50
		(C6-C10)	2012/10/20	NC		%	50
6264179 HW4	Matrix Spike [ET5070-01]	O-TERPHENYL (sur.)	2012/10/19		84	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/19		99	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2012/10/19		99	%	50 - 130



O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB293849

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6264179 HW4	Matrix Spike [ET5070-01]	F4 (C34-C50 Hydrocarbons)	2012/10/19		95	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2012/10/19		81	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/19		98	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2012/10/19		95	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2012/10/19		88	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2012/10/18		105	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/18	<20		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2012/10/18	<20		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2012/10/18	<20		mg/kg	
	RPD [ET5069-01]	F2 (C10-C16 Hydrocarbons)	2012/10/19	NC		%	50
		F3 (C16-C34 Hydrocarbons)	2012/10/19	NC		%	50
		F4 (C34-C50 Hydrocarbons)	2012/10/19	NC		%	50
6264203 CD3	Method Blank	Moisture	2012/10/19	<0.3		%	
	RPD	Moisture	2012/10/19	1.0		%	20
6269408 HW4	Matrix Spike [ET5073-01]	4-BROMOFLUOROBENZENE (sur.)	2012/10/23		100	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/23		111	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/23		96	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/23		103	%	60 - 140
		Benzene	2012/10/23		109	%	60 - 140
		Toluene	2012/10/23		107	%	60 - 140
		Ethylbenzene	2012/10/23		119	%	60 - 140
		m & p-Xylene	2012/10/23		115	%	60 - 140
		o-Xylene	2012/10/23		111	%	60 - 140
		Methyl-tert-butylether (MTBE)	2012/10/23		99	%	60 - 140
		(C6-C10)	2012/10/23		109	%	60 - 140
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2012/10/23		101	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/23		107	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/23		86	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/23		106	%	60 - 140
		Benzene	2012/10/23		100	%	60 - 140
		Toluene	2012/10/23		100	%	60 - 140
		Ethylbenzene	2012/10/23		113	%	60 - 140
		m & p-Xylene	2012/10/23		109	%	60 - 140
		o-Xylene	2012/10/23		104	%	60 - 140
		Methyl-tert-butylether (MTBE)	2012/10/23		88	%	60 - 140
		(C6-C10)	2012/10/23		111	%	60 - 140
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2012/10/23		100	%	60 - 140
		D10-ETHYLBENZENE (sur.)	2012/10/23		109	%	30 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2012/10/23		87	%	60 - 140
		D8-TOLUENE (sur.)	2012/10/23		106	%	60 - 140
		Benzene	2012/10/23	<0.0050		mg/kg	
		Toluene	2012/10/23	<0.020		mg/kg	
		Ethylbenzene	2012/10/23	<0.010		mg/kg	
		Xylenes (Total)	2012/10/23	<0.040		mg/kg	
		m & p-Xylene	2012/10/23	<0.040		mg/kg	
		o-Xylene	2012/10/23	<0.020		mg/kg	
		Methyl-tert-butylether (MTBE)	2012/10/23	<0.10		mg/kg	
		F1 (C6-C10) - BTEX	2012/10/23	<10		mg/kg	
		(C6-C10)	2012/10/23	<10		mg/kg	
	RPD [ET5072-01]	Benzene	2012/10/23	13.0		%	50
		Toluene	2012/10/23	NC		%	50
		Ethylbenzene	2012/10/23	23.1		%	50
		Xylenes (Total)	2012/10/23	20.4		%	50



O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB293849

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6269408 HW4	RPD [ET5072-01]	m & p-Xylene	2012/10/23	20.4		%	50
		o-Xylene	2012/10/23	NC		%	50
		Methyl-tert-butylether (MTBE)	2012/10/23	NC		%	N/A
		F1 (C6-C10) - BTEX	2012/10/23	NC		%	50
		(C6-C10)	2012/10/23	NC		%	50
6269450 HW4	Matrix Spike [ET5073-01]	O-TERPHENYL (sur.)	2012/10/22		80	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/22		97	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2012/10/22		104	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2012/10/22		107	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2012/10/22		86	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/22		95	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2012/10/22		99	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2012/10/22		100	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2012/10/22		91	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2012/10/22	<20		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2012/10/22	<20		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2012/10/22	<20		mg/kg	
	RPD [ET5072-01]	F2 (C10-C16 Hydrocarbons)	2012/10/22	NC		%	50
		F3 (C16-C34 Hydrocarbons)	2012/10/22	NC		%	50
		F4 (C34-C50 Hydrocarbons)	2012/10/22	NC		%	50
6269454 ML8	Method Blank	Moisture	2012/10/22	<0.3		%	
	RPD [ET5074-01]	Moisture	2012/10/22	0.3		%	20
6275009 AC2	Matrix Spike	1,2-dichloroethane	2012/10/22		116	%	60 - 140
		1,2-dibromoethane	2012/10/22		118	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2012/10/22		105	%	60 - 140
		1,2-dibromoethane	2012/10/22		101	%	60 - 140
	Method Blank	1,2-dichloroethane	2012/10/22	<0.025		mg/kg	
		1,2-dibromoethane	2012/10/22	<0.025		mg/kg	
	RPD	1,2-dichloroethane	2012/10/22	NC		%	40
6275439 DJ	Matrix Spike	Total Lead (Pb)	2012/10/23		96	%	75 - 125
	QC Standard	Total Lead (Pb)	2012/10/23		99	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2012/10/23		99	%	75 - 125
	Method Blank	Total Lead (Pb)	2012/10/23	<0.10		mg/kg	
	RPD	Total Lead (Pb)	2012/10/23	0.2		%	35
6275444 NS6	Spiked Blank	Soluble (2:1) pH	2012/10/24		102	%	96 - 104
	RPD	Soluble (2:1) pH	2012/10/24	2.7		%	20
6280956 DJ	Matrix Spike	Total Lead (Pb)	2012/10/23		95	%	75 - 125
	QC Standard	Total Lead (Pb)	2012/10/23		95	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2012/10/23		100	%	75 - 125
	Method Blank	Total Lead (Pb)	2012/10/23	<0.10		mg/kg	
	RPD	Total Lead (Pb)	2012/10/23	1.1		%	35
6280960 NS6	Spiked Blank	Soluble (2:1) pH	2012/10/23		102	%	96 - 104
	RPD	Soluble (2:1) pH	2012/10/23	0.7		%	20
6282156 CD3	Spiked Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2012/10/24		117	%	70 - 130
	Method Blank	F4G-SG (Heavy Hydrocarbons-Grav.)	2012/10/24	<500		mg/kg	
	RPD	F4G-SG (Heavy Hydrocarbons-Grav.)	2012/10/24	NC		%	50
6282437 KPA	Matrix Spike	1,2-dichloroethane	2012/10/24		82	%	60 - 140
		1,2-dibromoethane	2012/10/24		88	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2012/10/23		85	%	60 - 140
		1,2-dibromoethane	2012/10/23		85	%	60 - 140
	Method Blank	1,2-dichloroethane	2012/10/23	<0.025		mg/kg	
		1,2-dibromoethane	2012/10/23	<0.025		mg/kg	
	RPD	1,2-dichloroethane	2012/10/24	NC		%	40
		1,2-dibromoethane	2012/10/24	NC		%	40



O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #:

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB293849

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.



**Validation Signature Page**

Maxxam Job #: B293849


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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




---

Andy Lu, Data Validation Coordinator




---

Hua Wo, Organics Supervisor

---

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



# Maxxam

Maxxam Analytical International Corporation  
 675 Berry Street, Winnipeg, MB, R3H 1A7, Tel: (204) 772-7276, Fax: (204) 772-2386  
 www.maxxam.ca

## CHAIN OF CUSTODY for SUNCOR ENERGY

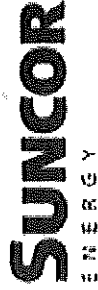
8008503

Page 1

Consulting Company: Parsons  
 Contact: Adam Wickens  
 Address: 7 Terrace Place, Winnipeg, Manitoba  
 Contact Tel: 204-468-2844 Ext: N/A  
 Project ID: 10-1177-100  
 Sample By: Adam Kowalski

Report Distribution (E-Mail):  
adam.wickens@parsons.com  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

REGULATORY GUIDELINES:  
☐ ATN  
☒ CCME Low  
☐ Regulatory Drinking Water  
☐ Other



SERVICE REQUESTED:  
☐ RUSH (Contacted 10 days prior)  
☐ 2 DAY  
☐ 3 DAY  
☐ SAME DAY  
 Date Required: \_\_\_\_\_  
☒ REGULAR (5 Days)

DOWNSTREAM ☒  
 Site Address: 308 St Anne Road  
 Site City Prov: Winnipeg, Manitoba  
 Order Number: 63955  
 Maximum No. of Containers: 2  
 Senior Suncor Advisor: \_\_\_\_\_  
 Brian Holmes ☐ Rick Lemone ☒  
 Other: \_\_\_\_\_

Sample ID	Date Time Sampled	Depth	Depth	SOIL				WATER				Other Analysis		# of Containers Submitted
				DIEX FI-PA	Regulated Metals (CCME/ATN)	Regulated Metals (CCME/ATN)	Salinity A	DIEX FI-PA	DIEX FI-PA	DIEX FI-PA	DIEX FI-PA	Regulated Metals (CCME/ATN)	Regulated Metals (CCME/ATN)	
1 BH-33-12-1.8	12/10/16 11:45	m	Soil	X										2
2 BH-33-24-3.1	12/10/16 12:00	m	Soil	X										2
3 BH-33-37-4.3	12/10/16 12:15	m	Soil	X										2
4 BH-33-12-1.8	12/10/16 12:30	m	Soil	X										2
5 DUP-33	12/10/16 12:30	m	Soil	X										2
6 BH-33-24-3.1	12/10/16 13:45	m	Soil	X										2
7 BH-33-37-4.3	12/10/16 13:00	m	Soil	X										2
8														
9														
10														
11														
12														

Please indicate Filtered, Preserved or Both (F, P, FB)

Received By: Maxxam Date: 12/10/17 Time: 11:00  
 Received By: Maxxam Date: 12/10/17 Time: 14:00

LAB USE ONLY  
 Received By: Maxxam Date: 12/10/17 Time: 14:00  
 Received By: Maxxam Date: 12/10/17 Time: 14:00

Special Instructions:  
Headphone may be present, please proceed with

Lab Comments:  
See above

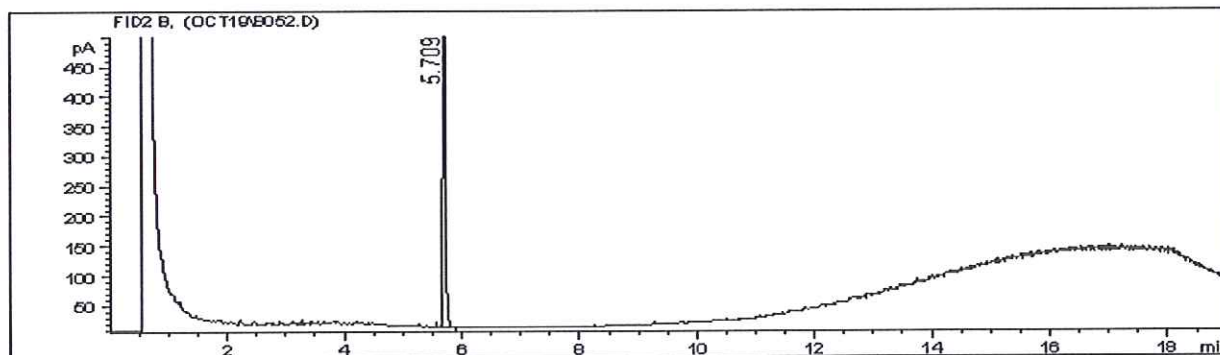


Report Date: 2012/10/25  
Maxxam Job #: B293849  
Maxxam Sample: ET5068

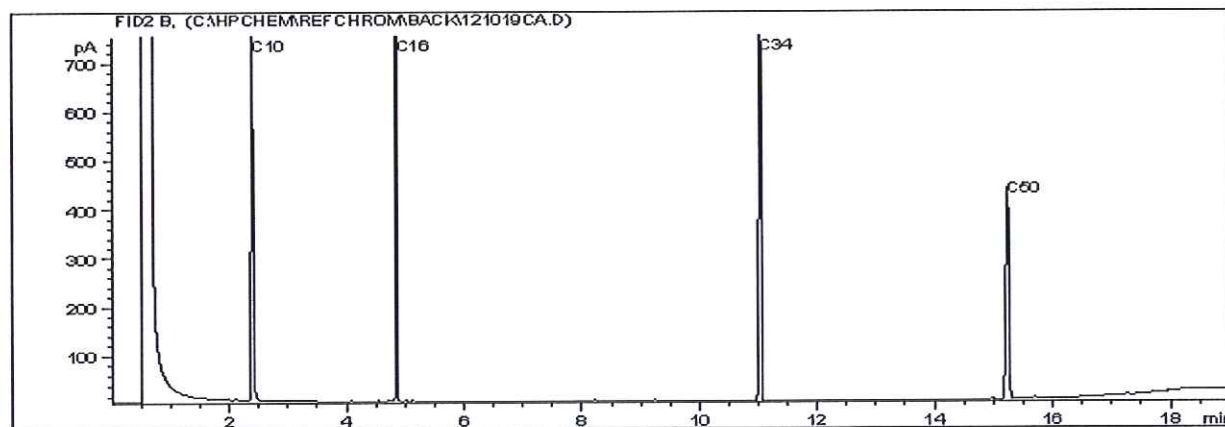
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG, M  
Client ID: BH-32-1.2-1.8

**CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



**TYPICAL PRODUCT CARBON NUMBER RANGES**

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

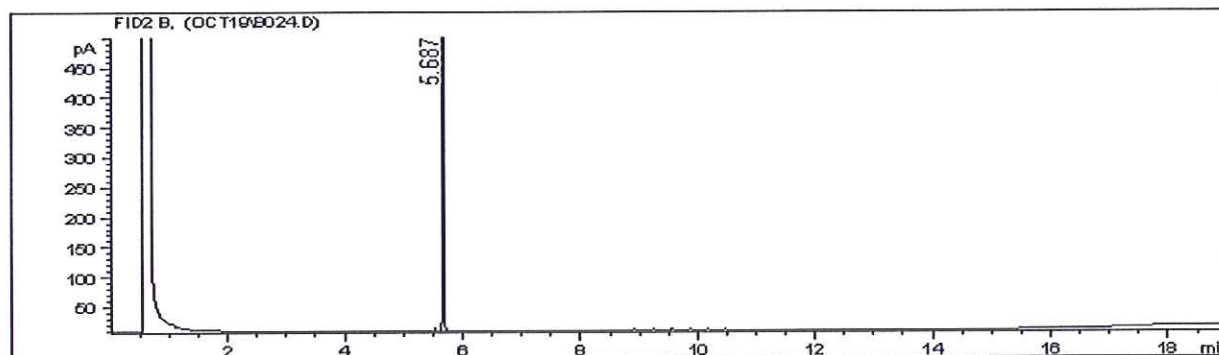


Report Date: 2012/10/25  
Maxxam Job #: B293849  
Maxxam Sample: ET5069

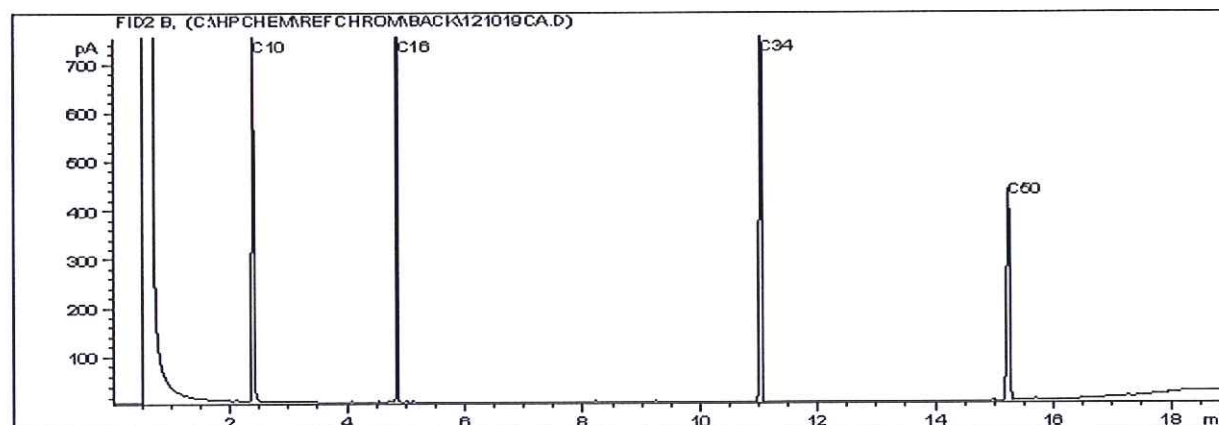
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG, M  
Client ID: BH-32-2.4-3.1

**CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



**Carbon Range Distribution - Reference Chromatogram**



**TYPICAL PRODUCT CARBON NUMBER RANGES**

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

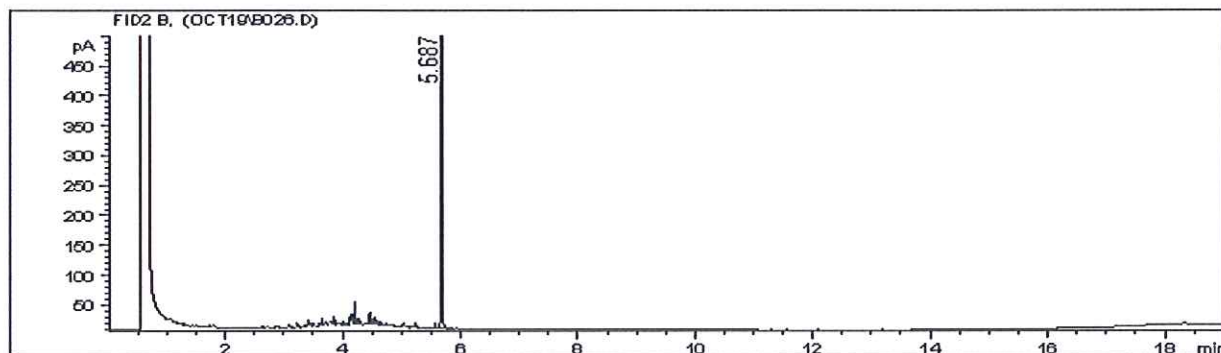


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Maxxam Job #: B293849  
Maxxam Sample: ET5070

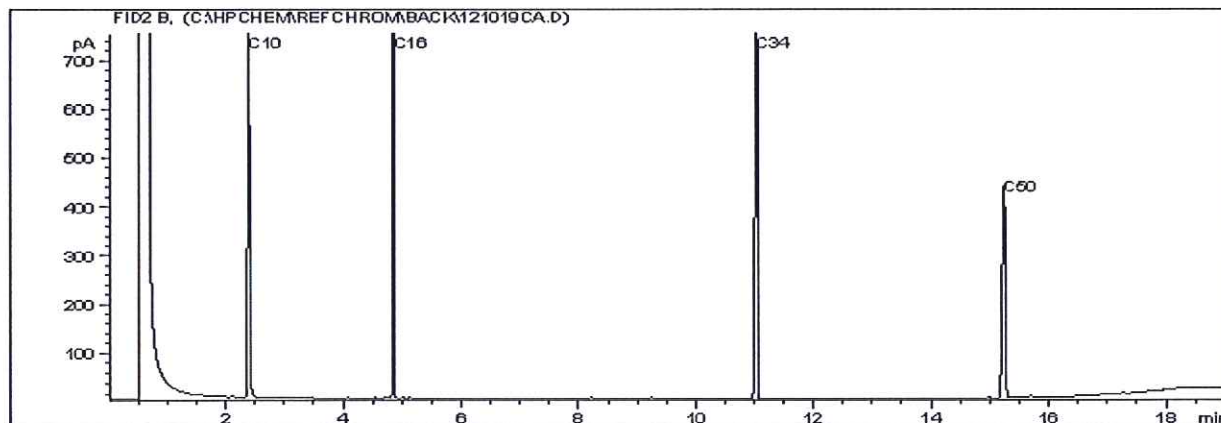
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG, M  
Client ID: BH-32-3.7-4.3

**CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



**Carbon Range Distribution - Reference Chromatogram**



**TYPICAL PRODUCT CARBON NUMBER RANGES**

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

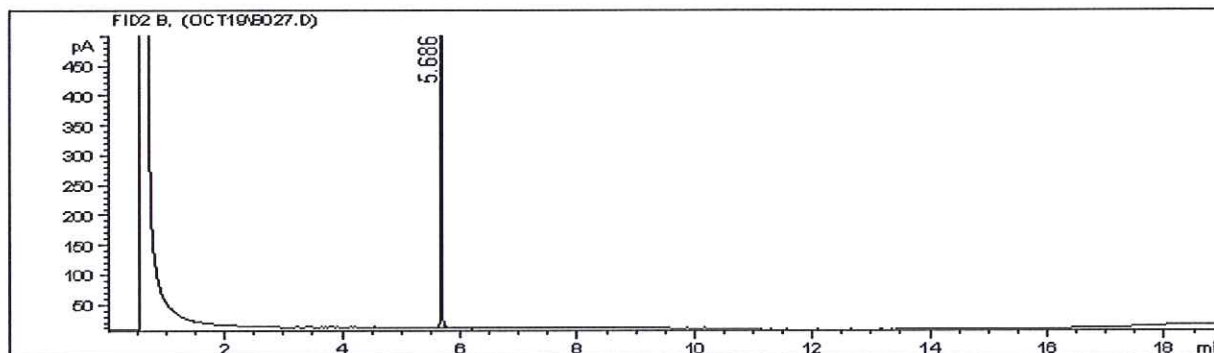


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Maxxam Job #: B293849  
Maxxam Sample: ET5071

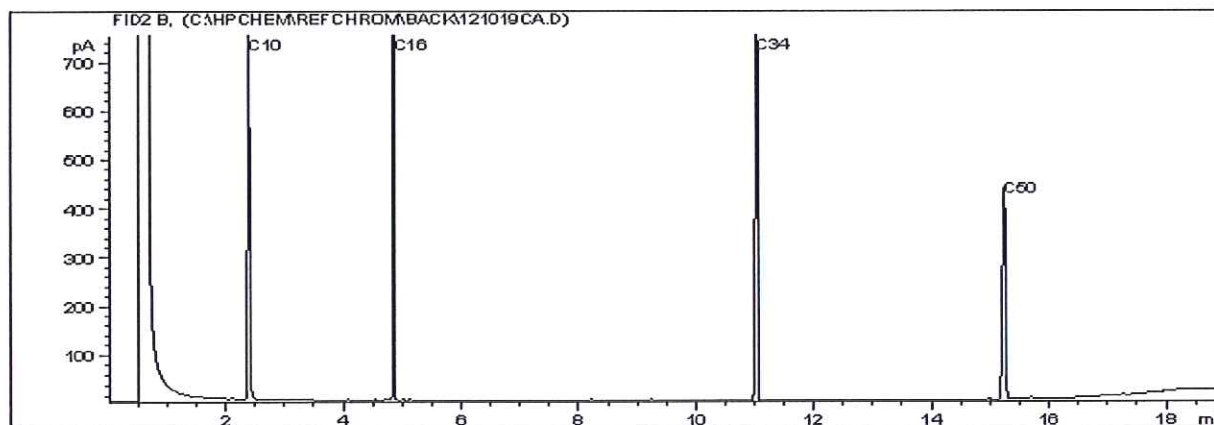
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG, M  
Client ID: BH-33-1.2-1.8

**CCME Hydrocarbons (F2-F4 in soil) Chromatogram**



Carbon Range Distribution - Reference Chromatogram



**TYPICAL PRODUCT CARBON NUMBER RANGES**

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

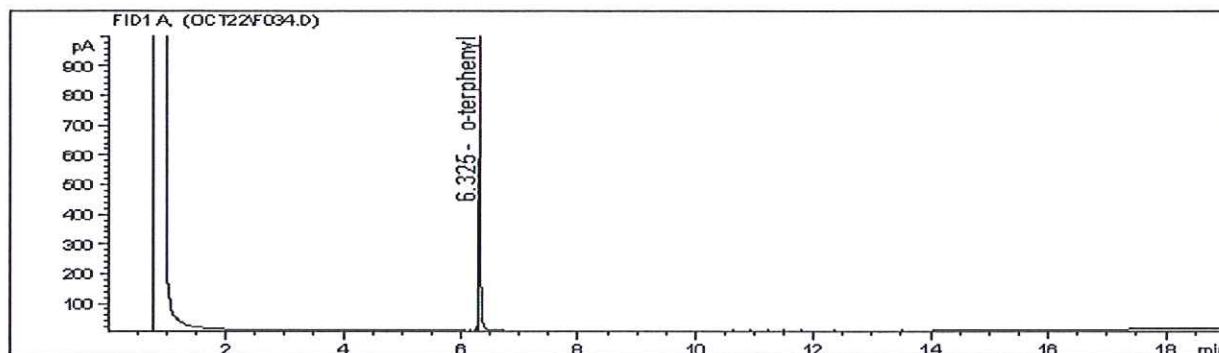


Report Date: 2012/10/25  
 Maxxam Job #: B293849  
 Maxxam Sample: ET5072

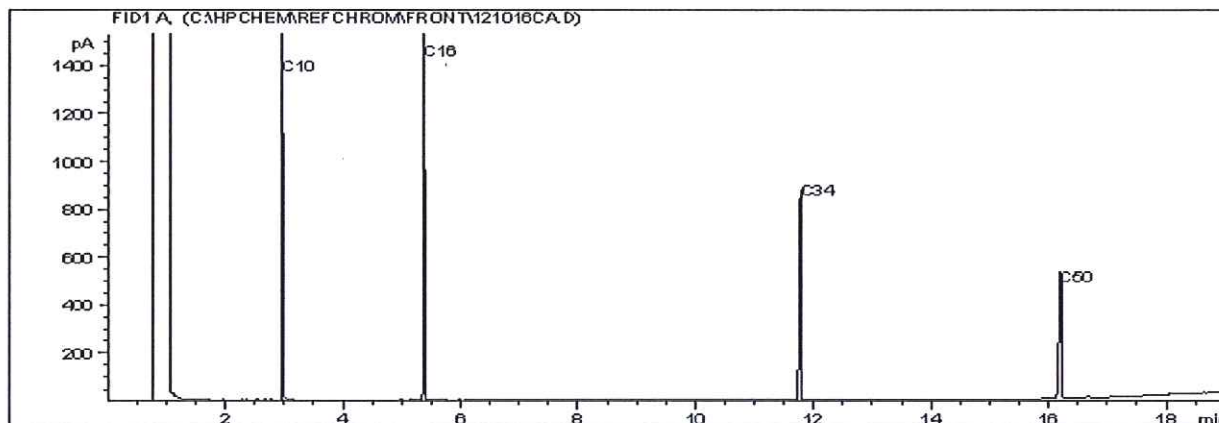
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG, M  
 Client ID: DUP-33

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



### Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
 Varsol: C8 - C12  
 Kerosene: C7 - C16

Diesel: C8 - C22  
 Lubricating Oils: C20 - C40  
 Crude Oils: C3 - C60+

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

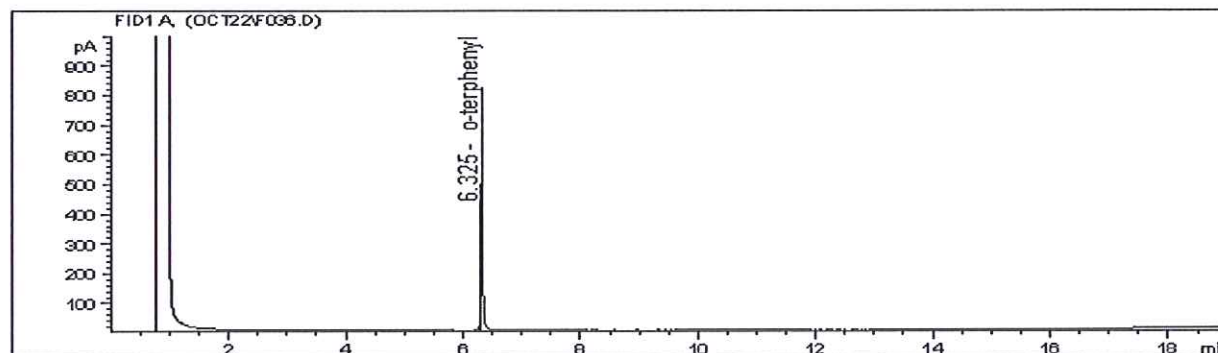


Report Date: 2012/10/25  
Maxxam Job #: B293849  
Maxxam Sample: ET5073

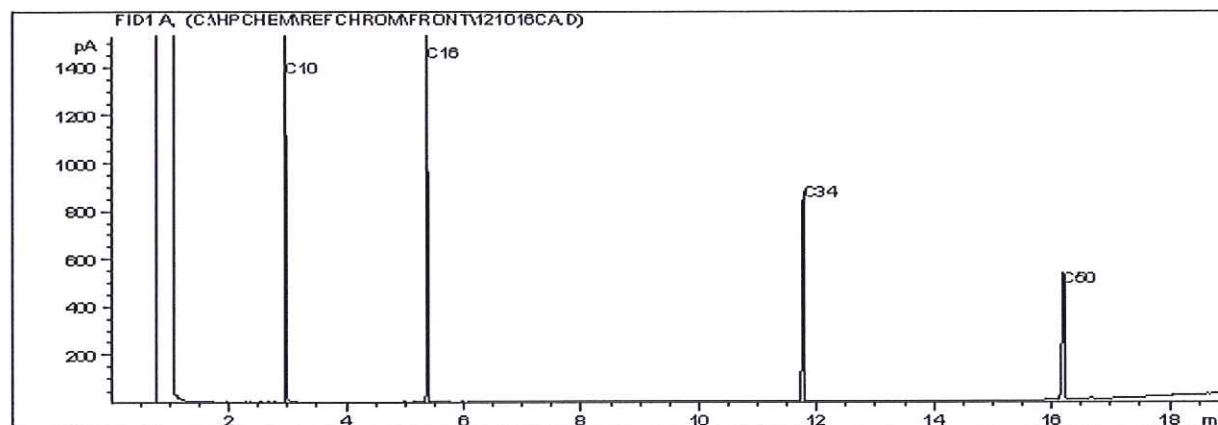
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG, M  
Client ID: BH-33-2.4-3.1

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



### Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

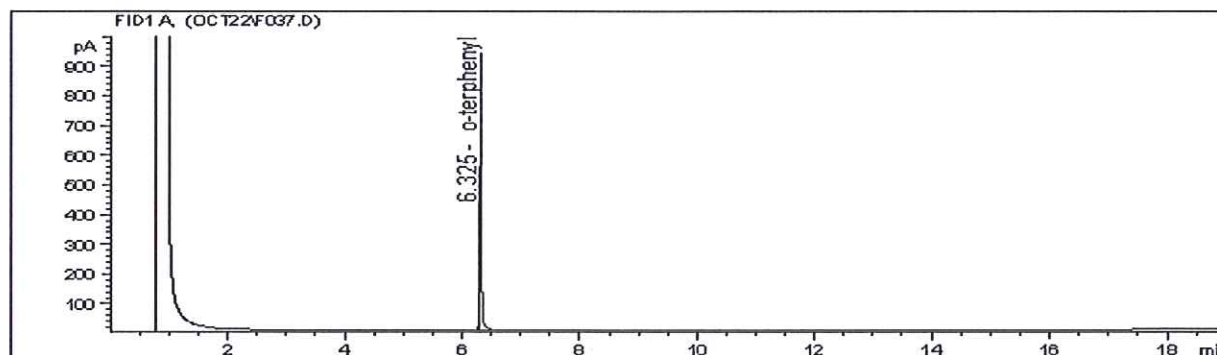


Report Date: 2012/10/25  
Maxxam Job #: B293849  
Maxxam Sample: ET5074

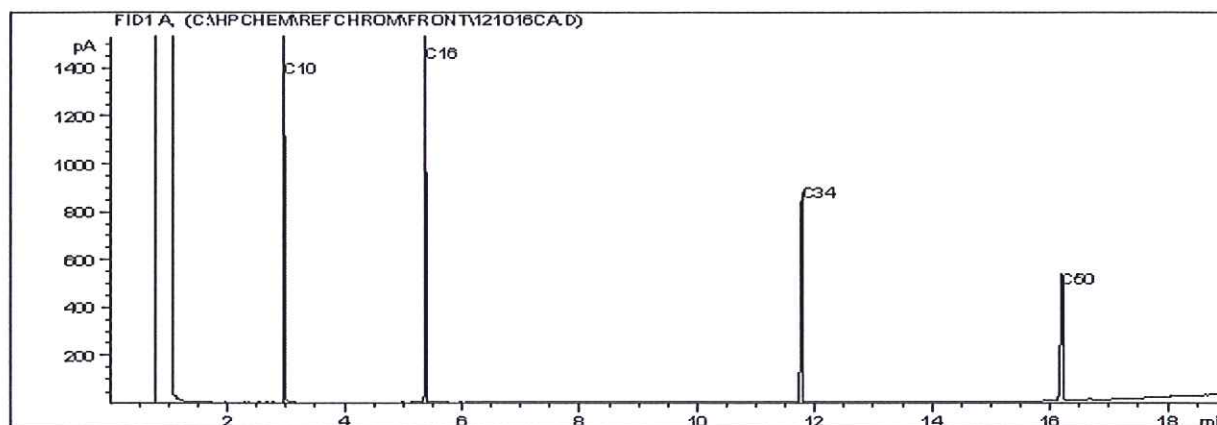
O'CONNOR ASSOCIATES ENVIRONMENTAL

Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG, M  
Client ID: BH-33-3.7-4.3

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



### Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



# DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2012/10/16</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory : <u>Maxxam Analytics, Winnipeg</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B293849</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<u>X</u>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<u>X</u>			
Method Blank Concentration			<u>X</u>	
Matrix Duplicate RPD	<u>X</u>			
Matrix Spike Recovery	<u>X</u>			
Lab Control Sample Recovery			<u>X</u>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<u>X</u>	<i>All field QC met alert limits.</i>
Trip Blank Concentration			<u>X</u>	
Field Duplicate RPD	<u>X</u>			

Has CoA been signed off (Yes/No)?: Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: Yes

Were all samples analyzed within hold times (Yes/No)?: Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: Yes

Is Chain of Custody completed and signed (Yes/No)?: Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?: Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: No


Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?: Yes

If answer is "No", describe and provide rationale: \_\_\_\_\_

Data Reviewed by (Print): <u>Alexia Reske-Naurocki</u> Review Date: <u>2013/02/21</u> Revision Date (if applicable): _____	Data Reviewed by (Signature): <u></u> Revised by (Signature): _____
--	---



Your Project #: 10-1177.100  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
 Your C.O.C. #: S003331

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 7 TERRACON PLACE  
 WINNIPEG, MB  
 CANADA R2J 4B3

Report Date: 2013/03/04

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B314347**

**Received: 2013/02/22, 14:35**

Sample Matrix: Soil

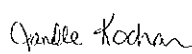
# Samples Received: 10

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Volatile F1-BTEX (l)	10	N/A	2013/03/04	BBY WI-00033	BC MOE Lab Method
CCME Hydrocarbons (F2-F4 in soil) (l)	2	2013/02/26	2013/02/27	BBY8SOP-00030	CCME Soil Tier 1
CCME Hydrocarbons (F2-F4 in soil) (l)	8	2013/02/27	2013/03/04	BBY8SOP-00030	CCME Soil Tier 1
Elements by ICPMS (total) (l)	10	2013/02/26	2013/02/27	BBY7SOP-00001	EPA 6020A
Moisture (l)	2	N/A	2013/02/27	BBY8SOP-00017	Ont MOE -E 3139
Moisture (l)	8	N/A	2013/02/28	BBY8SOP-00017	Ont MOE -E 3139
pH (2:1 DI Water Extract) (l)	10	2013/02/27	2013/02/27	BBY6SOP-00028	Carter, SSMA 16.2
CCME F1 C6-C10 in Soil by GC/FID (l)	2	2013/02/26	2013/03/02	BBY8SOP-00012	EPA SW8260C
CCME F1 C6-C10 in Soil by GC/FID (l)	8	2013/02/27	2013/03/01	BBY8SOP-00012	EPA SW8260C
VOCs in Soil by HS GC/MS (l)	2	2013/02/26	2013/03/02	BBY8-SOP-0009	EPA 8260C
VOCs in Soil by HS GC/MS (l)	8	2013/02/27	2013/03/01	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

**Encryption Key**

 Janelle Kochan  
 05 Mar 2013 08:21:37 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
 Email: JKochan@maxxam.ca  
 Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B314347  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		FS0579	FS0580	FS0581	FS0581	FS0582		
Sampling Date		2013/02/21 10:50	2013/02/21 11:00	2013/02/21 11:10	2013/02/21 11:10	2013/02/21 11:20		
COC Number		S003331	S003331	S003331	S003331	S003331		
	UNITS	BH-36-0.6-1.2	BH-36-2.4-3.0	BH-36-3.6-4.2	BH-36-3.6-4.2 Lab-Dup	BH-36-5.4-6.0	RDL	QC Batch

Physical Properties								
Soluble (2:1) pH	pH Units	4.69	8.01	7.93	8.00	8.29	0.010	6598360

RDL = Reportable Detection Limit

Maxxam ID		FS0583	FS0584	FS0585	FS0586	FS0587		
Sampling Date		2013/02/21 11:20	2013/02/21 12:30	2013/02/21 12:40	2013/02/21 12:50	2013/02/21 12:50		
COC Number		S003331	S003331	S003331	S003331	S003331		
	UNITS	DUP-36	BH-38-0.6-1.2	BH-38-1.8-2.4	BH-38-3.0-3.6	DUP-38	RDL	QC Batch

Physical Properties								
Soluble (2:1) pH	pH Units	8.33	8.58	8.72	8.47	8.29	0.010	6598360

RDL = Reportable Detection Limit

Maxxam ID		FS0588		
Sampling Date		2013/02/21 13:00		
COC Number		S003331		
	UNITS	BH-38-4.8-5.4	RDL	QC Batch

Physical Properties				
Soluble (2:1) pH	pH Units	8.22	0.010	6598360
RDL = Reportable Detection Limit				



Maxxam Job #: B314347  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FS0579		FS0580	FS0581	FS0582		
Sampling Date		2013/02/21. 10:50		2013/02/21 11:00	2013/02/21 11:10	2013/02/21 11:20		
COC Number		S003331		S003331	S003331	S003331		
	UNITS	BH-36-0.6-1.2	QC Batch	BH-36-2.4-3.0	BH-36-3.6-4.2	BH-36-5.4-6.0	RDL	QC Batch

Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	6602831	<10	<10	<10	10	6610325
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	6602831	52	30	25	10	6610325
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	6602831	33	<10	<10	10	6610325
Reached Baseline at C50	mg/kg	Yes	6602831	Yes	Yes	Yes	N/A	6610325
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	95	6602831	95	91	86	N/A	6610325

N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		FS0583		FS0584	FS0585		
Sampling Date		2013/02/21 11:20		2013/02/21 12:30	2013/02/21 12:40		
COC Number		S003331		S003331	S003331		
	UNITS	DUP-36	QC Batch	BH-38-0.6-1.2	BH-38-1.8-2.4	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	6602831	<10	<10	10	6610325
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	6602831	<10	<10	10	6610325
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	6602831	<10	<10	10	6610325
Reached Baseline at C50	mg/kg	Yes	6602831	Yes	Yes	N/A	6610325
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	86	6602831	90	102	N/A	6610325

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B314347  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FS0586		FS0587	FS0588		
Sampling Date		2013/02/21 12:50		2013/02/21 12:50	2013/02/21 13:00		
COC Number		S003331		S003331	S003331		
	UNITS	BH-38-3.0-3.6	QC Batch	DUP-38	BH-38-4.8-5.4	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	6611348	<10	<10	10	6610325
F3 (C16-C34 Hydrocarbons)	mg/kg	10	6611348	23	46	10	6610325
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	6611348	<10	12	10	6610325
Reached Baseline at C50	mg/kg	Yes	6611348	Yes	Yes	N/A	6610325
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	98	6611348	96	88	N/A	6610325

N/A = Not Applicable

RDL = Reportable Detection Limit



Maxxam Job #: B314347  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
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Sampler Initials: AB

### PHYSICAL TESTING (SOIL)

Maxxam ID		FS0579		FS0580	FS0581	FS0582		
Sampling Date		2013/02/21 10:50		2013/02/21 11:00	2013/02/21 11:10	2013/02/21 11:20		
COC Number		S003331		S003331	S003331	S003331		
	UNITS	BH-36-0.6-1.2	QC Batch	BH-36-2.4-3.0	BH-36-3.6-4.2	BH-36-5.4-6.0	RDL	QC Batch

Physical Properties								
Moisture	%	25	6597940	30	35	34	0.30	6597941
RDL = Reportable Detection Limit								

Maxxam ID		FS0583		FS0584	FS0585	FS0586		
Sampling Date		2013/02/21 11:20		2013/02/21 12:30	2013/02/21 12:40	2013/02/21 12:50		
COC Number		S003331		S003331	S003331	S003331		
	UNITS	DUP-36	QC Batch	BH-38-0.6-1.2	BH-38-1.8-2.4	BH-38-3.0-3.6	RDL	QC Batch

Physical Properties								
Moisture	%	35	6597940	23	17	27	0.30	6597941
RDL = Reportable Detection Limit								

Maxxam ID		FS0586	FS0587	FS0588		
Sampling Date		2013/02/21 12:50	2013/02/21 12:50	2013/02/21 13:00		
COC Number		S003331	S003331	S003331		
	UNITS	BH-38-3.0-3.6 Lab-Dup	DUP-38	BH-38-4.8-5.4	RDL	QC Batch

Physical Properties						
Moisture	%	28	33	36	0.30	6597941
RDL = Reportable Detection Limit						



Maxxam Job #: B314347  
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O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
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Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		FS0579	FS0580	FS0581	FS0581		
Sampling Date		2013/02/21 10:50	2013/02/21 11:00	2013/02/21 11:10	2013/02/21 11:10		
COC Number		S003331	S003331	S003331	S003331		
	UNITS	BH-36-0.6-1.2	BH-36-2.4-3.0	BH-36-3.6-4.2	BH-36-3.6-4.2 Lab-Dup	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	15.1	14.8	15.6	15.7	0.10	6598356
RDL = Reportable Detection Limit							

Maxxam ID		FS0582	FS0583	FS0584	FS0585		
Sampling Date		2013/02/21 11:20	2013/02/21 11:20	2013/02/21 12:30	2013/02/21 12:40		
COC Number		S003331	S003331	S003331	S003331		
	UNITS	BH-36-5.4-6.0	DUP-36	BH-38-0.6-1.2	BH-38-1.8-2.4	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	15.9	13.8	14.4	4.18	0.10	6598356
RDL = Reportable Detection Limit							

Maxxam ID		FS0586	FS0587	FS0588		
Sampling Date		2013/02/21 12:50	2013/02/21 12:50	2013/02/21 13:00		
COC Number		S003331	S003331	S003331		
	UNITS	BH-38-3.0-3.6	DUP-38	BH-38-4.8-5.4	RDL	QC Batch

Total Metals by ICPMS						
Total Lead (Pb)	mg/kg	12.8	14.5	15.7	0.10	6598356
RDL = Reportable Detection Limit						



Maxxam Job #: B314347  
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O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME VOC + F1 IN SOIL (SOIL)

Maxxam ID		FS0579		FS0580	FS0581		
Sampling Date		2013/02/21 10:50		2013/02/21 11:00	2013/02/21 11:10		
COC Number		S003331		S003331	S003331		
	UNITS	BH-36-0.6-1.2	QC Batch	BH-36-2.4-3.0	BH-36-3.6-4.2	RDL	QC Batch

<b>Calculated Parameters</b>							
F1 (C6-C10) - BTEX	mg/kg	<10	6593938	<10	<10	10	6593938
<b>Volatile Hydrocarbons</b>							
(C6-C10)	mg/kg	<10 (1)	6609711	<10 (1)	<10 (1)	10	6612293
<b>Volatiles</b>							
1,2-dichloroethane	mg/kg	<0.025 (1)	6604979	<0.025 (1)	<0.025 (1)	0.025	6612201
Benzene	mg/kg	<0.0050 (1)	6604979	<0.0050 (1)	<0.0050 (1)	0.0050	6612201
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	6604979	<0.10 (1)	<0.10 (1)	0.10	6612201
Toluene	mg/kg	<0.020 (1)	6604979	<0.020 (1)	<0.020 (1)	0.020	6612201
1,2-dibromoethane	mg/kg	<0.025 (1)	6604979	<0.025 (1)	<0.025 (1)	0.025	6612201
Ethylbenzene	mg/kg	<0.010 (1)	6604979	<0.010 (1)	<0.010 (1)	0.010	6612201
m & p-Xylene	mg/kg	<0.040 (1)	6604979	<0.040 (1)	<0.040 (1)	0.040	6612201
o-Xylene	mg/kg	<0.040 (1)	6604979	<0.040 (1)	<0.040 (1)	0.040	6612201
Xylenes (Total)	mg/kg	<0.040	6604979	<0.040	<0.040	0.040	6612201
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	98	6604979	100	100	N/A	6612201
4-BROMOFLUOROBENZENE (sur.)	%	84	6604979	93	94	N/A	6612201
D10-ETHYLBENZENE (sur.)	%	88	6604979	112	113	N/A	6612201
D4-1,2-DICHLOROETHANE (sur.)	%	106	6604979	119	121	N/A	6612201

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314347  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME VOC + F1 IN SOIL (SOIL)

Maxxam ID		FS0582		FS0583		FS0584		
Sampling Date		2013/02/21 11:20		2013/02/21 11:20		2013/02/21 12:30		
COC Number		S003331		S003331		S003331		
	UNITS	BH-36-5.4-6.0	QC Batch	DUP-36	QC Batch	BH-38-0.6-1.2	RDL	QC Batch

<b>Calculated Parameters</b>								
F1 (C6-C10) - BTEX	mg/kg	<10	6593938	<10	6593938	15	10	6593938
<b>Volatile Hydrocarbons</b>								
(C6-C10)	mg/kg	<10 (1)	6612293	<10 (1)	6609711	15 (1)	10	6612293
<b>Volatiles</b>								
1,2-dichloroethane	mg/kg	<0.025 (1)	6612201	<0.025 (1)	6604979	<0.025 (1)	0.025	6612201
Benzene	mg/kg	<0.0050 (1)	6612201	<0.0050 (1)	6604979	0.0093 (1)	0.0050	6612201
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	6612201	<0.10 (1)	6604979	<0.10 (1)	0.10	6612201
Toluene	mg/kg	<0.020 (1)	6612201	<0.020 (1)	6604979	<0.020 (1)	0.020	6612201
1,2-dibromoethane	mg/kg	<0.025 (1)	6612201	<0.025 (1)	6604979	<0.025 (1)	0.025	6612201
Ethylbenzene	mg/kg	<0.010 (1)	6612201	<0.010 (1)	6604979	0.030 (1)	0.010	6612201
m & p-Xylene	mg/kg	<0.040 (1)	6612201	<0.040 (1)	6604979	<0.040 (1)	0.040	6612201
o-Xylene	mg/kg	<0.040 (1)	6612201	<0.040 (1)	6604979	<0.040 (1)	0.040	6612201
Xylenes (Total)	mg/kg	<0.040	6612201	<0.040	6604979	<0.040	0.040	6612201
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene (sur.)	%	99	6612201	98	6604979	97	N/A	6612201
4-BROMOFLUOROBENZENE (sur.)	%	103	6612201	84	6604979	110	N/A	6612201
D10-ETHYLBENZENE (sur.)	%	117	6612201	86	6604979	115	N/A	6612201
D4-1,2-DICHLOROETHANE (sur.)	%	126	6612201	110	6604979	129	N/A	6612201

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314347  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME VOC + F1 IN SOIL (SOIL)

Maxxam ID		FS0585	FS0586	FS0587	FS0588		
Sampling Date		2013/02/21 12:40	2013/02/21 12:50	2013/02/21 12:50	2013/02/21 13:00		
COC Number		S003331	S003331	S003331	S003331		
	UNITS	BH-38-1.8-2.4	BH-38-3.0-3.6	DUP-38	BH-38-4.8-5.4	RDL	QC Batch

Calculated Parameters							
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	10	6593938
Volatle Hydrocarbons							
(C6-C10)	mg/kg	<10 (1)	<10 (1)	<10 (1)	<10 (1)	10	6612293
Volatiles							
1,2-dichloroethane	mg/kg	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	0.025	6612201
Benzene	mg/kg	0.0099 (1)	<0.0050 (1)	<0.0050 (1)	<0.0050 (1)	0.0050	6612201
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	<0.10 (1)	<0.10 (1)	<0.10 (1)	0.10	6612201
Toluene	mg/kg	<0.020 (1)	<0.020 (1)	<0.020 (1)	<0.020 (1)	0.020	6612201
1,2-dibromoethane	mg/kg	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	0.025	6612201
Ethylbenzene	mg/kg	0.018 (1)	<0.010 (1)	<0.010 (1)	<0.010 (1)	0.010	6612201
m & p-Xylene	mg/kg	<0.040 (1)	<0.040 (1)	<0.040 (1)	<0.040 (1)	0.040	6612201
o-Xylene	mg/kg	<0.040 (1)	<0.040 (1)	<0.040 (1)	<0.040 (1)	0.040	6612201
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	6612201
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	96	87	99	98	N/A	6612201
4-BROMOFLUOROBENZENE (sur.)	%	98	82	102	106	N/A	6612201
D10-ETHYLBENZENE (sur.)	%	108	101	116	119	N/A	6612201
D4-1,2-DICHLOROETHANE (sur.)	%	128	127	118	128	N/A	6612201

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314347  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME VOC + F1 IN SOIL (SOIL)

Maxxam ID		FS0588		
Sampling Date		2013/02/21 13:00		
COC Number		S003331		
	UNITS	BH-38-4.8-5.4 Lab-Dup	RDL	QC Batch

<b>Volatile Hydrocarbons</b>				
(C6-C10)	mg/kg	<10 (1)	10	6612293
<b>Volatiles</b>				
1,2-dichloroethane	mg/kg	<0.025 (1)	0.025	6612201
Benzene	mg/kg	<0.0050 (1)	0.0050	6612201
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	0.10	6612201
Toluene	mg/kg	<0.020 (1)	0.020	6612201
1,2-dibromoethane	mg/kg	<0.025 (1)	0.025	6612201
Ethylbenzene	mg/kg	<0.010 (1)	0.010	6612201
m & p-Xylene	mg/kg	<0.040 (1)	0.040	6612201
o-Xylene	mg/kg	<0.040 (1)	0.040	6612201
Xylenes (Total)	mg/kg	<0.040	0.040	6612201
<b>Surrogate Recovery (%)</b>				
1,4-Difluorobenzene (sur.)	%	95	N/A	6612201
4-BROMOFLUOROBENZENE (sur.)	%	109	N/A	6612201
D10-ETHYLBENZENE (sur.)	%	113	N/A	6612201
D4-1,2-DICHLOROETHANE (sur.)	%	127	N/A	6612201

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314347  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
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Package 1	9.5°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

### General Comments

Results relate only to the Items tested.



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB314347

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6597940 LO1	Method Blank	Moisture	2013/02/27	<0.30		%	
	RPD	Moisture	2013/02/27	8.4		%	20
6597941 LO1	Method Blank	Moisture	2013/02/28	<0.30		%	
	RPD [FS0586-01]	Moisture	2013/02/28	4.3		%	20
6598356 DJ	Matrix Spike						
	[FS0581-02]	Total Lead (Pb)	2013/02/27		102	%	75 - 125
	QC Standard	Total Lead (Pb)	2013/02/27		96	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2013/02/27		102	%	75 - 125
	Method Blank	Total Lead (Pb)	2013/02/27	<0.10		mg/kg	
	RPD [FS0581-02]	Total Lead (Pb)	2013/02/27	1.1		%	35
6598360 NS6	Spiked Blank	Soluble (2:1) pH	2013/02/27		102	%	96 - 104
	RPD [FS0581-02]	Soluble (2:1) pH	2013/02/27	0.9		%	20
6602831 TL2	Matrix Spike	O-TERPHENYL (sur.)	2013/02/27		100	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27		108	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/02/27		102	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/02/27		97	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/02/27		95	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27		97	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/02/27		90	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/02/27		87	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/02/27		95	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/02/27	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/02/27	<10		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/02/27	NC (1)		%	40
		F3 (C16-C34 Hydrocarbons)	2013/02/27	4.9 (1)		%	40
		F4 (C34-C50 Hydrocarbons)	2013/02/27	2.1 (1)		%	40
		Reached Baseline at C50	2013/02/27	NC		%	50
6604979 MM5	Matrix Spike	1,4-Difluorobenzene (sur.)	2013/03/02		96	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/02		90	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2013/03/02		87	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/02		102	%	70 - 130
		1,2-dichloroethane	2013/03/02		92	%	60 - 140
		Benzene	2013/03/02		84	%	60 - 140
		Toluene	2013/03/02		83	%	60 - 140
		1,2-dibromoethane	2013/03/02		96	%	60 - 140
		Ethylbenzene	2013/03/02		92	%	60 - 140
		m & p-Xylene	2013/03/02		98	%	60 - 140
		o-Xylene	2013/03/02		94	%	60 - 140
	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/03/01		96	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/01		93	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2013/03/01		90	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/01		105	%	70 - 130
		1,2-dichloroethane	2013/03/01		110	%	60 - 140
		Benzene	2013/03/01		94	%	60 - 140
		Toluene	2013/03/01		96	%	60 - 140
		1,2-dibromoethane	2013/03/01		96	%	60 - 140
		Ethylbenzene	2013/03/01		102	%	60 - 140
		m & p-Xylene	2013/03/01		110	%	60 - 140
		o-Xylene	2013/03/01		106	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2013/03/01		98	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/01		91	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2013/03/01		92	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/01		124	%	70 - 130
		1,2-dichloroethane	2013/03/01	<0.025		mg/kg	



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB314347

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6604979 MM5	Method Blank	Benzene	2013/03/01	<0.0050		mg/kg	
		Methyl-tert-butylether (MTBE)	2013/03/01	<0.10		mg/kg	
		Toluene	2013/03/01	<0.020		mg/kg	
		1,2-dibromoethane	2013/03/01	<0.025		mg/kg	
		Ethylbenzene	2013/03/01	<0.010		mg/kg	
		m & p-Xylene	2013/03/01	<0.040		mg/kg	
		o-Xylene	2013/03/01	<0.040		mg/kg	
	RPD	1,2-dichloroethane	2013/03/02	NC		%	40
		1,2-dibromoethane	2013/03/02	NC		%	40
6609711 MM5	Spiked Blank	(C6-C10)	2013/03/02		76	%	60 - 140
	Method Blank	(C6-C10)	2013/03/02	<10		mg/kg	
6610325 TL2	Matrix Spike	O-TERPHENYL (sur.)	2013/03/01		97	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01		96	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/03/01		79	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/03/01		79	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/01		82	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01		102	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/03/01		83	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/03/01		84	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/03/01		93	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/03/01	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/03/01	<10		mg/kg	
		Reached Baseline at C50	2013/03/01	YES		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/03/01	NC		%	40
		F3 (C16-C34 Hydrocarbons)	2013/03/01	NC		%	40
		F4 (C34-C50 Hydrocarbons)	2013/03/01	NC		%	40
		Reached Baseline at C50	2013/03/01	NC		%	50
6611348 PN2	Matrix Spike	O-TERPHENYL (sur.)	2013/03/04		99	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04		102	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/03/04		90	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/03/04		81	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/04		103	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04		102	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/03/04		90	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/03/04		81	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/03/04		113	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/03/04	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/03/04	<10		mg/kg	
		Reached Baseline at C50	2013/03/04	YES		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/03/04	8.3		%	40
		F3 (C16-C34 Hydrocarbons)	2013/03/04	NC		%	40
		F4 (C34-C50 Hydrocarbons)	2013/03/04	NC		%	40
		Reached Baseline at C50	2013/03/04	NC		%	50
6612201 MM5	Matrix Spike [FS0588-01]	1,4-Difluorobenzene (sur.)	2013/03/01		97	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/01		116	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2013/03/01		118	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/01		115	%	70 - 130
		1,2-dichloroethane	2013/03/01		119	%	60 - 140
		Benzene	2013/03/01		123	%	60 - 140
		Toluene	2013/03/01		116	%	60 - 140
		1,2-dibromoethane	2013/03/01		123	%	60 - 140
		Ethylbenzene	2013/03/01		124	%	60 - 140



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB314347

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6612201	MM5	Matrix Spike [FS0588-01]	m & p-Xylene	2013/03/01	132	%	60 - 140
			o-Xylene	2013/03/01	128	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene (sur.)	2013/03/01	98	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2013/03/01	91	%	70 - 130
			D10-ETHYLBENZENE (sur.)	2013/03/01	101	%	50 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2013/03/01	115	%	70 - 130
			1,2-dichloroethane	2013/03/01	116	%	60 - 140
			Benzene	2013/03/01	113	%	60 - 140
			Toluene	2013/03/01	104	%	60 - 140
			1,2-dibromoethane	2013/03/01	110	%	60 - 140
			Ethylbenzene	2013/03/01	110	%	60 - 140
			m & p-Xylene	2013/03/01	120	%	60 - 140
			o-Xylene	2013/03/01	115	%	60 - 140
		Method Blank	1,4-Difluorobenzene (sur.)	2013/03/01	101	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2013/03/01	92	%	70 - 130
			D10-ETHYLBENZENE (sur.)	2013/03/01	102	%	50 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2013/03/01	112	%	70 - 130
			1,2-dichloroethane	2013/03/01	<0.025	mg/kg	
			Benzene	2013/03/01	<0.0050	mg/kg	
			Methyl-tert-butylether (MTBE)	2013/03/01	<0.10	mg/kg	
			Toluene	2013/03/01	<0.020	mg/kg	
			1,2-dibromoethane	2013/03/01	<0.025	mg/kg	
			Ethylbenzene	2013/03/01	<0.010	mg/kg	
			m & p-Xylene	2013/03/01	<0.040	mg/kg	
			o-Xylene	2013/03/01	<0.040	mg/kg	
			Xylenes (Total)	2013/03/01	<0.040	mg/kg	
		RPD [FS0588-01]	1,2-dichloroethane	2013/03/01	NC (2)	%	40
			Benzene	2013/03/01	NC (2)	%	40
			Methyl-tert-butylether (MTBE)	2013/03/01	NC (2)	%	40
			Toluene	2013/03/01	NC (2)	%	40
			1,2-dibromoethane	2013/03/01	NC (2)	%	40
			Ethylbenzene	2013/03/01	NC (2)	%	40
			m & p-Xylene	2013/03/01	NC (2)	%	40
			o-Xylene	2013/03/01	NC (2)	%	40
			Xylenes (Total)	2013/03/01	NC	%	40
6612293	MM5	Spiked Blank	(C6-C10)	2013/03/01	126	%	60 - 140
		Method Blank	(C6-C10)	2013/03/01	<10	mg/kg	
		RPD [FS0588-01]	(C6-C10)	2013/03/01	NC (2)	%	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

( 1 ) Detection limits raised due to high moisture content.

( 2 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



**Validation Signature Page**

Maxxam Job #: B314347

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Andy Lu, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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## CHAIN OF CUSTODY for SUNCOR ENERGY

S003331

Page 1 of 1

Company:	Parsons
Contact:	Adam Wickman
Address:	7 Terraviva Pl., Winnipeg Manitoba R2J 4B9
Contact no.:	204-489-2869
Project ID:	10-1177-100
Sampled By:	Adam Parsons

Report Distribution (See Note 1):	adam.wickman@parsons.com
REGULATORY GUIDELINES:	<input type="checkbox"/> A71 <input checked="" type="checkbox"/> SOME LOW <input type="checkbox"/> Engineering Company Water <input type="checkbox"/> Other

SERVICE REQUESTED:	<input type="checkbox"/> RUSH (Contact lab to reserve) <input type="checkbox"/> 2 DAY <input type="checkbox"/> 1 DAY <input type="checkbox"/> SAME DAY <input checked="" type="checkbox"/> REGULAR (5 Days)
Date Required:	REGULAR (5 Days)

DOWNSTREAM	<input checked="" type="checkbox"/>
Site address:	208 St. James Rd.
Site City/Town:	Winnipeg, Manitoba
Order number:	63955
Maximum ( )	10.0 to 10.0 mg/L
Senior Suncor Advisor:	
Ben Holmes	<input type="checkbox"/>
Ben Lattimore	<input checked="" type="checkbox"/>
Other:	

Project ID:	10-117180	Sampled By:	Adam Branson													
SERVICE REQUESTED:		<input type="checkbox"/> RUSH (Contact lab to reserve) <input type="checkbox"/> 2 DAY <input type="checkbox"/> 1 DAY <input type="checkbox"/> SAME DAY Date Required: _____ <input checked="" type="checkbox"/> REGULAR (5 Days)														
Do not remove for package specific																
Sample ID	Depth (m)	Media (Soil, SW, SWB)	Date/Time Sampled (M/D/Y)	BTX P1-P4	Blind (75 micron)	Regulated Metals (COMB / AT)	Battery 4	COTEX P1	COTEX P2	COTEX P4	Turb. CT	Total Dissolved (mg/L AT)	Mercury (Total / Dissolved)	Other Analysis	HOLD - Do not Analyze	# of Containers Submitted
1 BH-36-0.6-1.2	M	Soil	13/02/11 10:30	X										X	1,2-DGA, 1,2-DCA, lead	2
2 BH-36-2.4-3.0	M	Soil	13/02/11 11:00	X										X		2
3 BH-36-3.6-4.2	M	Soil	13/02/11 11:10	X										X		2
4 BH-36-5.4-6.0	M	Soil	13/02/11 11:20	X										X		2
5 DUP-36	M	Soil	13/02/11 11:20	X										X		2
6 BH-38-0.6-1.2	M	Soil	13/02/11 12:30	X										X		2
7 BH-38-1.8-2.4	M	Soil	13/02/11 12:40	X										X		2
8 BH-38-3.0-3.6	M	Soil	13/02/11 12:50	X										X		2
9 DUP-38	M	Soil	13/02/11 12:50	X										X		2
10 BH-38-4.8-5.4	M	Soil	13/02/11 13:00	X										X		2
11																
12																

Please Indicate Filtered, Pressured or Both (F, P, BP)

Please indicate Filtered, Preserved or Both (F.P.P.)

Received By:	Adam Wickman	Date:	02/22/12	Time:	14:35
Maximum Job #	6314347	Container	Seal	Temperature	Ice
Y		Y		9.4, 9.2, 9.8	Y

Special Instructions: Headspace may be present, please proceed with only 25

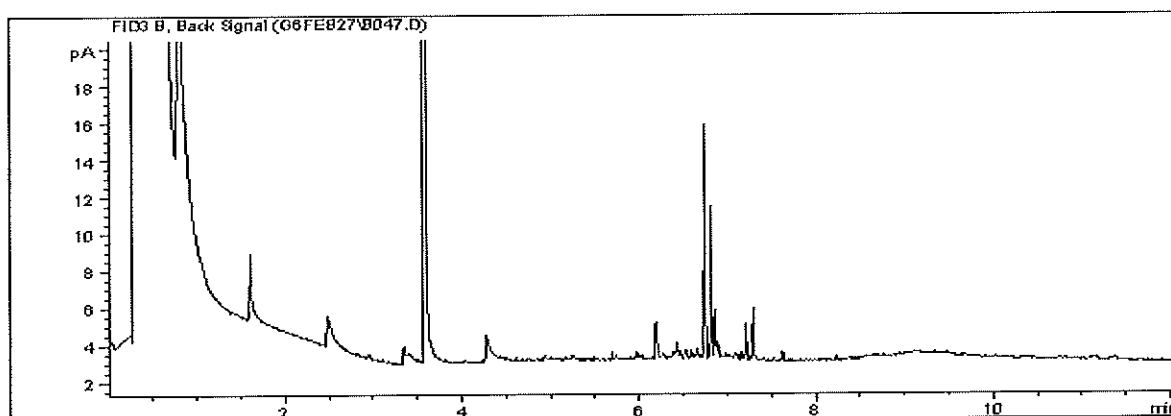
Maxxam Analytics International Corporation o/a Maxxam Analytics, Unit D - 675 Berry Street, Winnipeg, MB, R3H 1A7, Tel: (204) 772-7276, Fax: (204) 772-2386 www.maxxam.ca



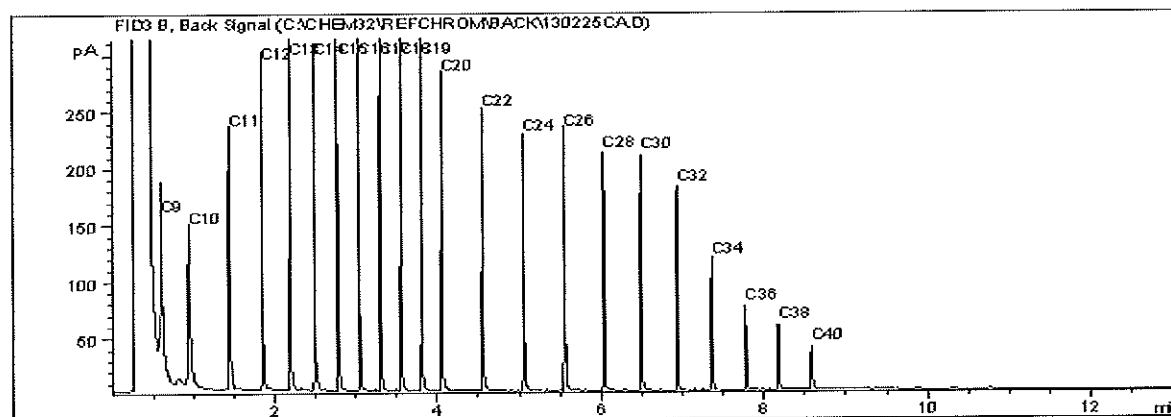
Report Date: 2013/03/04  
 Maxxam Job #: B314347  
 Maxxam Sample: FS0579

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-36-0.6-1.2

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C6 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

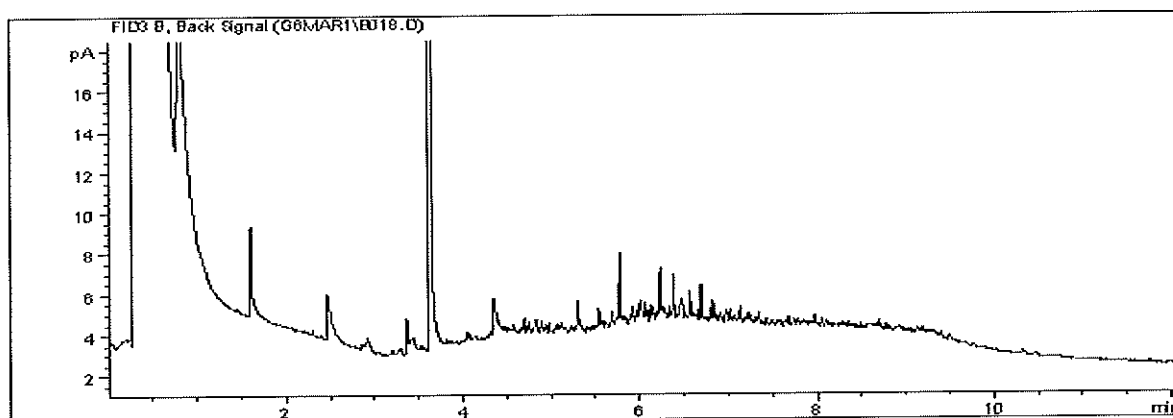
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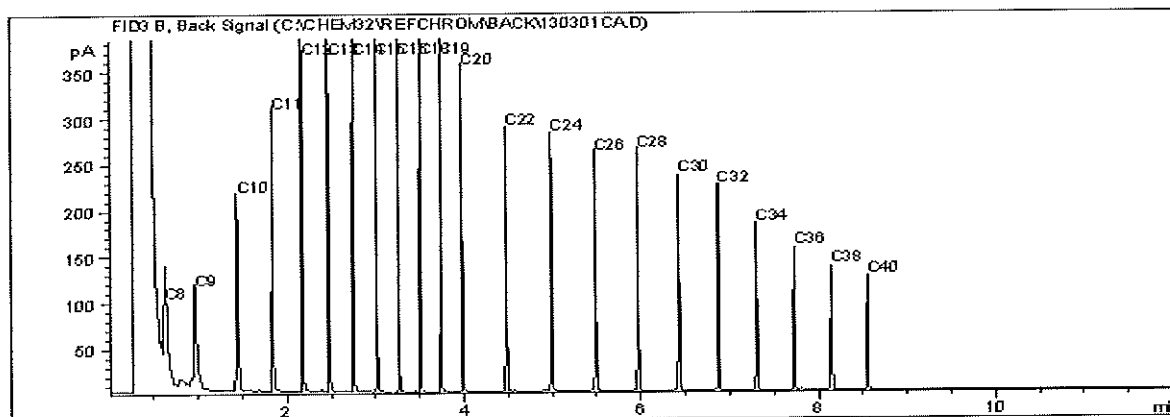
Report Date: 2013/03/04  
 Maxxam Job #: B314347  
 Maxxam Sample: FS0580

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-36-2.4-3.0

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

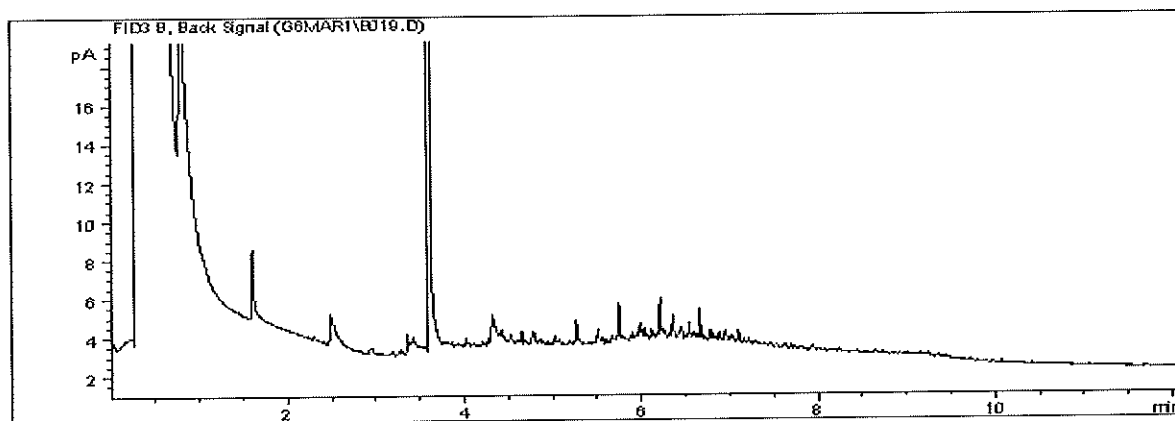
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



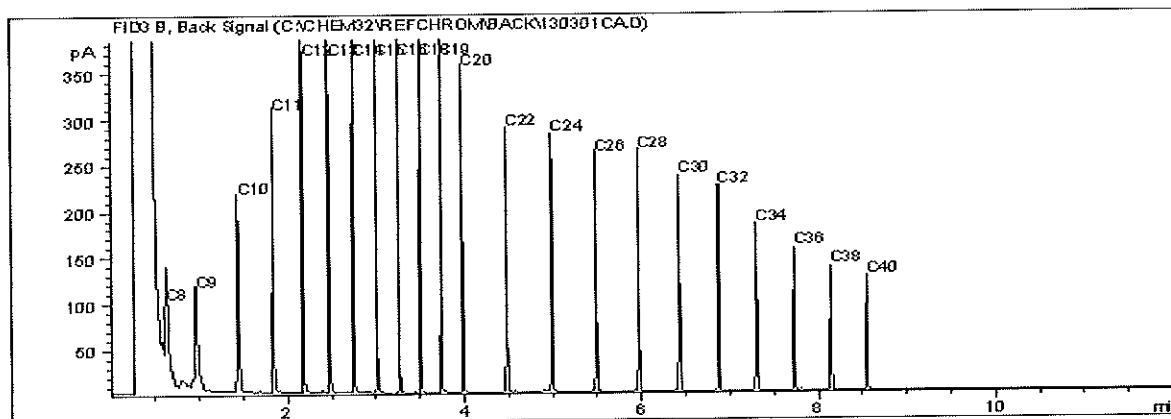
Report Date: 2013/03/04  
 Maxxam Job #: B314347  
 Maxxam Sample: FS0581

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-36-3.6-4.2

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

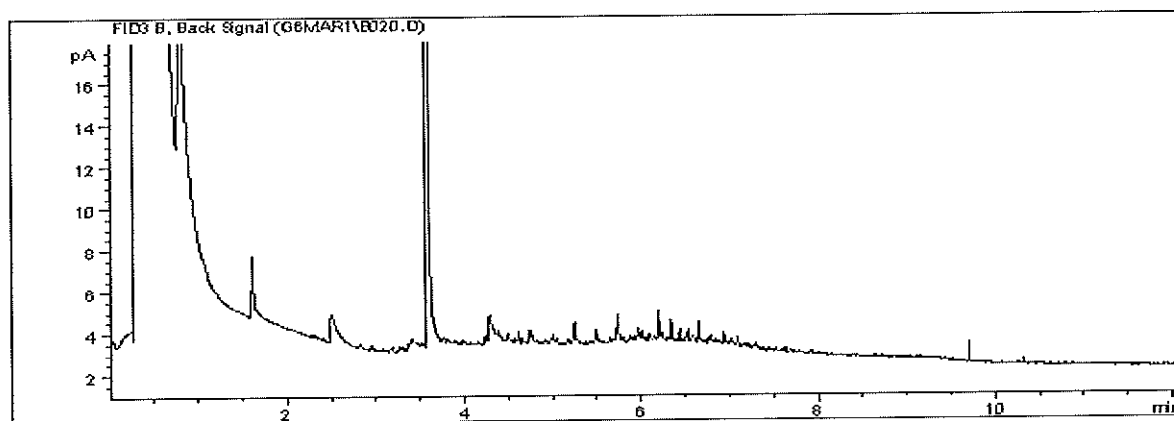
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



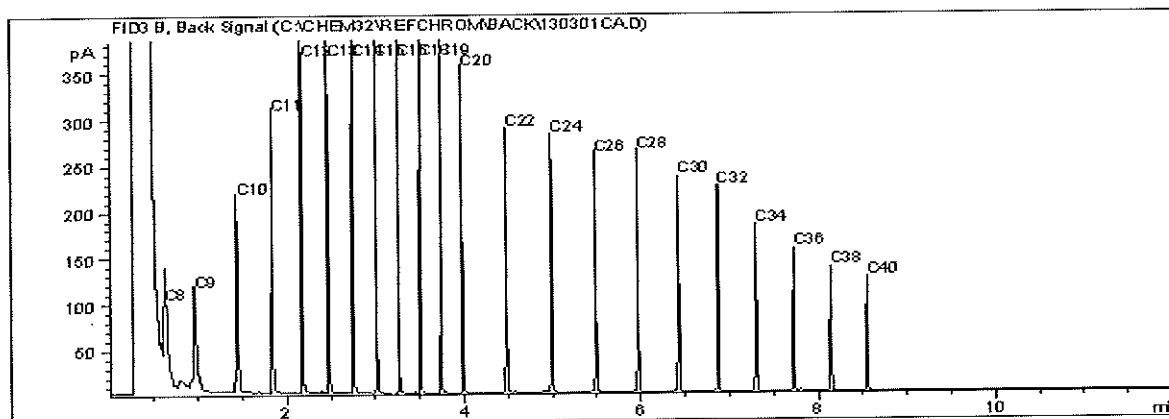
Report Date: 2013/03/04  
 Maxxam Job #: B314347  
 Maxxam Sample: FS0582

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-36-5.4-6.0

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

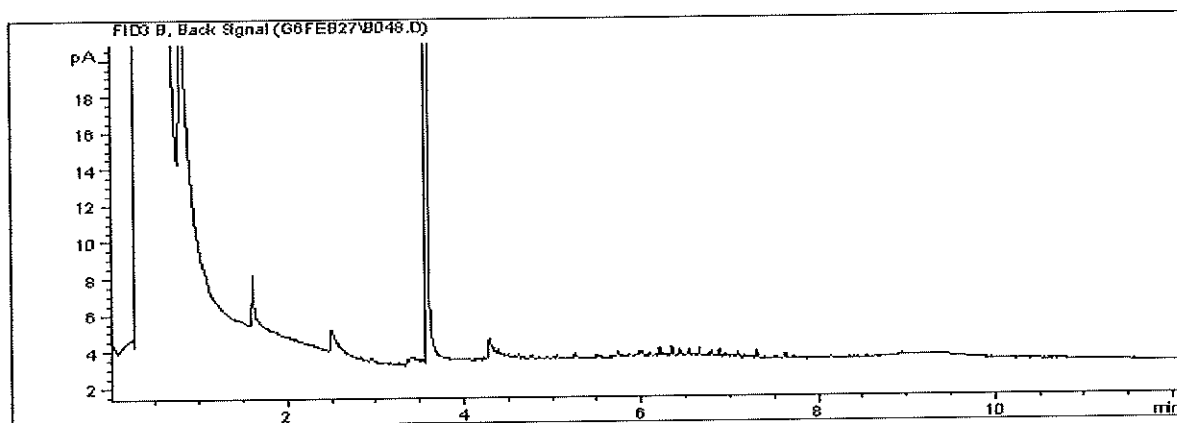
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



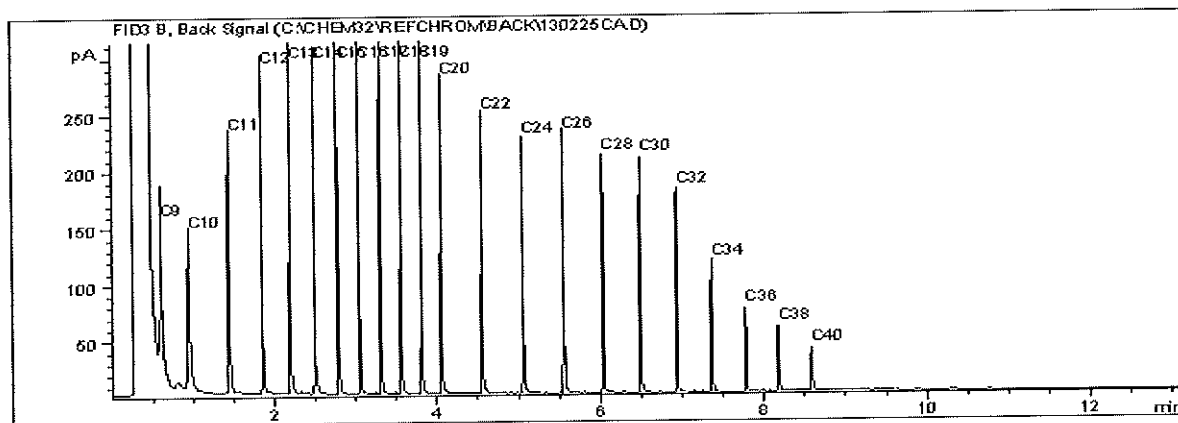
Report Date: 2013/03/04  
Maxxam Job #: B314347  
Maxxam Sample: FS0583

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-36

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

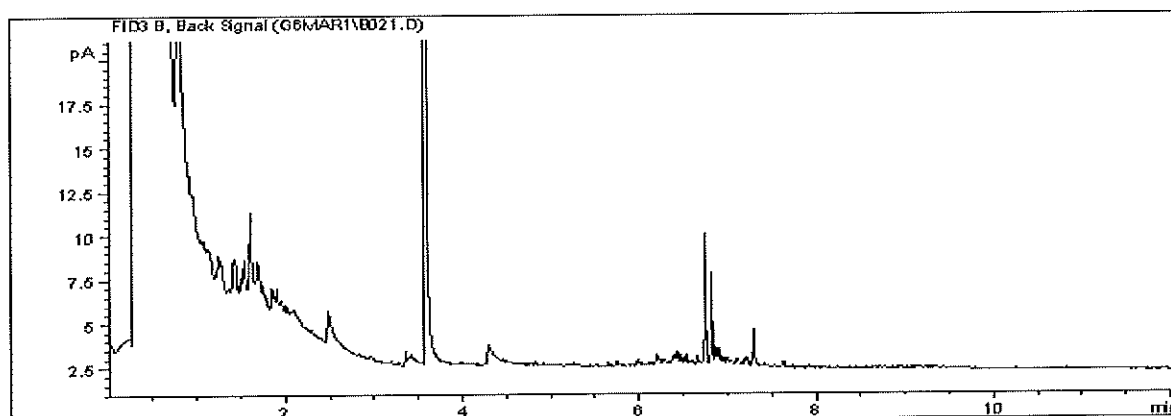
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



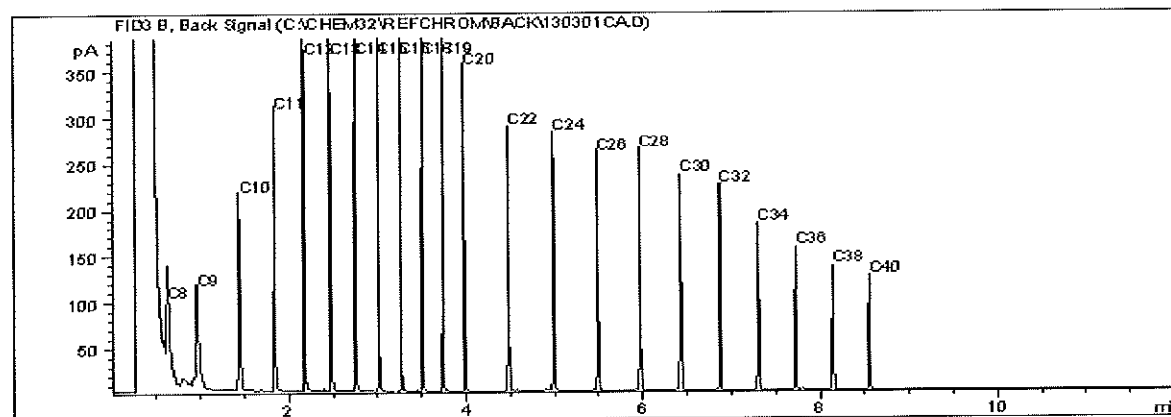
Report Date: 2013/03/04  
Maxxam Job #: B314347  
Maxxam Sample: FS0584

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-38-0.6-1.2

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

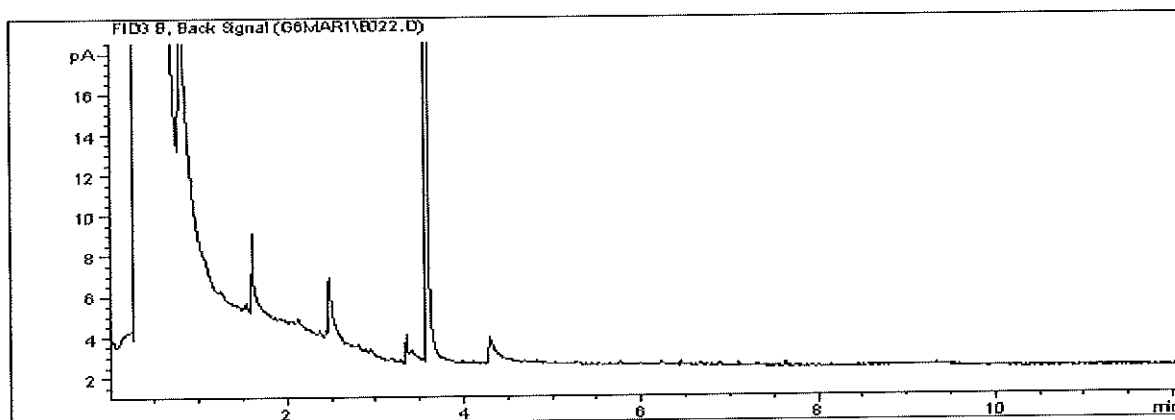
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



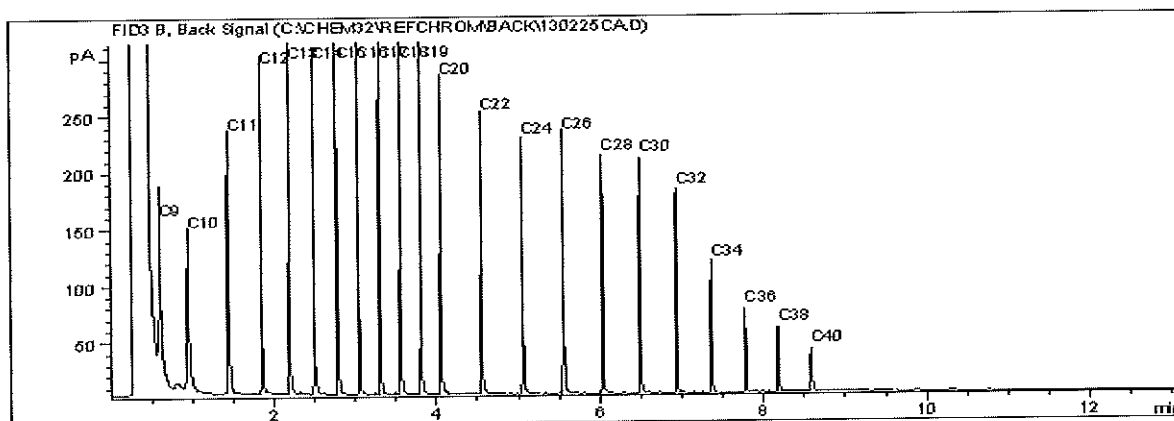
Report Date: 2013/03/04  
Maxxam Job #: B314347  
Maxxam Sample: FS0585

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-38-1.8-2.4

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

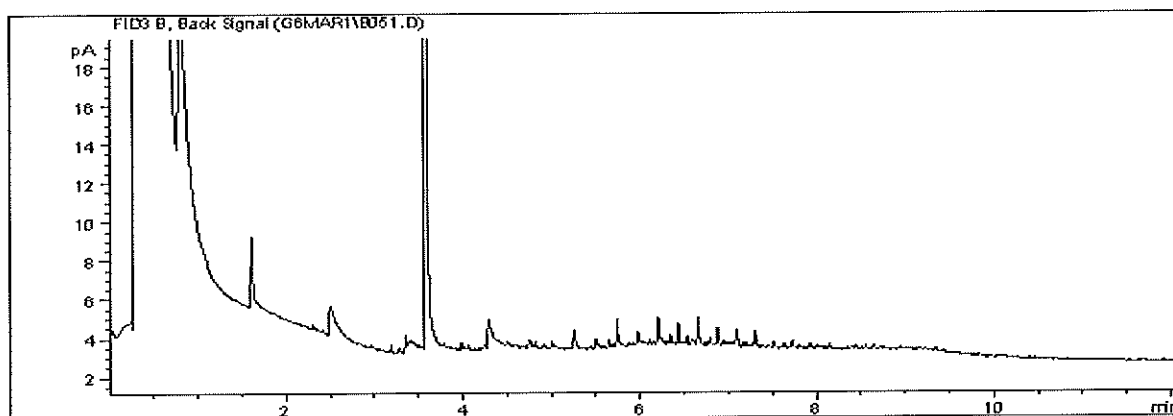
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



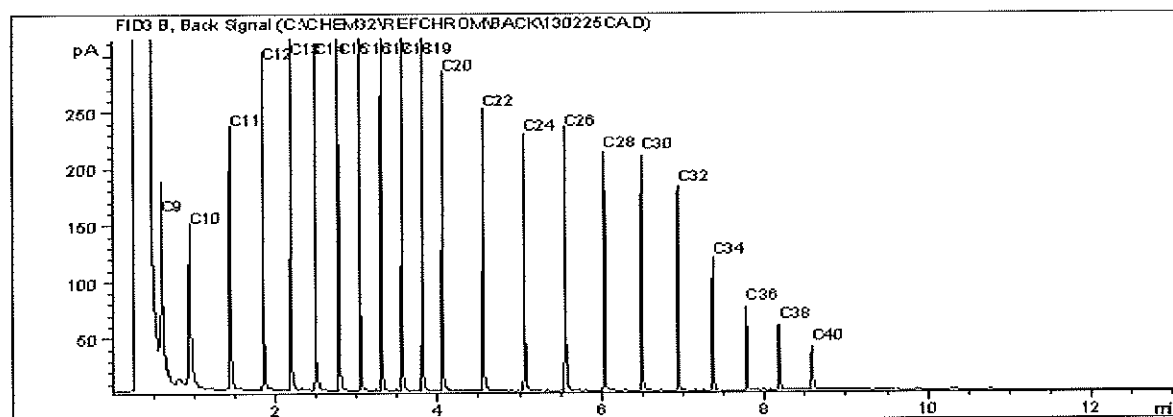
Report Date: 2013/03/04  
Maxxam Job #: B314347  
Maxxam Sample: FS0586

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-38-3.0-3.6

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

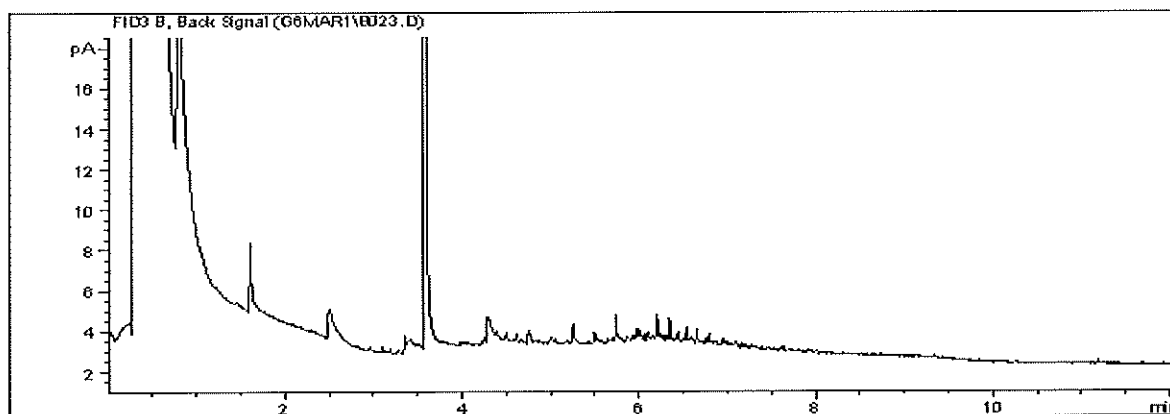
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



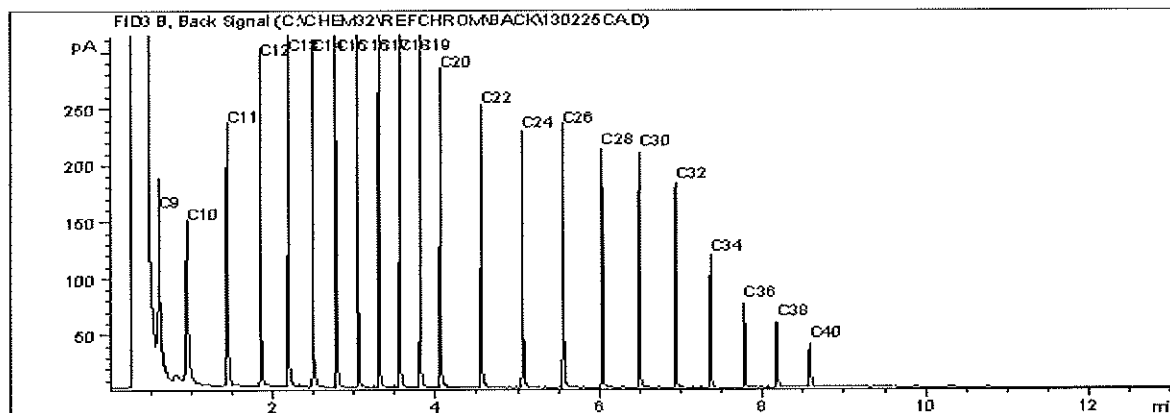
Report Date: 2013/03/04  
Maxxam Job #: B314347  
Maxxam Sample: FS0587

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-38

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

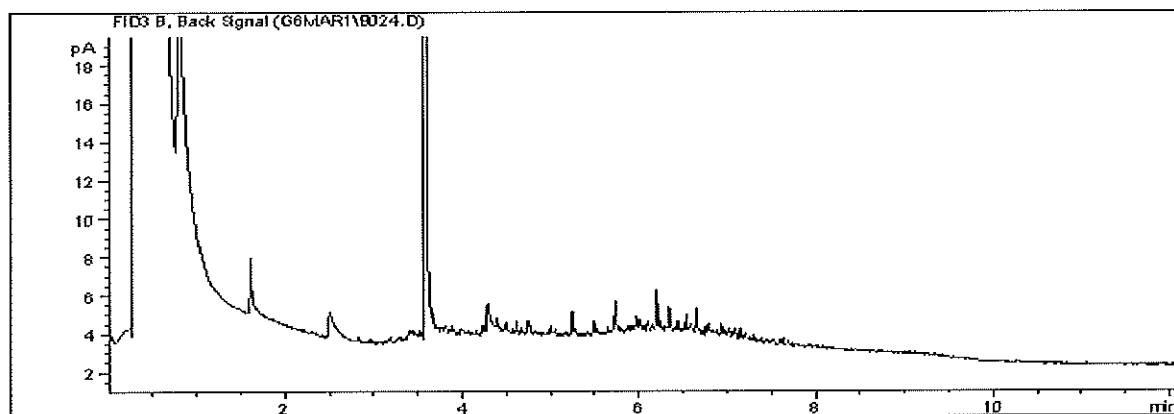
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



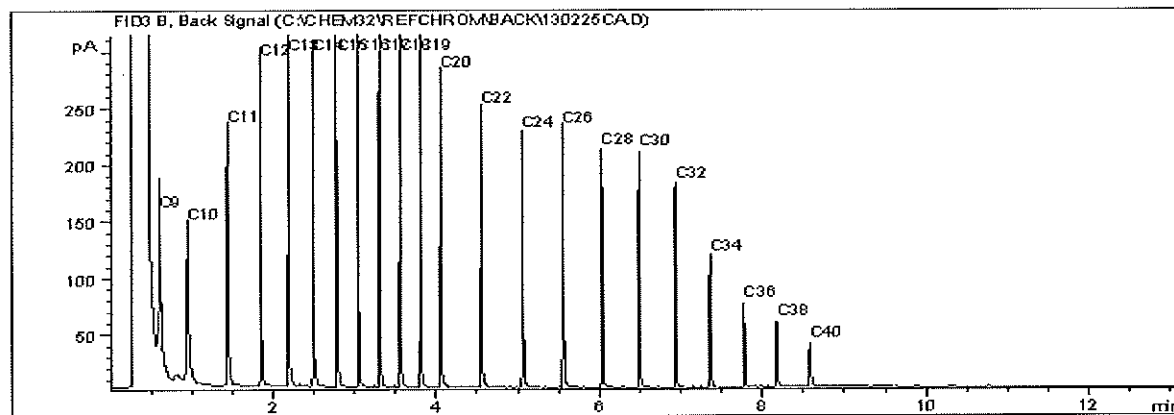
Report Date: 2013/03/04  
Maxxam Job #: B314347  
Maxxam Sample: FS0588

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-38-4.8-5.4

## CCME Hydrocarbons (F2-F4 In soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



# DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2013/02/21</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory : <u>Maxxam Analytics, Winnipeg</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B314347</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	X			All lab QC met acceptance criteria.
Extraction Surrogate Recovery	X			
Method Blank Concentration	X			
Matrix Duplicate RPD	X			
Matrix Spike Recovery	X			
Lab Control Sample Recovery			X	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			X	All field QC met alert limits.
Trip Blank Concentration			X	
Field Duplicate RPD	X			

Has CoA been signed off (Yes/No)?: Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: Yes

Were all samples analyzed within hold times (Yes/No)?: Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: No

Is Chain of Custody completed and signed (Yes/No)?: Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?: Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: No


Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?: Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): <u>Alexia Reske-Naurocki</u> Review Date: <u>2013/03/06</u> Revision Date (if applicable): _____	Data Reviewed by (Signature): <u></u> Revised by (Signature): _____
--	---



Your Project #: 10-1177.100  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
 Your C.O.C. #: S003354

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 7 TERRACON PLACE  
 WINNIPEG, MB  
 CANADA R2J 4B3

Report Date: 2013/03/04

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B314367**

**Received: 2013/02/22, 14:35**

Sample Matrix: Soil

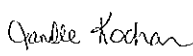
# Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE Soil LH, VH, F1 SIM/MS (1)	8	2013/02/26	2013/02/28	BBY8-SOP-00010	EPA SW846 8260C
Volatile F1-BTEX (1)	8	N/A	2013/02/28	BBY WI-00033	BC MOE Lab Method
CCME Hydrocarbons (F2-F4 in soil) (1)	4	2013/02/26	2013/02/27	BBY8SOP-00030	CCME Soil Tier 1
CCME Hydrocarbons (F2-F4 in soil) (1)	4	2013/02/26	2013/03/04	BBY8SOP-00030	CCME Soil Tier 1
Grain Size Classification (Calc) (1)	4	N/A	2013/02/27	BBY6SOP-00039	Carter SSMA 47.4
Elements by ICPMS (total) (1)	8	2013/02/27	2013/02/27	BBY7SOP-00001	EPA 6020A
Particulate Mesh 200 (1)	4	N/A	2013/02/27	BBY6SOP-00039	Carter SSMA 47.4
Moisture (1)	9	N/A	2013/02/27	BBY8SOP-00017	Ont MOE -E 3139
Moisture (1)	3	N/A	2013/02/28	BBY8SOP-00017	Ont MOE -E 3139
pH (2:1 DI Water Extract) (1)	5	2013/02/27	2013/02/27	BBY6SOP-00028	Carter, SSMA 16.2
pH (2:1 DI Water Extract) (1)	3	2013/02/28	2013/02/28	BBY6SOP-00028	Carter, SSMA 16.2
VOCs in Soil by HS GC/MS (1)	8	2013/02/26	2013/03/02	BBY8-SOP-00009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

**Encryption Key**

 Janelle Kochan  
 05 Mar 2013 08:21:35 -06:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
 Email: JKochan@maxxam.ca  
 Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		FS0783	FS0785	FS0787		FS0789		
Sampling Date		2013/02/21 08:00	2013/02/21 08:20	2013/02/21 08:40		2013/02/21 09:00		
COC Number		S003354	S003354	S003354		S003354		
	UNITS	BH-34-0.6-1.2	BH-34-1.8-2.4	BH-34-3.0-3.6	QC Batch	BH-34-4.2-4.8	RDL	QC Batch

Physical Properties								
Soluble (2:1) pH	pH Units	8.78	8.18	7.88	6602709	7.91	0.010	6602790

RDL = Reportable Detection Limit

Maxxam ID		FS0791	FS0792	FS0793	FS0794		
Sampling Date		2013/02/21 13:20	2013/02/21 13:30	2013/02/21 13:40	2013/02/21 13:50		
COC Number		S003354	S003354	S003354	S003354		
	UNITS	BH-39-0.6-1.2	BH-39-1.8-2.4	BH-39-3.0-3.6	BH-39-4.8-5.4	RDL	QC Batch

Physical Properties							
Soluble (2:1) pH	pH Units	7.79	8.29	8.06	7.99	0.010	6602790

RDL = Reportable Detection Limit



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PARTICLE SIZE DISTRIBUTION ANALYSIS (SOIL)

Maxxam ID		FS0784	FS0784	FS0786	FS0788	FS0790		
Sampling Date		2013/02/21 08:10	2013/02/21 08:10	2013/02/21 08:30	2013/02/21 08:50	2013/02/21 09:10		
COC Number		S003354	S003354	S003354	S003354	S003354		
	UNITS	BH-34-1.2-1.8	BH-34-1.2-1.8 Lab-Dup	BH-34-2.4-3.0	BH-34-3.6-4.2	BH-34-5.4-6.0	RDL	QC Batch

<b>Physical Properties</b>								
200 mesh (>.075 mm)	%	0.15	0.28	0.64	<0.10	0.20	0.10	6602856
200 mesh (<.075 mm)	%	99.9	99.7	99.4	100	99.8	0.10	6602856
Grain Size	N/A	FINE	N/A	FINE	FINE	FINE	N/A	6593955

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PHYSICAL TESTING (SOIL)

Maxxam ID		FS0783		FS0784		FS0785		
Sampling Date		2013/02/21 08:00		2013/02/21 08:10		2013/02/21 08:20		
COC Number		S003354		S003354		S003354		
	UNITS	BH-34-0.6-1.2	QC Batch	BH-34-1.2-1.8	QC Batch	BH-34-1.8-2.4	RDL	QC Batch

Physical Properties								
Moisture	%	19	6597940	25	6599165	32	0.30	6597940
RDL = Reportable Detection Limit								

Maxxam ID		FS0786		FS0787		FS0788		
Sampling Date		2013/02/21 08:30		2013/02/21 08:40		2013/02/21 08:50		
COC Number		S003354		S003354		S003354		
	UNITS	BH-34-2.4-3.0	QC Batch	BH-34-3.0-3.6	QC Batch	BH-34-3.6-4.2	RDL	QC Batch

Physical Properties								
Moisture	%	36	6599165	33	6597940	35	0.30	6599165
RDL = Reportable Detection Limit								

Maxxam ID		FS0789		FS0790		FS0791		
Sampling Date		2013/02/21 09:00		2013/02/21 09:10		2013/02/21 13:20		
COC Number		S003354		S003354		S003354		
	UNITS	BH-34-4.2-4.8	QC Batch	BH-34-5.4-6.0	QC Batch	BH-39-0.6-1.2	RDL	QC Batch

Physical Properties								
Moisture	%	35	6597940	34	6599165	26	0.30	6597940
RDL = Reportable Detection Limit								

Maxxam ID		FS0792	FS0793	FS0794		
Sampling Date		2013/02/21 13:30	2013/02/21 13:40	2013/02/21 13:50		
COC Number		S003354	S003354	S003354		
	UNITS	BH-39-1.8-2.4	BH-39-3.0-3.6	BH-39-4.8-5.4	RDL	QC Batch

Physical Properties						
Moisture	%	24	30	34	0.30	6597941
RDL = Reportable Detection Limit						



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		FS0783	FS0785	FS0787		FS0789		
Sampling Date		2013/02/21 08:00	2013/02/21 08:20	2013/02/21 08:40		2013/02/21 09:00		
COC Number		S003354	S003354	S003354		S003354		
	UNITS	BH-34-0.6-1.2	BH-34-1.8-2.4	BH-34-3.0-3.6	QC Batch	BH-34-4.2-4.8	RDL	QC Batch

Total Metals by ICPMS								
Total Lead (Pb)	mg/kg	5.58	17.0	16.6	6602705	16.2	0.10	6602773

RDL = Reportable Detection Limit

Maxxam ID		FS0791	FS0792	FS0793	FS0794		
Sampling Date		2013/02/21 13:20	2013/02/21 13:30	2013/02/21 13:40	2013/02/21 13:50		
COC Number		S003354	S003354	S003354	S003354		
	UNITS	BH-39-0.6-1.2	BH-39-1.8-2.4	BH-39-3.0-3.6	BH-39-4.8-5.4	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	14.3	14.4	16.9	16.1	0.10	6602773

RDL = Reportable Detection Limit



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		FS0783	FS0785	FS0787	FS0789	FS0791		
Sampling Date		2013/02/21 08:00	2013/02/21 08:20	2013/02/21 08:40	2013/02/21 09:00	2013/02/21 13:20		
COC Number		S003354	S003354	S003354	S003354	S003354		
	UNITS	BH-34-0.6-1.2	BH-34-1.8-2.4	BH-34-3.0-3.6	BH-34-4.2-4.8	BH-39-0.6-1.2	RDL	QC Batch

Volatiles								
1,2-dichloroethane	mg/kg	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	0.025	6604979
1,2-dibromoethane	mg/kg	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	0.025	6604979

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime

Maxxam ID		FS0792	FS0792	FS0793	FS0794		
Sampling Date		2013/02/21 13:30	2013/02/21 13:30	2013/02/21 13:40	2013/02/21 13:50		
COC Number		S003354	S003354	S003354	S003354		
	UNITS	BH-39-1.8-2.4	BH-39-1.8-2.4 Lab-Dup	BH-39-3.0-3.6	BH-39-4.8-5.4	RDL	QC Batch

Volatiles							
1,2-dichloroethane	mg/kg	<0.025 (1)	<0.025	<0.025 (1)	<0.025 (1)	0.025	6604979
1,2-dibromoethane	mg/kg	<0.025 (1)	<0.025	<0.025 (1)	<0.025 (1)	0.025	6604979

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		FS0783		FS0785		FS0787		
Sampling Date		2013/02/21 08:00		2013/02/21 08:20		2013/02/21 08:40		
COC Number		S003354		S003354		S003354		
	UNITS	BH-34-0.6-1.2	QC Batch	BH-34-1.8-2.4	QC Batch	BH-34-3.0-3.6	RDL	QC Batch

<b>Calculated Parameters</b>								
F1 (C6-C10) - BTEX	mg/kg	<10	6593938	<10	6593938	<10	10	6593938
<b>Ext. Pet. Hydrocarbon</b>								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	6610325	<10	6610325	<10	10	6602831
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	6610325	23	6610325	53	10	6602831
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	6610325	<10	6610325	12	10	6602831
Reached Baseline at C50	mg/kg	Yes	6610325	Yes	6610325	Yes	N/A	6602831
<b>Volatiles</b>								
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	6607498	<0.10 (1)	6606115	<0.10 (1)	0.10	6606115
Benzene	mg/kg	<0.0050 (1)	6607498	<0.0050 (1)	6606115	<0.0050 (1)	0.0050	6606115
Toluene	mg/kg	<0.020 (1)	6607498	<0.020 (1)	6606115	<0.020 (1)	0.020	6606115
Ethylbenzene	mg/kg	<0.010 (1)	6607498	<0.010 (1)	6606115	<0.010 (1)	0.010	6606115
m & p-Xylene	mg/kg	<0.040 (1)	6607498	<0.040 (1)	6606115	<0.040 (1)	0.040	6606115
o-Xylene	mg/kg	<0.040 (1)	6607498	<0.040 (1)	6606115	<0.040 (1)	0.040	6606115
Xylenes (Total)	mg/kg	<0.040	6607498	<0.040	6606115	<0.040	0.040	6606115
(C6-C10)	mg/kg	<10 (1)	6607498	<10 (1)	6606115	<10 (1)	10	6606115
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene (sur.)	%	102	6607498	102	6606115	100	N/A	6606115
4-BROMOFLUOROBENZENE (sur.)	%	100	6607498	101	6606115	103	N/A	6606115
D10-ETHYLBENZENE (sur.)	%	95	6607498	94	6606115	94	N/A	6606115
D4-1,2-DICHLOROETHANE (sur.)	%	96	6607498	96	6606115	97	N/A	6606115
O-TERPHENYL (sur.)	%	95	6610325	93	6610325	95	N/A	6602831

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		FS0789		FS0791		FS0792		
Sampling Date		2013/02/21 09:00		2013/02/21 13:20		2013/02/21 13:30		
COC Number		S003354		S003354		S003354		
	UNITS	BH-34-4.2-4.8	QC Batch	BH-39-0.6-1.2	QC Batch	BH-39-1.8-2.4	RDL	QC Batch

<b>Calculated Parameters</b>								
F1 (C6-C10) - BTEX	mg/kg	<10	6593938	<10	6593938	23	10	6593938
<b>Ext. Pet. Hydrocarbon</b>								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	6602831	<10	6610325	24	10	6611348
F3 (C16-C34 Hydrocarbons)	mg/kg	36	6602831	11	6610325	29	10	6611348
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	6602831	<10	6610325	10	10	6611348
Reached Baseline at C50	mg/kg	Yes	6602831	Yes	6610325	Yes	N/A	6611348
<b>Volatiles</b>								
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	6606115	<0.10 (1)	6607498	<0.10 (1)	0.10	6607498
Benzene	mg/kg	<0.0050 (1)	6606115	<0.0050 (1)	6607498	<0.0050 (1)	0.0050	6607498
Toluene	mg/kg	<0.020 (1)	6606115	<0.020 (1)	6607498	<0.020 (1)	0.020	6607498
Ethylbenzene	mg/kg	<0.010 (1)	6606115	<0.010 (1)	6607498	0.062 (1)	0.010	6607498
m & p-Xylene	mg/kg	<0.040 (1)	6606115	<0.040 (1)	6607498	0.21 (1)	0.040	6607498
o-Xylene	mg/kg	<0.040 (1)	6606115	<0.040 (1)	6607498	<0.040 (1)	0.040	6607498
Xylenes (Total)	mg/kg	<0.040	6606115	<0.040	6607498	0.21	0.040	6607498
(C6-C10)	mg/kg	<10 (1)	6606115	<10 (1)	6607498	23 (1)	10	6607498
<b>Surrogate Recovery (%)</b>								
1,4-Difluorobenzene (sur.)	%	104	6606115	101	6607498	100	N/A	6607498
4-BROMOFLUOROBENZENE (sur.)	%	104	6606115	101	6607498	102	N/A	6607498
D10-ETHYLBENZENE (sur.)	%	94	6606115	94	6607498	93	N/A	6607498
D4-1,2-DICHLOROETHANE (sur.)	%	102	6606115	98	6607498	103	N/A	6607498
O-TERPHENYL (sur.)	%	88	6602831	100	6610325	102	N/A	6611348

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		FS0793		FS0794		
Sampling Date		2013/02/21 13:40		2013/02/21 13:50		
COC Number		S003354		S003354		
	UNITS	BH-39-3.0-3.6	QC Batch	BH-39-4.8-5.4	RDL	QC Batch
<b>Calculated Parameters</b>						
F1 (C6-C10) - BTEX	mg/kg	<10	6593938	<10	10	6593938
<b>Ext. Pet. Hydrocarbon</b>						
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	6602831	<10	10	6602831
F3 (C16-C34 Hydrocarbons)	mg/kg	12	6602831	22	10	6602831
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	6602831	<10	10	6602831
Reached Baseline at C50	mg/kg	Yes	6602831	Yes	N/A	6602831
<b>Volatiles</b>						
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	6606115	<0.10 (1)	0.10	6607498
Benzene	mg/kg	<0.0050 (1)	6606115	<0.0050 (1)	0.0050	6607498
Toluene	mg/kg	<0.020 (1)	6606115	<0.020 (1)	0.020	6607498
Ethylbenzene	mg/kg	<0.010 (1)	6606115	<0.010 (1)	0.010	6607498
m & p-Xylene	mg/kg	<0.040 (1)	6606115	<0.040 (1)	0.040	6607498
o-Xylene	mg/kg	<0.040 (1)	6606115	<0.040 (1)	0.040	6607498
Xylenes (Total)	mg/kg	<0.040	6606115	<0.040	0.040	6607498
(C6-C10)	mg/kg	<10 (1)	6606115	<10 (1)	10	6607498
<b>Surrogate Recovery (%)</b>						
1,4-Difluorobenzene (sur.)	%	100	6606115	101	N/A	6607498
4-BROMOFLUOROBENZENE (sur.)	%	103	6606115	99	N/A	6607498
D10-ETHYLBENZENE (sur.)	%	94	6606115	95	N/A	6607498
D4-1,2-DICHLOROETHANE (sur.)	%	97	6606115	97	N/A	6607498
O-TERPHENYL (sur.)	%	94	6602831	82	N/A	6602831
N/A = Not Applicable RDL = Reportable Detection Limit ( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime						



Maxxam Job #: B314367  
Report Date: 2013/03/04

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

Package 1	9.1°C
-----------	-------

Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

Results relate only to the items tested.



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB314367

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6597940 LO1	Method Blank	Moisture	2013/02/27	<0.30		%	
	RPD	Moisture	2013/02/27	8.4		%	20
6597941 LO1	Method Blank	Moisture	2013/02/28	<0.30		%	
	RPD	Moisture	2013/02/28	4.3		%	20
6599165 LO1	Method Blank	Moisture	2013/02/27	<0.30		%	
	RPD	Moisture	2013/02/27	1.8		%	20
6602705 DJ	Matrix Spike	Total Lead (Pb)	2013/02/27		108	%	75 - 125
	QC Standard	Total Lead (Pb)	2013/02/27		100	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2013/02/27		100	%	75 - 125
	Method Blank	Total Lead (Pb)	2013/02/27	<0.10		mg/kg	
	RPD	Total Lead (Pb)	2013/02/27	2.8		%	35
6602709 NS6	Spiked Blank	Soluble (2:1) pH	2013/02/28		102	%	96 - 104
	RPD	Soluble (2:1) pH	2013/02/28	0.5		%	20
6602773 DJ	Matrix Spike	Total Lead (Pb)	2013/02/27		107	%	75 - 125
	QC Standard	Total Lead (Pb)	2013/02/27		102	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2013/02/27		108	%	75 - 125
	Method Blank	Total Lead (Pb)	2013/02/27	<0.10		mg/kg	
6602790 NS6	Spiked Blank	Soluble (2:1) pH	2013/02/27		102	%	96 - 104
	RPD	Soluble (2:1) pH	2013/02/27	0.1		%	20
6602831 TL2	Matrix Spike	O-TERPHENYL (sur.)	2013/02/27		100	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27		108	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/02/27		102	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/02/27		97	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/02/27		95	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27		97	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/02/27		90	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/02/27		87	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/02/27		95	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/02/27	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/02/27	<10		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/02/27	NC (1)		%	40
		F3 (C16-C34 Hydrocarbons)	2013/02/27	4.9 (1)		%	40
		F4 (C34-C50 Hydrocarbons)	2013/02/27	2.1 (1)		%	40
		Reached Baseline at C50	2013/02/27	NC		%	50
6602856 MCI	RPD [FS0784-01]	200 mesh (>.075 mm)	2013/02/27	NC		%	35
		200 mesh (<.075 mm)	2013/02/27	0.1		%	35
6604979 MM5	Matrix Spike						
	[FS0792-01]	1,2-dichloroethane	2013/03/02		92	%	60 - 140
		1,2-dibromoethane	2013/03/02		96	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2013/03/01		110	%	60 - 140
		1,2-dibromoethane	2013/03/01		96	%	60 - 140
	Method Blank	1,2-dichloroethane	2013/03/01	<0.025		mg/kg	
		1,2-dibromoethane	2013/03/01	<0.025		mg/kg	
	RPD [FS0792-01]	1,2-dichloroethane	2013/03/02	NC		%	40
		1,2-dibromoethane	2013/03/02	NC		%	40
6606115 MM5	Matrix Spike	1,4-Difluorobenzene (sur.)	2013/02/28		104	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/02/28		100	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2013/02/28		92	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/02/28		97	%	70 - 130
		Benzene	2013/02/28		93	%	60 - 140
		Toluene	2013/02/28		94	%	60 - 140
		Ethylbenzene	2013/02/28		102	%	60 - 140
		m & p-Xylene	2013/02/28		101	%	60 - 140
		o-Xylene	2013/02/28		100	%	60 - 140



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB314367

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6606115	MM5	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/02/28	95	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2013/02/28	103	%	70 - 130
			D10-ETHYLBENZENE (sur.)	2013/02/28	102	%	50 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2013/02/28	106	%	70 - 130
			Benzene	2013/02/28	104	%	60 - 140
			Toluene	2013/02/28	105	%	60 - 140
			Ethylbenzene	2013/02/28	113	%	60 - 140
			m & p-Xylene	2013/02/28	113	%	60 - 140
			o-Xylene	2013/02/28	112	%	60 - 140
			(C6-C10)	2013/02/28	99	%	60 - 140
		Method Blank	1,4-Difluorobenzene (sur.)	2013/02/28	97	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2013/02/28	100	%	70 - 130
			D10-ETHYLBENZENE (sur.)	2013/02/28	109	%	50 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2013/02/28	104	%	70 - 130
			Methyl-tert-butylether (MTBE)	2013/02/28	<0.10	mg/kg	
			Benzene	2013/02/28	<0.0050	mg/kg	
			Toluene	2013/02/28	<0.020	mg/kg	
			Ethylbenzene	2013/02/28	<0.010	mg/kg	
			m & p-Xylene	2013/02/28	<0.040	mg/kg	
			o-Xylene	2013/02/28	<0.040	mg/kg	
			Xylenes (Total)	2013/02/28	<0.040	mg/kg	
			(C6-C10)	2013/02/28	<10	mg/kg	
		RPD	Methyl-tert-butylether (MTBE)	2013/02/28	NC (2)	%	40
			Benzene	2013/02/28	NC (2)	%	40
			Toluene	2013/02/28	NC (2)	%	40
			Ethylbenzene	2013/02/28	NC (2)	%	40
			m & p-Xylene	2013/02/28	NC (2)	%	40
			o-Xylene	2013/02/28	NC (2)	%	40
			Xylenes (Total)	2013/02/28	NC	%	40
6607498	MM5	Matrix Spike	1,4-Difluorobenzene (sur.)	2013/02/28	102	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2013/02/28	106	%	70 - 130
			D10-ETHYLBENZENE (sur.)	2013/02/28	94	%	50 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2013/02/28	95	%	70 - 130
			Benzene	2013/02/28	106	%	60 - 140
			Toluene	2013/02/28	108	%	60 - 140
			Ethylbenzene	2013/02/28	116	%	60 - 140
			m & p-Xylene	2013/02/28	117	%	60 - 140
			o-Xylene	2013/02/28	118	%	60 - 140
		Spiked Blank	1,4-Difluorobenzene (sur.)	2013/02/28	101	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2013/02/28	107	%	70 - 130
			D10-ETHYLBENZENE (sur.)	2013/02/28	83	%	50 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2013/02/28	94	%	70 - 130
			Benzene	2013/02/28	79	%	60 - 140
			Toluene	2013/02/28	81	%	60 - 140
			Ethylbenzene	2013/02/28	88	%	60 - 140
			m & p-Xylene	2013/02/28	87	%	60 - 140
			o-Xylene	2013/02/28	87	%	60 - 140
			(C6-C10)	2013/02/28	104	%	60 - 140
		Method Blank	1,4-Difluorobenzene (sur.)	2013/02/28	103	%	70 - 130
			4-BROMOFLUOROBENZENE (sur.)	2013/02/28	100	%	70 - 130
			D10-ETHYLBENZENE (sur.)	2013/02/28	93	%	50 - 130
			D4-1,2-DICHLOROETHANE (sur.)	2013/02/28	97	%	70 - 130
			Methyl-tert-butylether (MTBE)	2013/02/28	<0.10	mg/kg	
			Benzene	2013/02/28	<0.0050	mg/kg	
			Toluene	2013/02/28	<0.020	mg/kg	



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB314367

QA/QC Batch		QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
Num	Init			yyyy/mm/dd				
6607498	MM5	Method Blank	Ethylbenzene	2013/02/28	<0.010		mg/kg	
			m & p-Xylene	2013/02/28	<0.040		mg/kg	
			o-Xylene	2013/02/28	<0.040		mg/kg	
			Xylenes (Total)	2013/02/28	<0.040		mg/kg	
			(C6-C10)	2013/02/28	<10		mg/kg	
		RPD	Methyl-tert-butylether (MTBE)	2013/02/28	NC (2)		%	40
			Benzene	2013/02/28	NC (2)		%	40
			Toluene	2013/02/28	NC (2)		%	40
			Ethylbenzene	2013/02/28	NC (2)		%	40
			m & p-Xylene	2013/02/28	NC (2)		%	40
			o-Xylene	2013/02/28	NC (2)		%	40
			Xylenes (Total)	2013/02/28	NC		%	40
			(C6-C10)	2013/02/28	NC (2)		%	40
6610325	TL2	Matrix Spike	O-TERPHENYL (sur.)	2013/03/01		97	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/03/01		96	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2013/03/01		79	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2013/03/01		79	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2013/03/01		82	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/03/01		102	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2013/03/01		83	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2013/03/01		84	%	80 - 120
		Method Blank	O-TERPHENYL (sur.)	2013/03/01		93	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/03/01	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2013/03/01	<10		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2013/03/01	<10		mg/kg	
			Reached Baseline at C50	2013/03/01	YES		mg/kg	
		RPD	F2 (C10-C16 Hydrocarbons)	2013/03/01	NC		%	40
			F3 (C16-C34 Hydrocarbons)	2013/03/01	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2013/03/01	NC		%	40
			Reached Baseline at C50	2013/03/01	NC		%	50
6611348	PN2	Matrix Spike	O-TERPHENYL (sur.)	2013/03/04		99	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/03/04		102	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2013/03/04		90	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2013/03/04		81	%	50 - 130
		Spiked Blank	O-TERPHENYL (sur.)	2013/03/04		103	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/03/04		102	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2013/03/04		90	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2013/03/04		81	%	80 - 120
		Method Blank	O-TERPHENYL (sur.)	2013/03/04		113	%	50 - 130
			F2 (C10-C16 Hydrocarbons)	2013/03/04	<10		mg/kg	
			F3 (C16-C34 Hydrocarbons)	2013/03/04	<10		mg/kg	
			F4 (C34-C50 Hydrocarbons)	2013/03/04	<10		mg/kg	
			Reached Baseline at C50	2013/03/04	YES		mg/kg	
		RPD	F2 (C10-C16 Hydrocarbons)	2013/03/04	8.3		%	40
			F3 (C16-C34 Hydrocarbons)	2013/03/04	NC		%	40
			F4 (C34-C50 Hydrocarbons)	2013/03/04	NC		%	40
			Reached Baseline at C50	2013/03/04	NC		%	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.



O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB314367

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

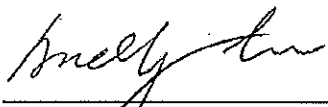
- ( 1 ) Detection limits raised due to high moisture content.
- ( 2 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



**Validation Signature Page****Maxxam Job #: B314367**

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Andy Lu, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Consulting Company:	Patterson
Contact:	Adam Wickman
Address:	7 Terracotta Pl. Winnipeg
Contact #:	Mon. to Fri. 9:00 AM - 5:00 PM
Project ID:	10-1177-100
Sampled By:	Adam Patterson

**SERVICE REQUESTED:**

☐ RUSH (Contact lab to reserve)

☐ 2 DAY

☐ 1 DAY

☐ SAME DAY

Date Required: \_\_\_\_\_

☒ REGULAR (5 Days)

Report Distribution (E-Mail):

Adam Wickman

**REGULATORY GUIDELINES**

☐ AT

☒ SOME LOW

☐ Regulated Drinking Water

☐ Other



**DOWNSTREAM** ☒

Site address: 209 St. James Rd

Site Owner: Winnipeg, Manitoba

Outlet number: 63955

Measuring point: (A) 10 m to outlet

Senior Suncor Advisor:

Brian Holmes = Rick Leming ☒

Other:

Sample ID	Depth (m)	Date Time Sampled (M/D/Y)	Soil	Water	Other Analysis	# of Containers Submitted
1 BH-34-0.6-1.2	M	13/02/21 09:00	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
2 BH-34-1.2-1.8	M	13/02/21 09:10	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
3 BH-34-1.8-2.4	M	13/02/21 09:20	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
4 BH-34-2.4-3.0	M	13/02/21 09:30	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
5 BH-34-3.0-3.6	M	13/02/21 09:40	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
6 BH-34-3.6-4.2	M	13/02/21 09:50	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
7 BH-34-4.2-4.8	M	13/02/21 09:55	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
8 BH-34-5.4-6.0	M	13/02/21 09:55	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
9 BH-39-0.6-1.2	M	13/02/21 13:10	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
10 BH-39-1.8-2.4	M	13/02/21 13:20	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
11 BH-39-3.0-3.6	M	13/02/21 13:40	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2
12 BH-39-4.8-5.4	M	13/02/21 13:50	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	Regulated Metals (GME/AT)	2

**UPSTREAM** ☐

Site address: \_\_\_\_\_

Site Owner: \_\_\_\_\_

Outlet number: \_\_\_\_\_

Measuring point: \_\_\_\_\_

Senior Suncor Advisor:

Mike Morgan = Ben Parsons ☐

Russell Browne = Phil Scobie ☐

Other:

**LAB USE ONLY**

Received By: \_\_\_\_\_

Date: 13/02/21

Time: 13:30

Maxxam Job #: B314367

Container: \_\_\_\_\_

Temperature: \_\_\_\_\_

Ice: \_\_\_\_\_

Lab Comments: \_\_\_\_\_

Special Instructions: \_\_\_\_\_

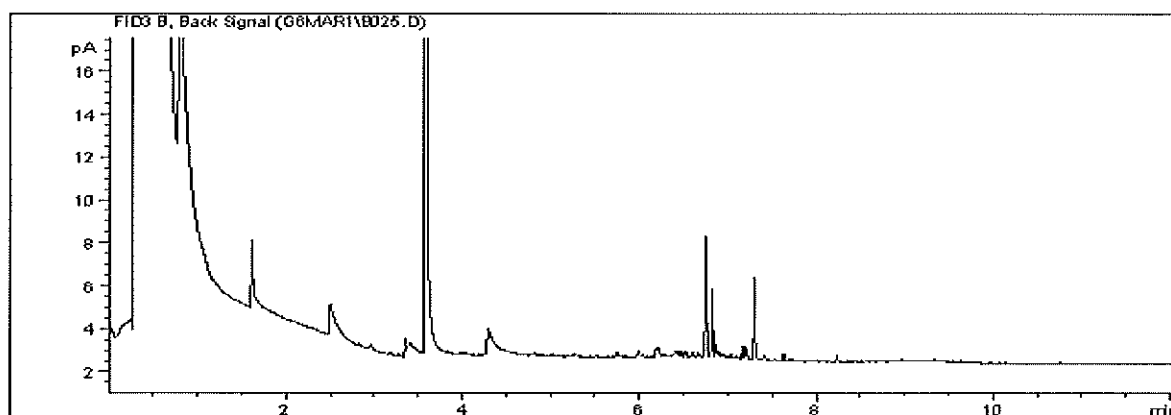
Maxxam Analytical Services Inc. 675 Berry Street, Winnipeg, MB R3H 1A7, Tel: (204) 772-7276, Fax: (204) 772-2386 www.maxxam.ca



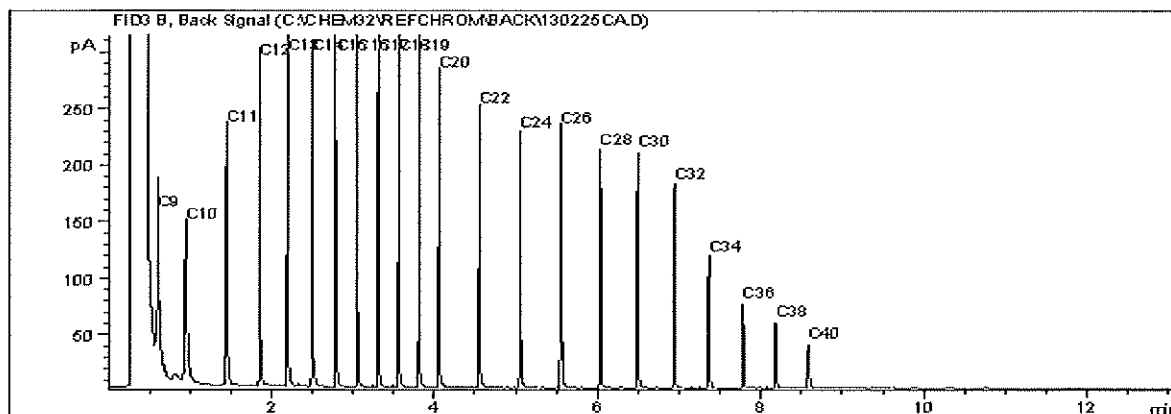
Report Date: 2013/03/04  
Maxxam Job #: B314367  
Maxxam Sample: FS0783

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-34-0.6-1.2

## CCME Hydrocarbons (F2-F4 In soil) Chromatogram



Carbon Range Distribution -- Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

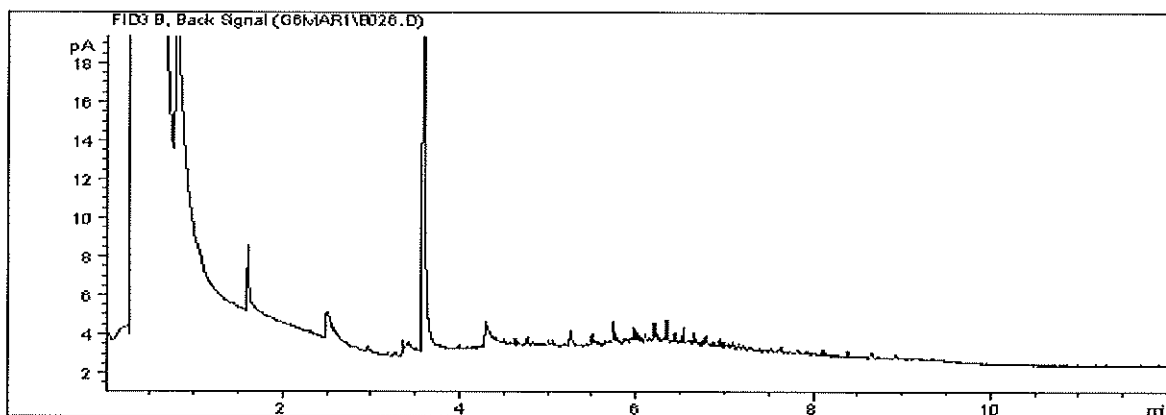
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



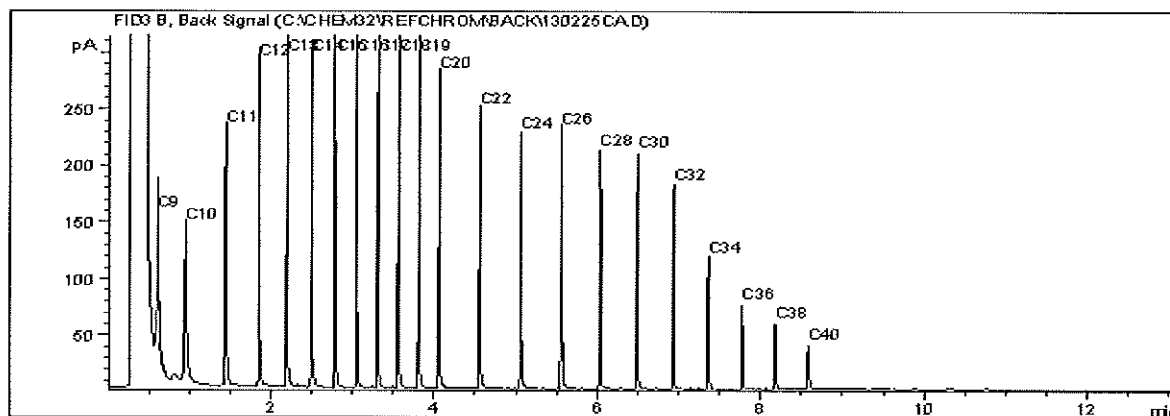
Report Date: 2013/03/04  
Maxxam Job #: B314367  
Maxxam Sample: FS0785

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-34-1.8-2.4

CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

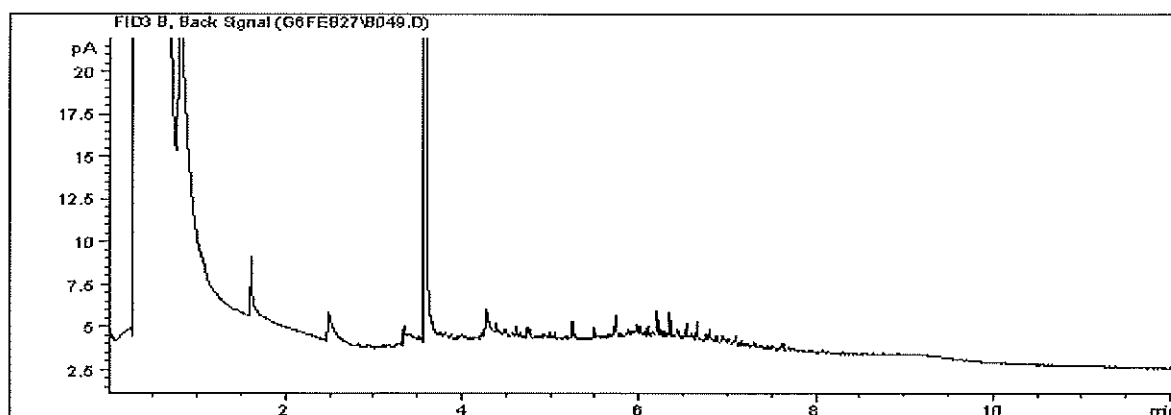
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



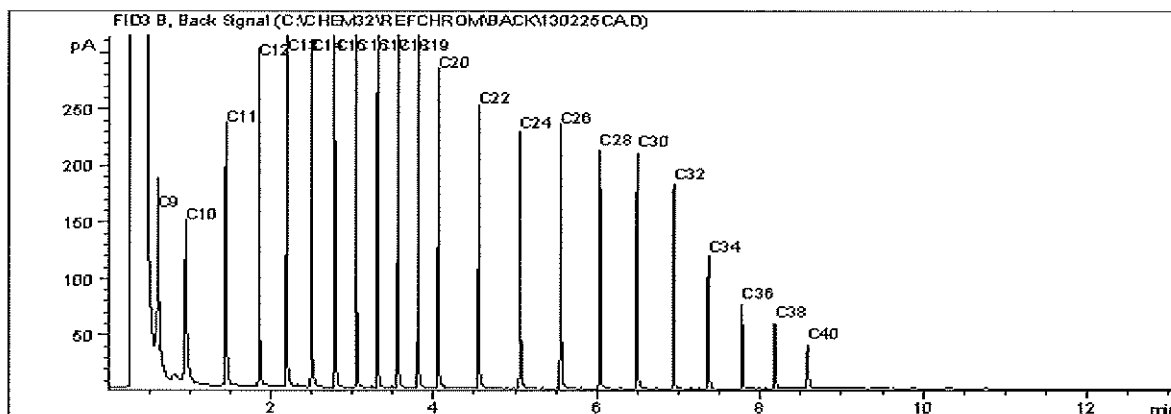
Report Date: 2013/03/04  
Maxxam Job #: B314367  
Maxxam Sample: FS0787

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-34-3.0-3.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

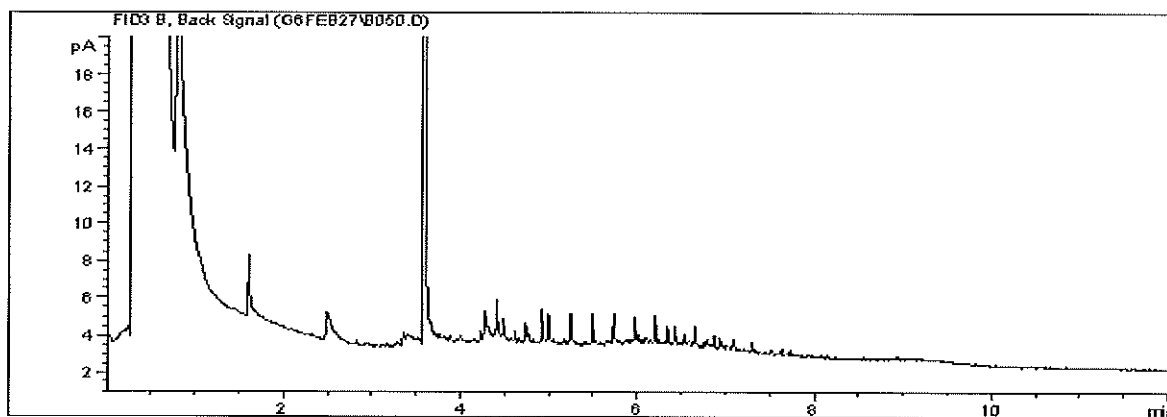
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



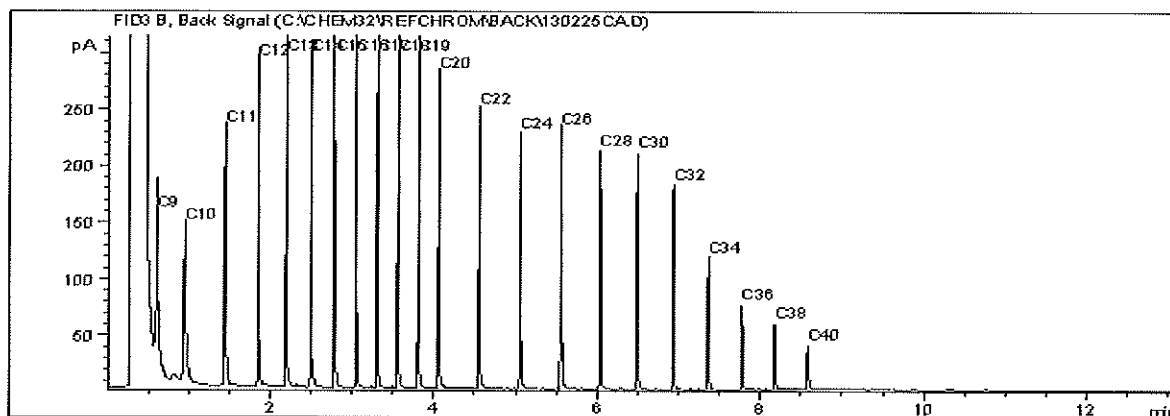
Report Date: 2013/03/04  
Maxxam Job #: B314367  
Maxxam Sample: FS0789

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-34-4.2-4.8

### CCME Hydrocarbons (F2-F4 In soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



#### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

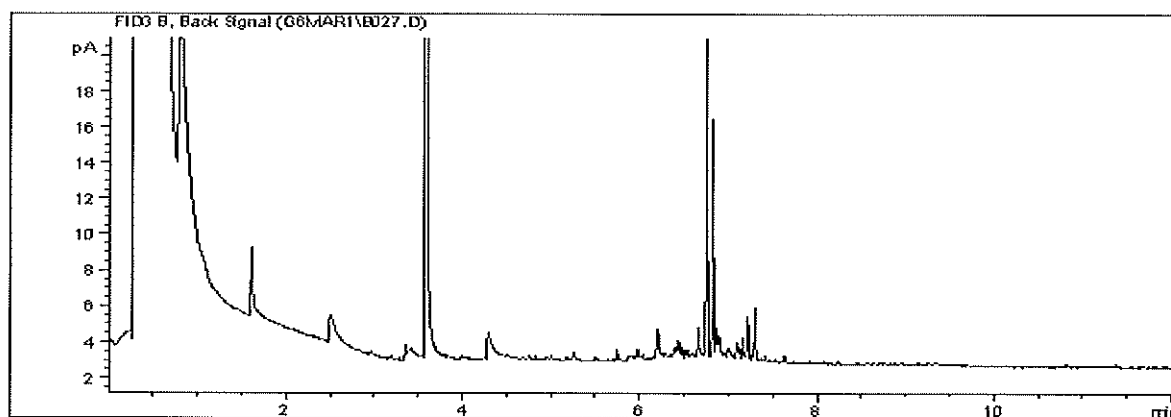
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



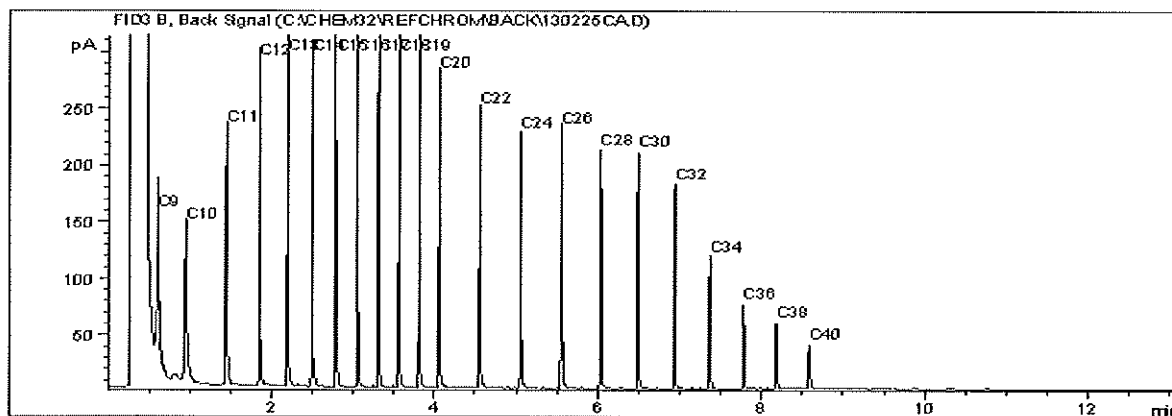
Report Date: 2013/03/04  
Maxxam Job #: B314367  
Maxxam Sample: FS0791

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-39-0.6-1.2

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution -- Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

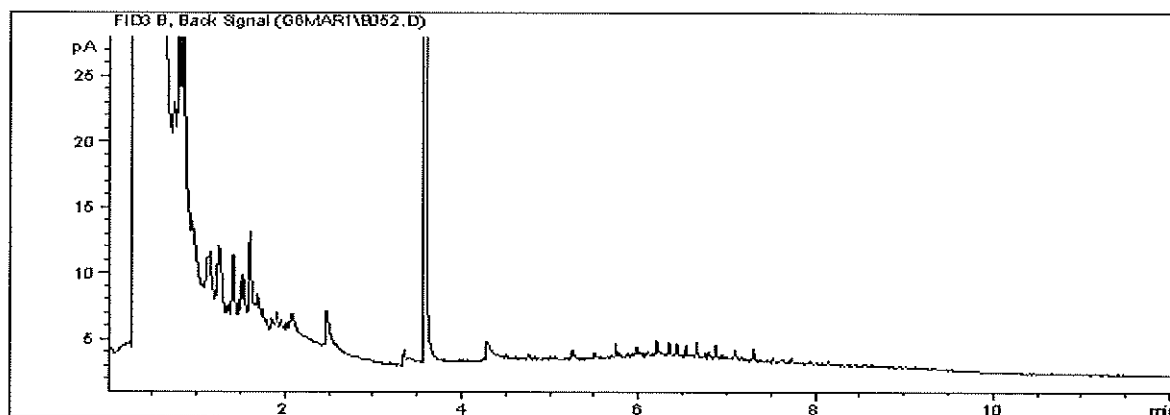
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



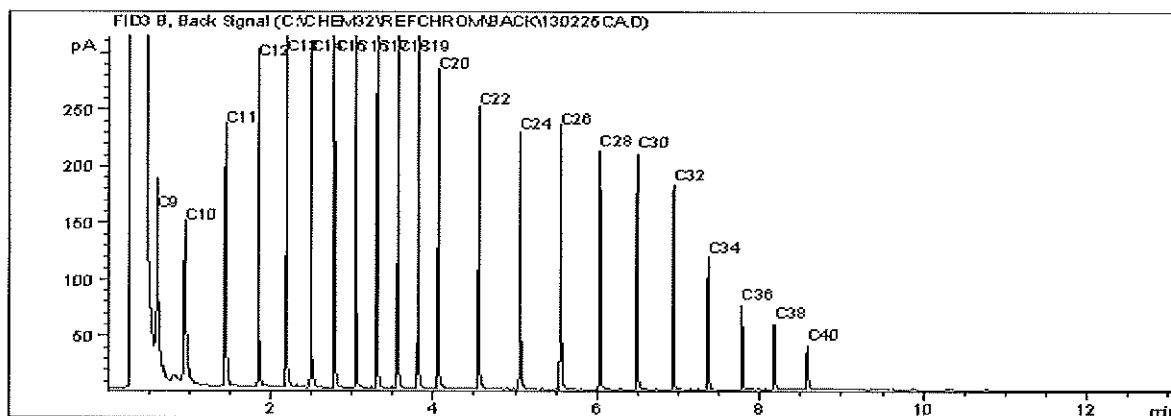
Report Date: 2013/03/04  
Maxxam Job #: B314367  
Maxxam Sample: FS0792

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-39-1.8-2.4

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

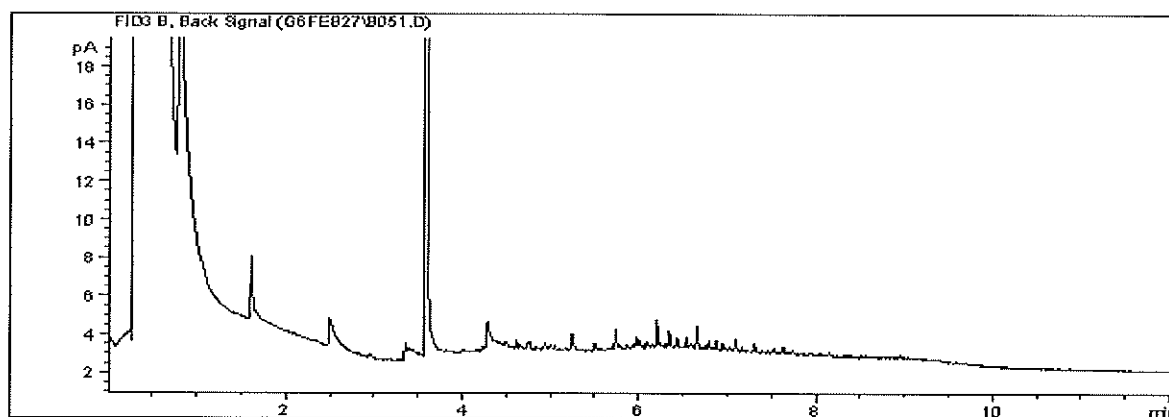
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



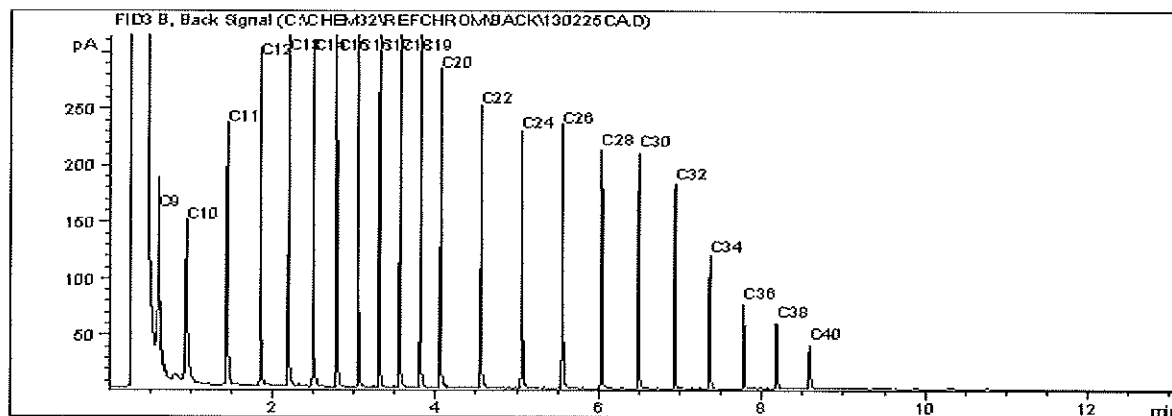
Report Date: 2013/03/04  
Maxxam Job #: B314367  
Maxxam Sample: FS0793

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-39-3.0-3.6

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

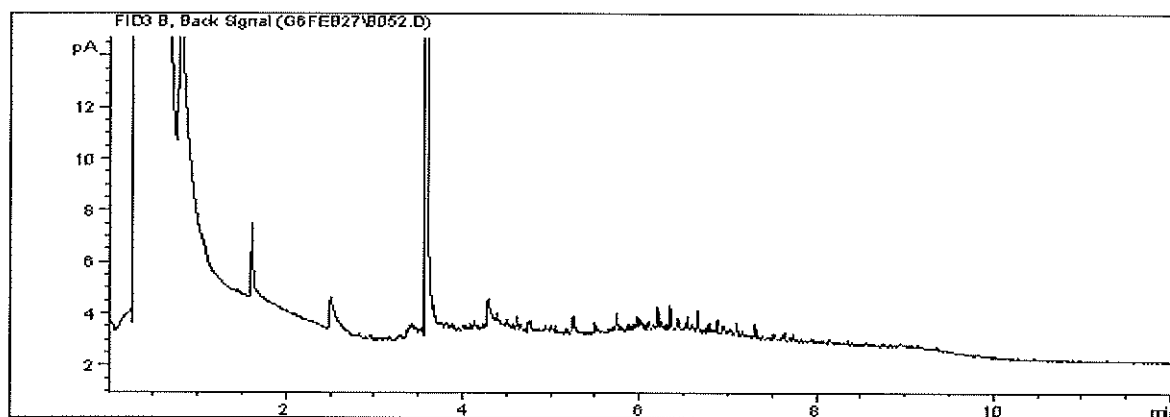
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



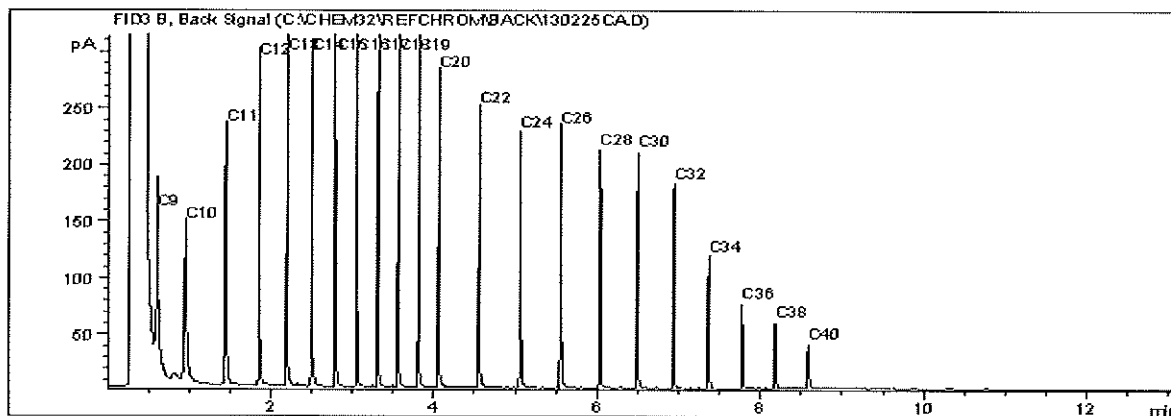
Report Date: 2013/03/04  
Maxxam Job #: B314367  
Maxxam Sample: FS0794

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-39-4.8-5.4

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



### DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2013/02/21</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory : <u>Maxxam Analytics, Winnipeg</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B314367</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	X			All lab QC met acceptance criteria.
Extraction Surrogate Recovery	X			
Method Blank Concentration	X			
Matrix Duplicate RPD	X			
Matrix Spike Recovery	X			
Lab Control Sample Recovery			X	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			X	No field QC were submitted.
Trip Blank Concentration			X	
Field Duplicate RPD			X	

Has CoA been signed off (Yes/No)?: Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: Yes

Were all samples analyzed within hold times (Yes/No)?: Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: No

Is Chain of Custody completed and signed (Yes/No)?: Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?: Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: No


Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?: Yes

If answer is "No", describe and provide rationale: \_\_\_\_\_

Data Reviewed by (Print): <u>Alexia Reske-Naurocki</u> Review Date: <u>2013/03/06</u> Revision Date (if applicable): _____	Data Reviewed by (Signature): <u></u> Revised by (Signature): _____
--	---



Your Project #: 10-1177.100  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
 Your C.O.C. #: S003353

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 7 TERRACON PLACE  
 WINNIPEG, MB  
 CANADA R2J 4B3

**Report Date: 2013/03/05**

This report supersedes all previous reports with the same Maxxam job number

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B314377**

**Received: 2013/02/22, 14:35**

Sample Matrix: Soil

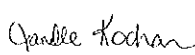
# Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE Soil LH, VH, F1 SIM/MS (1)	7	2013/02/26	2013/02/28	BBY8-SOP-00010	EPA SW846 8260C
Volatile F1-BTEX (1)	2	N/A	2013/02/28	BBY WI-00033	BC MOE Lab Method
Volatile F1-BTEX (1)	5	N/A	2013/03/01	BBY WI-00033	BC MOE Lab Method
CCME Hydrocarbons (F2-F4 In soil) (1)	6	2013/02/26	2013/02/27	BBY8SOP-00030	CCME Soil Tier 1
CCME Hydrocarbons (F2-F4 In soil) (1)	1	2013/02/26	2013/03/04	BBY8SOP-00030	CCME Soil Tier 1
Grain Size Classification (Calc) (1)	4	N/A	2013/02/27	BBY6SOP-00039	Carter SSMA 47.4
Elements by ICPMS (total) (1)	7	2013/02/26	2013/02/27	BBY7SOP-00001	EPA 6020A
Particulate Mesh 200 (1)	4	N/A	2013/02/27	BBY6SOP-00039	Carter SSMA 47.4
Moisture (1)	4	N/A	2013/02/27	BBY8SOP-00017	Ont MOE -E 3139
Moisture (1)	7	N/A	2013/02/28	BBY8SOP-00017	Ont MOE -E 3139
pH (2:1 DI Water Extract) (1)	7	2013/02/27	2013/02/27	BBY6SOP-00028	Carter, SSMA 16.2
VOCs in Soil by HS GC/MS (1)	1	2013/02/26	2013/03/01	BBY8-SOP-0009	EPA 8260C
VOCs in Soil by HS GC/MS (1)	6	2013/02/26	2013/03/02	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

**Encryption Key**

 Janelle Kochan  
 05 Mar 2013 14:57:51 -08:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
 Email: JKochan@maxxam.ca  
 Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		FS0841	FS0843	FS0845	FS0847	FS0848		
Sampling Date		2013/02/21 09:40	2013/02/21 10:00	2013/02/21 10:20	2013/02/21 11:40	2013/02/21 11:50		
COC Number		S003353	S003353	S003353	S003353	S003353		
	UNITS	BH-35-0.6-1.2	BH-35-2.4-3.0	BH-35-4.2-4.8	BH-37-0.0-0.6	BH-37-1.8-2.4	RDL	QC Batch

Physical Properties								
Soluble (2:1) pH	pH Units	8.18	8.78	7.83	8.43	8.62	0.010	6598360

RDL = Reportable Detection Limit

Maxxam ID		FS0849	FS0850		
Sampling Date		2013/02/21 12:00	2013/02/21 12:10		
COC Number		S003353	S003353		
	UNITS	BH-37-3.0-3.6	BH-37-4.2-4.8	RDL	QC Batch

Physical Properties					
Soluble (2:1) pH	pH Units	8.20	8.01	0.010	6598360

RDL = Reportable Detection Limit



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PARTICLE SIZE DISTRIBUTION ANALYSIS (SOIL)

Maxxam ID		FS0840	FS0842	FS0844	FS0846		
Sampling Date		2013/02/21 09:30	2013/02/21 09:50	2013/02/21 10:10	2013/02/21 10:30		
COC Number		S003353	S003353	S003353	S003353		
	UNITS	BH-35-0.0-0.6	BH-35-1.8-2.4	BH-35-3.0-3.6	BH-35-4.8-5.4	RDL	QC Batch

Physical Properties							
200 mesh (>.075 mm)	%	0.95	0.36	1.02	0.33	0.10	6602856
200 mesh (<.075 mm)	%	99.1	99.6	99.0	99.7	0.10	6602856
Grain Size	N/A	FINE	FINE	FINE	FINE	N/A	6593955

RDL = Reportable Detection Limit



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PHYSICAL TESTING (SOIL)

Maxxam ID		FS0840		FS0841		FS0842		
Sampling Date		2013/02/21 09:30		2013/02/21 09:40		2013/02/21 09:50		
COC Number		S003353		S003353		S003353		
	UNITS	BH-35-0.0-0.6	QC Batch	BH-35-0.6-1.2	QC Batch	BH-35-1.8-2.4	RDL	QC Batch

Physical Properties								
Moisture	%	28	6599165	28	6597941	25	0.30	6599165

RDL = Reportable Detection Limit

Maxxam ID		FS0843		FS0844		FS0845		
Sampling Date		2013/02/21 10:00		2013/02/21 10:10		2013/02/21 10:20		
COC Number		S003353		S003353		S003353		
	UNITS	BH-35-2.4-3.0	QC Batch	BH-35-3.0-3.6	QC Batch	BH-35-4.2-4.8	RDL	QC Batch

Physical Properties								
Moisture	%	19	6597941	33	6599165	31	0.30	6597941

RDL = Reportable Detection Limit

Maxxam ID		FS0846		FS0847		FS0848		FS0849		
Sampling Date		2013/02/21 10:30		2013/02/21 11:40		2013/02/21 11:50		2013/02/21 12:00		
COC Number		S003353		S003353		S003353		S003353		
	UNITS	BH-35-4.8-5.4	QC Batch	BH-37-0.0-0.6		BH-37-1.8-2.4		BH-37-3.0-3.6	RDL	QC Batch

Physical Properties										
Moisture	%	33	6599165	23		15		35	0.30	6597941

RDL = Reportable Detection Limit

Maxxam ID		FS0850		
Sampling Date		2013/02/21 12:10		
COC Number		S003353		
	UNITS	BH-37-4.2-4.8	RDL	QC Batch

Physical Properties				
Moisture	%	36	0.30	6597941

RDL = Reportable Detection Limit



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		FS0841	FS0843	FS0845	FS0847		
Sampling Date		2013/02/21 09:40	2013/02/21 10:00	2013/02/21 10:20	2013/02/21 11:40		
COC Number		S003353	S003353	S003353	S003353		
	UNITS	BH-35-0.6-1.2	BH-35-2.4-3.0	BH-35-4.2-4.8	BH-37-0.0-0.6	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	14.8	4.06	14.3	270	0.10	6598356

RDL = Reportable Detection Limit

Maxxam ID		FS0848	FS0849	FS0850		
Sampling Date		2013/02/21 11:50	2013/02/21 12:00	2013/02/21 12:10		
COC Number		S003353	S003353	S003353		
	UNITS	BH-37-1.8-2.4	BH-37-3.0-3.6	BH-37-4.2-4.8	RDL	QC Batch

Total Metals by ICPMS						
Total Lead (Pb)	mg/kg	5.94	15.3	16.4	0.10	6598356

RDL = Reportable Detection Limit



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		FS0841	FS0843	FS0845	FS0847	FS0848		
Sampling Date		2013/02/21 09:40	2013/02/21 10:00	2013/02/21 10:20	2013/02/21 11:40	2013/02/21 11:50		
COC Number		S003353	S003353	S003353	S003353	S003353		
	UNITS	BH-35-0.6-1.2	BH-35-2.4-3.0	BH-35-4.2-4.8	BH-37-0.0-0.6	BH-37-1.8-2.4	RDL	QC Batch

Volatiles								
1,2-dichloroethane	mg/kg	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	0.025	6604979
1,2-dibromoethane	mg/kg	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	<0.025 (1)	0.025	6604979

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime

Maxxam ID		FS0849		FS0850		
Sampling Date		2013/02/21 12:00		2013/02/21 12:10		
COC Number		S003353		S003353		
	UNITS	BH-37-3.0-3.6	QC Batch	BH-37-4.2-4.8	RDL	QC Batch

Volatiles						
1,2-dichloroethane	mg/kg	<0.025 (1)	6604979	<0.025 (1)	0.025	6612201
1,2-dibromoethane	mg/kg	<0.025 (1)	6604979	<0.025 (1)	0.025	6612201

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		FS0841	FS0843	FS0845	FS0847		
Sampling Date		2013/02/21 09:40	2013/02/21 10:00	2013/02/21 10:20	2013/02/21 11:40		
COC Number		S003353	S003353	S003353	S003353		
	UNITS	BH-35-0.6-1.2	BH-35-2.4-3.0	BH-35-4.2-4.8	BH-37-0.0-0.6	RDL	QC Batch

<b>Calculated Parameters</b>							
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	<10	10	6593938
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	<10	10	6602831
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	<10	11	100	10	6602831
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	<10	<10	73	10	6602831
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	6602831
<b>Volatiles</b>							
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	<0.10 (1)	<0.10 (1)	<0.10 (1)	0.10	6607498
Benzene	mg/kg	<0.0050 (1)	<0.0050 (1)	<0.0050 (1)	0.57 (1)	0.0050	6607498
Toluene	mg/kg	<0.020 (1)	<0.020 (1)	<0.020 (1)	0.040 (1)	0.020	6607498
Ethylbenzene	mg/kg	<0.010 (1)	<0.010 (1)	<0.010 (1)	0.34 (1)	0.010	6607498
m & p-Xylene	mg/kg	<0.040 (1)	<0.040 (1)	<0.040 (1)	0.22 (1)	0.040	6607498
o-Xylene	mg/kg	<0.040 (1)	<0.040 (1)	<0.040 (1)	0.11 (1)	0.040	6607498
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.33	0.040	6607498
(C6-C10)	mg/kg	<10 (1)	<10 (1)	<10 (1)	<10 (1)	10	6607498
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	101	102	100	102	N/A	6607498
4-BROMOFLUOROBENZENE (sur.)	%	101	100	101	99	N/A	6607498
D10-ETHYLBENZENE (sur.)	%	97	94	96	93	N/A	6607498
D4-1,2-DICHLOROETHANE (sur.)	%	96	97	98	98	N/A	6607498
O-TERPHENYL (sur.)	%	96	95	94	98	N/A	6602831

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		FS0848	FS0848		FS0849		
Sampling Date		2013/02/21 11:50	2013/02/21 11:50		2013/02/21 12:00		
COC Number		S003353	S003353		S003353		
	UNITS	BH-37-1.8-2.4	BH-37-1.8-2.4 Lab-Dup	QC Batch	BH-37-3.0-3.6	RDL	QC Batch

<b>Calculated Parameters</b>							
F1 (C6-C10) - BTEX	mg/kg	<10	N/A	6593938	<10	10	6593938
<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/kg	190	N/A	6610325	<10	10	6602831
F3 (C16-C34 Hydrocarbons)	mg/kg	55	N/A	6610325	<10	10	6602831
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	N/A	6610325	<10	10	6602831
Reached Baseline at C50	mg/kg	Yes	N/A	6610325	Yes	N/A	6602831
<b>Volatiles</b>							
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	<0.10 (1)	6607498	<0.10 (1)	0.10	6607498
Benzene	mg/kg	<0.0050 (1)	<0.0050 (1)	6607498	<0.0050 (1)	0.0050	6607498
Toluene	mg/kg	<0.020 (1)	<0.020 (1)	6607498	<0.020 (1)	0.020	6607498
Ethylbenzene	mg/kg	<0.010 (1)	<0.010 (1)	6607498	<0.010 (1)	0.010	6607498
m & p-Xylene	mg/kg	<0.040 (1)	<0.040 (1)	6607498	<0.040 (1)	0.040	6607498
o-Xylene	mg/kg	<0.040 (1)	<0.040 (1)	6607498	<0.040 (1)	0.040	6607498
Xylenes (Total)	mg/kg	<0.040	<0.040	6607498	<0.040	0.040	6607498
(C6-C10)	mg/kg	<10 (1)	<10 (1)	6607498	<10 (1)	10	6607498
<b>Surrogate Recovery (%)</b>							
1,4-Difluorobenzene (sur.)	%	102	101	6607498	101	N/A	6607498
4-BROMOFLUOROBENZENE (sur.)	%	101	104	6607498	102	N/A	6607498
D10-ETHYLBENZENE (sur.)	%	93	94	6607498	98	N/A	6607498
D4-1,2-DICHLOROETHANE (sur.)	%	97	97	6607498	102	N/A	6607498
O-TERPHENYL (sur.)	%	95	N/A	6610325	95	N/A	6602831

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### CCME BTEX/F1-F4 IN SOIL (SOIL)

Maxxam ID		FS0850		
Sampling Date		2013/02/21 12:10		
COC Number		S003353		
	UNITS	BH-37-4.2-4.8	RDL	QC Batch

<b>Calculated Parameters</b>				
F1 (C6-C10) - BTEX	mg/kg	<10	10	6593938
<b>Ext. Pet. Hydrocarbon</b>				
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	10	6602831
F3 (C16-C34 Hydrocarbons)	mg/kg	17	10	6602831
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	10	6602831
Reached Baseline at C50	mg/kg	Yes	N/A	6602831
<b>Volatiles</b>				
Methyl-tert-butylether (MTBE)	mg/kg	<0.10 (1)	0.10	6607498
Benzene	mg/kg	<0.0050 (1)	0.0050	6607498
Toluene	mg/kg	<0.020 (1)	0.020	6607498
Ethylbenzene	mg/kg	<0.010 (1)	0.010	6607498
m & p-Xylene	mg/kg	<0.040 (1)	0.040	6607498
o-Xylene	mg/kg	<0.040 (1)	0.040	6607498
Xylenes (Total)	mg/kg	<0.040	0.040	6607498
(C6-C10)	mg/kg	<10 (1)	10	6607498
<b>Surrogate Recovery (%)</b>				
1,4-Difluorobenzene (sur.)	%	101	N/A	6607498
4-BROMOFLUOROBENZENE (sur.)	%	100	N/A	6607498
D10-ETHYLBENZENE (sur.)	%	99	N/A	6607498
D4-1,2-DICHLOROETHANE (sur.)	%	99	N/A	6607498
O-TERPHENYL (sur.)	%	84	N/A	6602831

N/A = Not Applicable  
RDL = Reportable Detection Limit  
( 1 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime



Maxxam Job #: B314377  
Report Date: 2013/03/05

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

Package 1	9.8°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

### General Comments

Results relate only to the items tested.



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB314377

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6597941 LO1	Method Blank	Moisture	2013/02/28	<0.30		%	
	RPD	Moisture	2013/02/28	4.3		%	20
6598356 DJ	Matrix Spike	Total Lead (Pb)	2013/02/27		102	%	75 - 125
	QC Standard	Total Lead (Pb)	2013/02/27		96	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2013/02/27		102	%	75 - 125
	Method Blank	Total Lead (Pb)	2013/02/27	<0.10		mg/kg	
	RPD	Total Lead (Pb)	2013/02/27	1.1		%	35
6598360 NS6	Spiked Blank	Soluble (2:1) pH	2013/02/27		102	%	96 - 104
	RPD	Soluble (2:1) pH	2013/02/27	0.9		%	20
6599165 LO1	Method Blank	Moisture	2013/02/27	<0.30		%	
	RPD	Moisture	2013/02/27	1.8		%	20
6602831 TL2	Matrix Spike	O-TERPHENYL (sur.)	2013/02/27		100	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27		108	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/02/27		102	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/02/27		97	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/02/27		95	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27		97	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/02/27		90	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/02/27		87	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/02/27		95	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/02/27	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/02/27	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/02/27	<10		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/02/27	NC (1)		%	40
		F3 (C16-C34 Hydrocarbons)	2013/02/27	4.9 (1)		%	40
		F4 (C34-C50 Hydrocarbons)	2013/02/27	2.1 (1)		%	40
		Reached Baseline at C50	2013/02/27	NC		%	50
6602856 MCI	RPD	200 mesh (>.075 mm)	2013/02/27	NC		%	35
		200 mesh (<.075 mm)	2013/02/27	0.1		%	35
6604979 MM5	Matrix Spike	1,2-dichloroethane	2013/03/02		92	%	60 - 140
		1,2-dibromoethane	2013/03/02		96	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2013/03/01		110	%	60 - 140
		1,2-dibromoethane	2013/03/01		96	%	60 - 140
	Method Blank	1,2-dichloroethane	2013/03/01	<0.025		mg/kg	
		1,2-dibromoethane	2013/03/01	<0.025		mg/kg	
	RPD	1,2-dichloroethane	2013/03/02	NC		%	40
		1,2-dibromoethane	2013/03/02	NC		%	40
6607498 MM5	Matrix Spike [FS0848-01]	1,4-Difluorobenzene (sur.)	2013/02/28		102	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/02/28		106	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2013/02/28		94	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/02/28		95	%	70 - 130
		Benzene	2013/02/28		106	%	60 - 140
		Toluene	2013/02/28		108	%	60 - 140
		Ethylbenzene	2013/02/28		116	%	60 - 140
		m & p-Xylene	2013/02/28		117	%	60 - 140
		o-Xylene	2013/02/28		118	%	60 - 140
	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/02/28		101	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/02/28		107	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2013/02/28		83	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/02/28		94	%	70 - 130
		Benzene	2013/02/28		79	%	60 - 140
		Toluene	2013/02/28		81	%	60 - 140
		Ethylbenzene	2013/02/28		88	%	60 - 140
		m & p-Xylene	2013/02/28		87	%	60 - 140



O'CONNOR ASSOCIATES ENVIRONMENTAL  
Attention: Adam Wickman  
Client Project #: 10-1177.100  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB314377

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6607498 MM5	Spiked Blank	o-Xylene	2013/02/28		87	%	60 - 140
		(C6-C10)	2013/02/28		104	%	60 - 140
	Method Blank	1,4-Difluorobenzene (sur.)	2013/02/28		103	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/02/28		100	%	70 - 130
		D10-ETHYLBENZENE (sur.)	2013/02/28		93	%	50 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/02/28		97	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/02/28	<0.10		mg/kg	
		Benzene	2013/02/28	<0.0050		mg/kg	
		Toluene	2013/02/28	<0.020		mg/kg	
		Ethylbenzene	2013/02/28	<0.010		mg/kg	
		m & p-Xylene	2013/02/28	<0.040		mg/kg	
		o-Xylene	2013/02/28	<0.040		mg/kg	
		Xylenes (Total)	2013/02/28	<0.040		mg/kg	
		(C6-C10)	2013/02/28	<10		mg/kg	
	RPD [FS0848-01]	Methyl-tert-butylether (MTBE)	2013/02/28	NC (2)		%	40
		Benzene	2013/02/28	NC (2)		%	40
		Toluene	2013/02/28	NC (2)		%	40
		Ethylbenzene	2013/02/28	NC (2)		%	40
		m & p-Xylene	2013/02/28	NC (2)		%	40
		o-Xylene	2013/02/28	NC (2)		%	40
		Xylenes (Total)	2013/02/28	NC		%	40
		(C6-C10)	2013/02/28	NC (2)		%	40
	Matrix Spike	O-TERPHENYL (sur.)	2013/03/01		97	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01		96	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/03/01		79	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/03/01		79	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/01		82	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01		102	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/03/01		83	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/03/01		84	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/03/01		93	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/03/01	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/03/01	<10		mg/kg	
	RPD	Reached Baseline at C50	2013/03/01	YES		mg/kg	
		F2 (C10-C16 Hydrocarbons)	2013/03/01	NC		%	40
		F3 (C16-C34 Hydrocarbons)	2013/03/01	NC		%	40
		F4 (C34-C50 Hydrocarbons)	2013/03/01	NC		%	40
6612201 MM5	Matrix Spike	1,2-dichloroethane	2013/03/01		119	%	60 - 140
		1,2-dibromoethane	2013/03/01		123	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2013/03/01		116	%	60 - 140
		1,2-dibromoethane	2013/03/01		110	%	60 - 140
	Method Blank	1,2-dichloroethane	2013/03/01	<0.025		mg/kg	
		1,2-dibromoethane	2013/03/01	<0.025		mg/kg	
	RPD	1,2-dichloroethane	2013/03/01	NC (2)		%	40
		1,2-dibromoethane	2013/03/01	NC (2)		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.



O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB314377

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

( 1 ) Detection limits raised due to high moisture content.

( 2 ) Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime

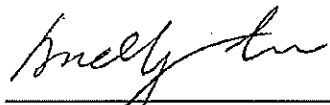


**Validation Signature Page**

Maxxam Job #: B314377

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




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Andy Lu, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



**CHAIN OF CUSTODY**  
for SUNCOR ENERGY

☐ ☐ ☐ ☐ ☐ ☐

Consulting Company:	Parsons
Contact:	Adam Wickman
Address:	7 Terrace Pl Winnieco Mn, MN 55412
Contact No:	204-465-2964
Project ID:	10-1177-100
Sentimental Ref:	Adam Wickman

☐ RUSH (Contact lab to receive)  
☐ 2 DAY  
☐ 1 DAY  
☐ SAME DAY

SERVICE REQUESTED:

Date Required: \_\_\_\_\_  
☒ REGULAR (5 Days)

Report Distribution (E-Mail):
Order: wickman@palsons.com

**REGULATORY GUIDELINES:**

<input type="checkbox"/>	LOW
<input checked="" type="checkbox"/>	CODE LOW
<input type="checkbox"/>	Regulatory Guideline Violation
<input type="checkbox"/>	Other



DOWNSTREAM	X
Site address	208 St Annes Rd.
Site owner	Winnipeg Manitoba
Project number	63955
Municipality	Winnipeg
Senior Suncor Advisor:	
Site name	St Annes Rd.
City	Winnipeg

UPSTREAM	<input type="checkbox"/>
LSOP	
Supervisor	
Agency	
BOC of employees	
Senior Sincor Advisor:	
Mike Menden	<input type="checkbox"/> Ben Parsons
Barbara Browne	<input type="checkbox"/> Phil Squire
Other	

[illegible]

RECEIVED BY: Georgina L. Smith  
 FROM: Dr. David L. Smith  
 DATE: 13/02/22  
 TIME: 13:02  
 LOCATION: Medicine Ward

TIME 12:30  
3:30  
TIME 12:30

LAB USE ONLY	DATE:	TIME:
ROCKWELL EYE	2/2/8	11:30

Special instructions: Headspace may be present; please proceed with analysis.

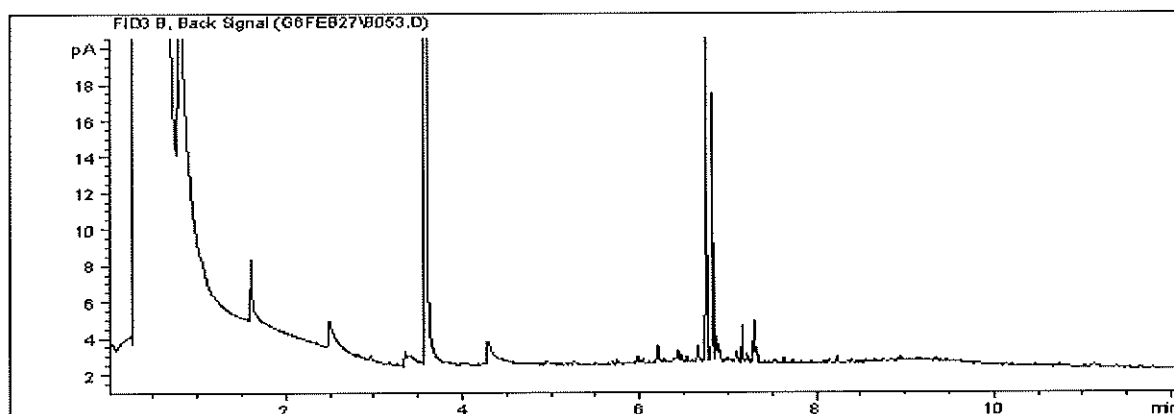
THE UNIVERSITY OF CHICAGO



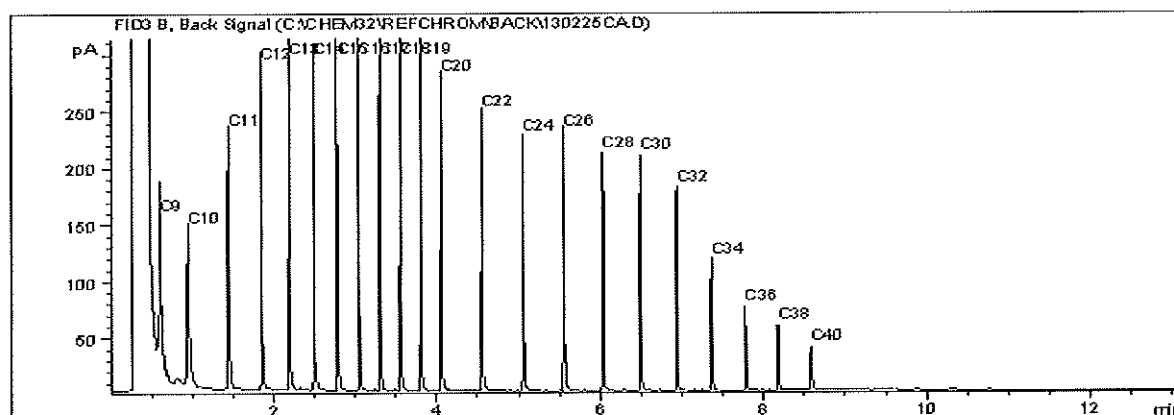
Report Date: 2013/03/05  
Maxxam Job #: B314377  
Maxxam Sample: FS0841

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-35-0.6-1.2

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

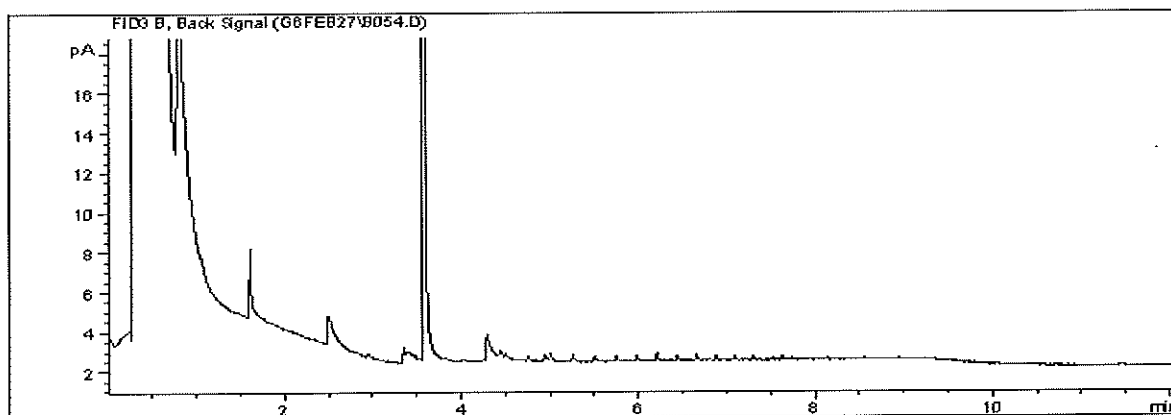
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



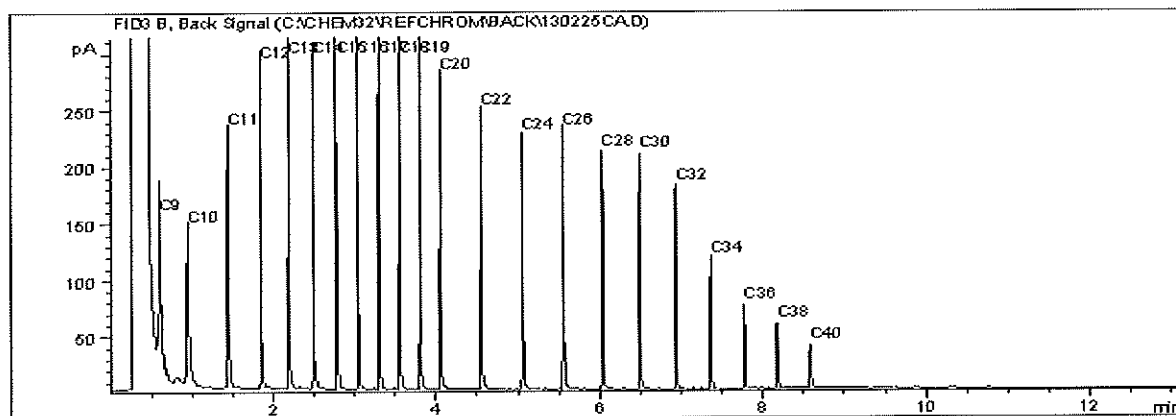
Report Date: 2013/03/05  
Maxxam Job #: B314377  
Maxxam Sample: FS0843

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-35-2.4-3.0

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

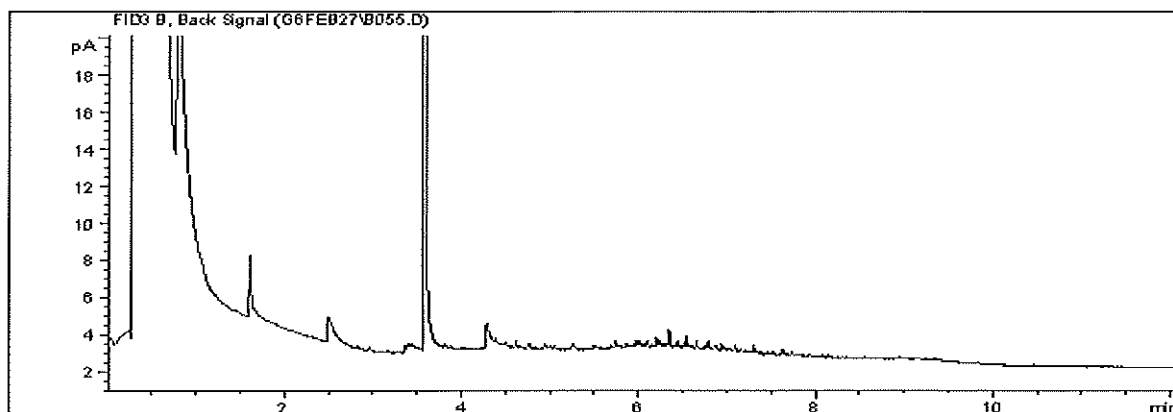
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



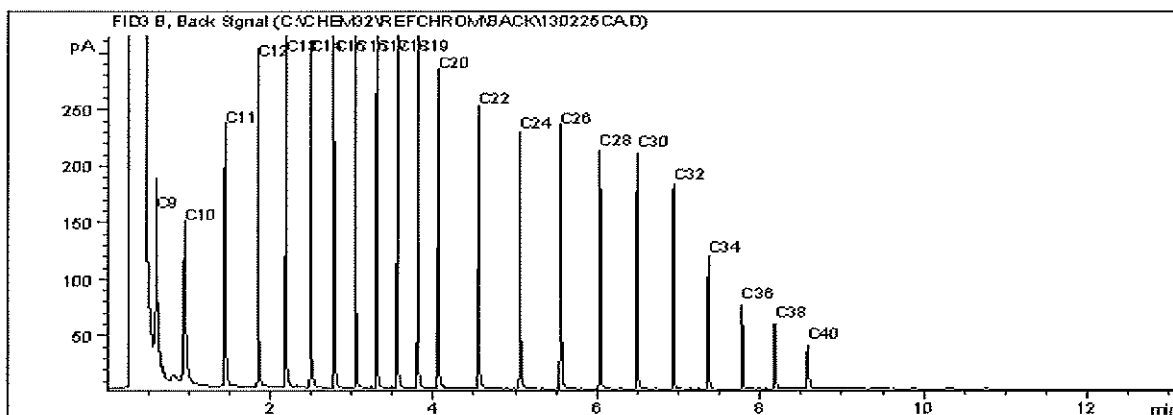
Report Date: 2013/03/05  
Maxxam Job #: B314377  
Maxxam Sample: FS0845

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-35-4.2-4.8

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

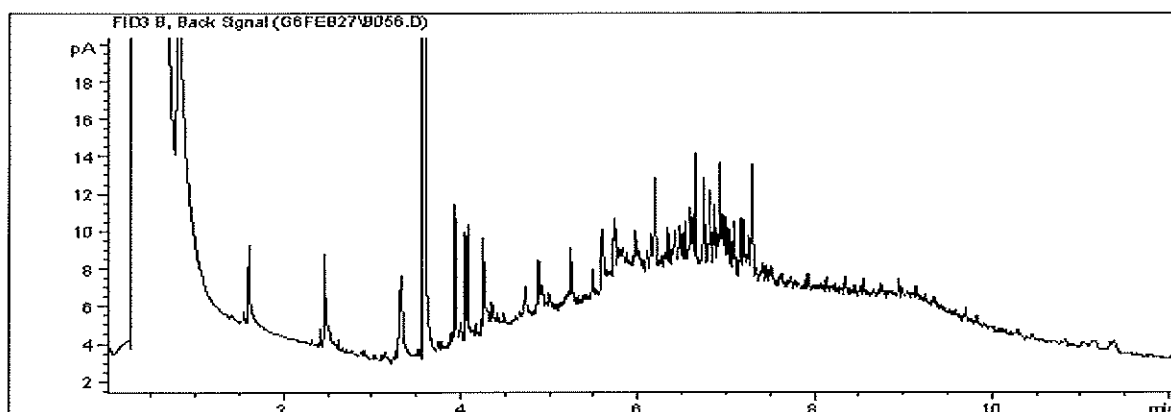
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



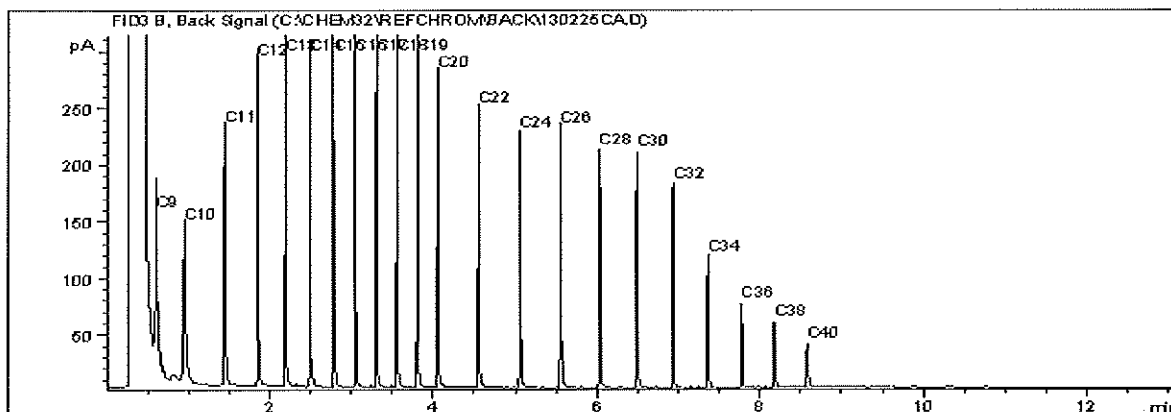
Report Date: 2013/03/05  
Maxxam Job #: B314377  
Maxxam Sample: FS0847

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-37-0.0-0.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

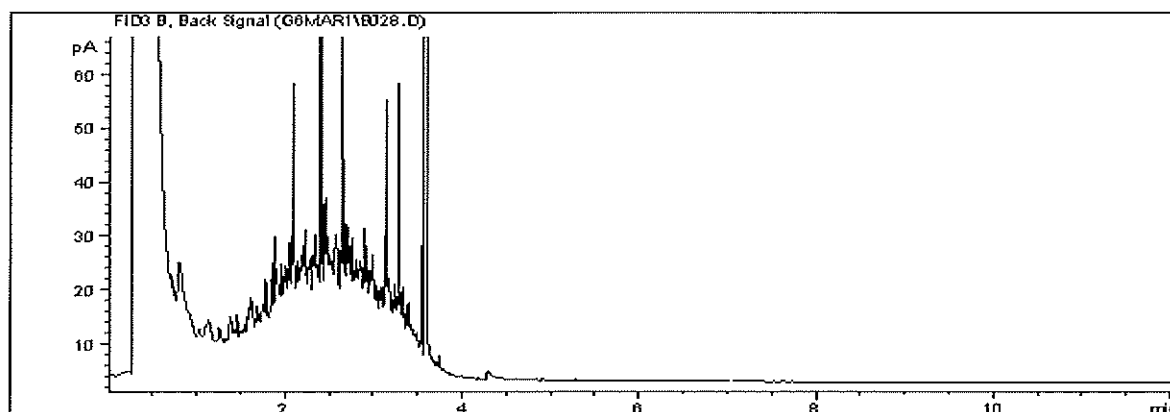
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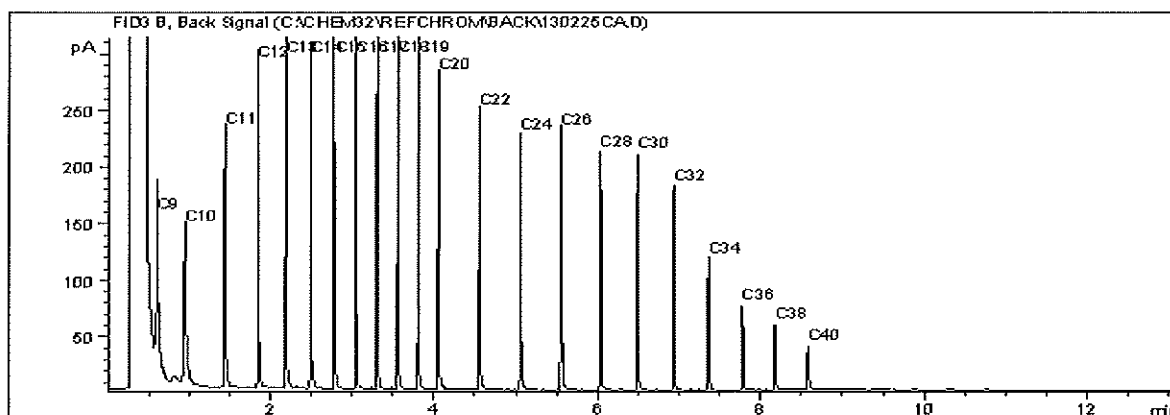
Report Date: 2013/03/05  
Maxxam Job #: B314377  
Maxxam Sample: FS0848

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-37-1.8-2.4

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

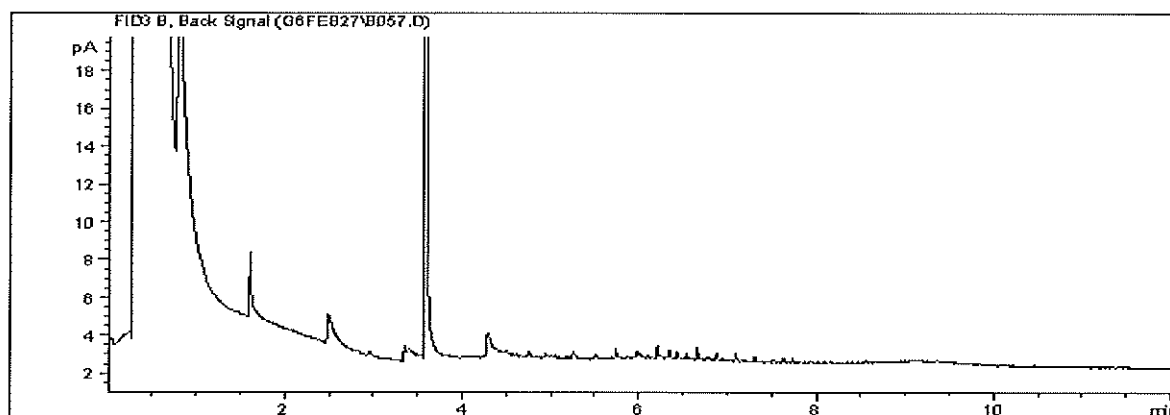
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



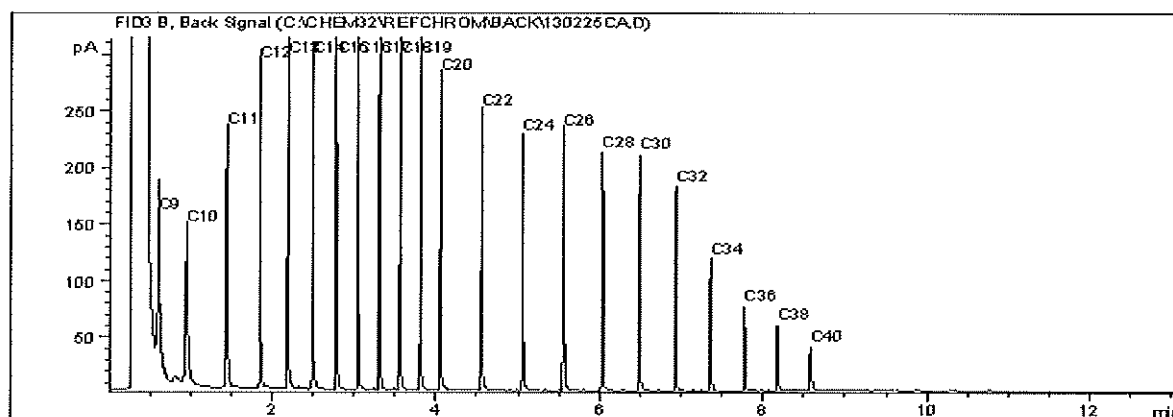
O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-37-3.0-3.6

Report Date: 2013/03/05  
 Maxxam Job #: B314377  
 Maxxam Sample: FS0849

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

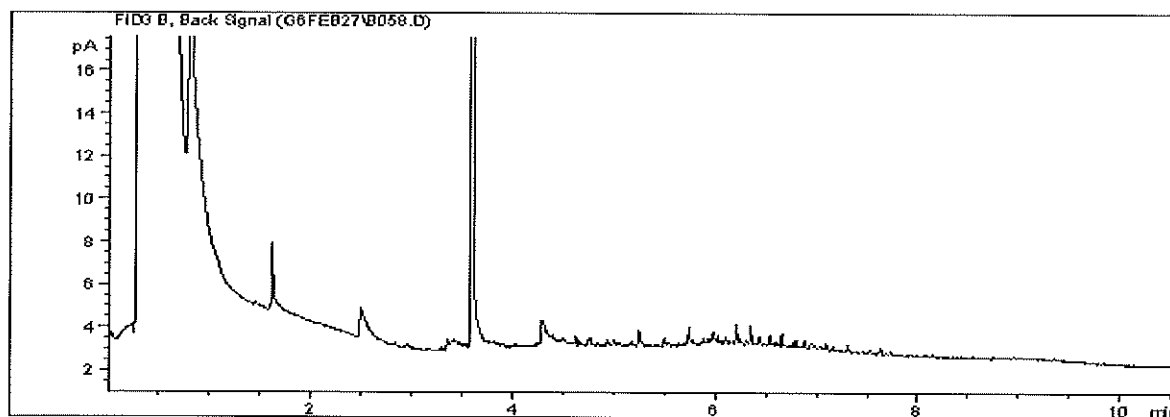
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



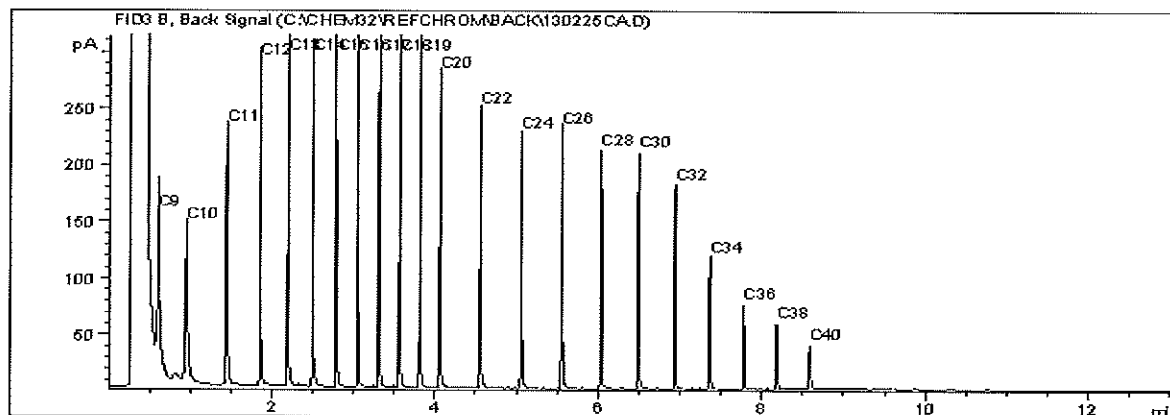
O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-37-4.2-4.8

Report Date: 2013/03/05  
 Maxxam Job #: B314377  
 Maxxam Sample: FS0850

## CCME Hydrocarbons (F2-F4 In soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



### DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2013/02/21</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory : <u>Maxxam Analytics, Winnipeg</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B314377</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	X			All lab QC met acceptance criteria.
Extraction Surrogate Recovery	X			
Method Blank Concentration	X			
Matrix Duplicate RPD	X			
Matrix Spike Recovery	X			
Lab Control Sample Recovery			X	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			X	No field QC were submitted.
Trip Blank Concentration			X	
Field Duplicate RPD			X	

Has CoA been signed off (Yes/No)?: Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: Yes

Were all samples analyzed within hold times (Yes/No)?: Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: No

Is Chain of Custody completed and signed (Yes/No)?: Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?: Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: No


Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?: Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): <u>Alexia Reske-Naurocki</u> Review Date: <u>2013/03/06</u> Revision Date (if applicable): _____	Data Reviewed by (Signature): <u></u> Revised by (Signature): _____
--	---



Your Project #: 10-1177.100  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
 Your C.O.C. #: S003361

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 7 TERRACON PLACE  
 WINNIPEG, MB  
 CANADA R2J 4B3

**Report Date: 2013/03/06**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B314774**

**Received: 2013/02/25, 12:25**

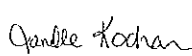
Sample Matrix: Soil  
 # Samples Received: 9

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Volatile F1-BTEX (1)	9	N/A	2013/03/05	BBY WI-00033	BC MOE Lab Method
CCME Hydrocarbons (F2-F4 in soil) (1)	8	2013/03/01	2013/03/04	BBY8SOP-00030	CCME Soil Tier 1
CCME Hydrocarbons (F2-F4 in soil) (1)	1	2013/03/01	2013/03/05	BBY8SOP-00030	CCME Soil Tier 1
Elements by ICPMS (total) (1)	9	2013/02/27	2013/02/27	BBY7SOP-00001	EPA 6020A
Moisture (1)	9	N/A	2013/02/28	BBY8SOP-00017	Ont MOE -E 3139
pH (2:1 DI Water Extract) (1)	9	2013/02/27	2013/02/27	BBY6SOP-00028	Carter, SSMA 16.2
CCME F1 C6-C10 in Soil by GC/FID (1)	9	2013/02/27	2013/03/04	BBY8SOP-00012	EPA SW8260C
VOCs in Soil by HS GC/MS (1)	9	2013/02/27	2013/03/04	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

**Encryption Key**

 Janelle Kochan  
 06 Mar 2013 16:17:52 -08:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
 Email: JKochan@maxxam.ca  
 Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B314774  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		FS2846	FS2847	FS2848	FS2849		
Sampling Date		2013/02/22 10:00	2013/02/22 10:15	2013/02/22 10:30	2013/02/22 11:30		
COC Number		S003361	S003361	S003361	S003361		
	UNITS	BH-40-0.6-1.2	BH-40-2.4-3.0	BH-40-4.8-5.4	BH-41-2.4-3.0	RDL	QC Batch

Calculated Parameters							
F1 (C6-C10) - BTEX	mg/kg	<10	<10	<10	61	10	6608165
Physical Properties							
Soluble (2:1) pH	pH Units	9.12	9.05	8.27	8.32	0.010	6602790
RDL = Reportable Detection Limit							

Maxxam ID		FS2850	FS2851	FS2852	FS2853		
Sampling Date		2013/02/22 11:45	2013/02/22 12:00	2013/02/22 13:00	2013/02/22 13:15		
COC Number		S003361	S003361	S003361	S003361		
	UNITS	BH-41-3.0-3.6	BH-41-3.6-4.2	BH-42-0.6-1.2	BH-42-1.8-2.4	RDL	QC Batch

Calculated Parameters							
F1 (C6-C10) - BTEX	mg/kg	59	<10	<10	<10	10	6608165
Physical Properties							
Soluble (2:1) pH	pH Units	8.29	7.98	9.35	8.39	0.010	6602790
RDL = Reportable Detection Limit							

Maxxam ID		FS2854		
Sampling Date		2013/02/22 13:30		
COC Number		S003361		
	UNITS	BH-42-3.0-3.6	RDL	QC Batch

Calculated Parameters				
F1 (C6-C10) - BTEX	mg/kg	<10	10	6608165
Physical Properties				
Soluble (2:1) pH	pH Units	7.88	0.010	6602790
RDL = Reportable Detection Limit				



Maxxam Job #: B314774  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FS2846	FS2847	FS2848	FS2849		
Sampling Date		2013/02/22 10:00	2013/02/22 10:15	2013/02/22 10:30	2013/02/22 11:30		
COC Number		S003361	S003361	S003361	S003361		
	UNITS	BH-40-0.6-1.2	BH-40-2.4-3.0	BH-40-4.8-5.4	BH-41-2.4-3.0	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	<10	<10	44	10	6611348
F3 (C16-C34 Hydrocarbons)	mg/kg	68	170	13	39	10	6611348
F4 (C34-C50 Hydrocarbons)	mg/kg	42	130	<10	12	10	6611348
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	6611348
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	96	88	88	93	N/A	6611348

N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		FS2850	FS2851	FS2852	FS2853		
Sampling Date		2013/02/22 11:45	2013/02/22 12:00	2013/02/22 13:00	2013/02/22 13:15		
COC Number		S003361	S003361	S003361	S003361		
	UNITS	BH-41-3.0-3.6	BH-41-3.6-4.2	BH-42-0.6-1.2	BH-42-1.8-2.4	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	40	<10	<10	<10	10	6611348
F3 (C16-C34 Hydrocarbons)	mg/kg	15	50	<10	31	10	6611348
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	23	<10	<10	10	6611348
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	6611348
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	76	94	97	92	N/A	6611348

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B314774  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FS2854		
Sampling Date		2013/02/22 13:30		
COC Number		S003361		
	UNITS	BH-42-3.0-3.6	RDL	QC Batch

<b>Ext. Pet. Hydrocarbon</b>				
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	10	6611348
F3 (C16-C34 Hydrocarbons)	mg/kg	45	10	6611348
F4 (C34-C50 Hydrocarbons)	mg/kg	10	10	6611348
Reached Baseline at C50	mg/kg	Yes	N/A	6611348
<b>Surrogate Recovery (%)</b>				
O-TERPHENYL (sur.)	%	87	N/A	6611348
N/A = Not Applicable RDL = Reportable Detection Limit				



Maxxam Job #: B314774  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PHYSICAL TESTING (SOIL)

Maxxam ID		FS2846	FS2847	FS2848		FS2849		
Sampling Date		2013/02/22 10:00	2013/02/22 10:15	2013/02/22 10:30		2013/02/22 11:30		
COC Number		S003361	S003361	S003361		S003361		
	UNITS	BH-40-0.6-1.2	BH-40-2.4-3.0	BH-40-4.8-5.4	QC Batch	BH-41-2.4-3.0	RDL	QC Batch

Physical Properties								
Moisture	%	4.8	5.3	34	6602185	34	0.30	6604038
RDL = Reportable Detection Limit								

Maxxam ID		FS2850		FS2851	FS2851		FS2852		
Sampling Date		2013/02/22 11:45		2013/02/22 12:00	2013/02/22 12:00		2013/02/22 13:00		
COC Number		S003361		S003361	S003361		S003361		
	UNITS	BH-41-3.0-3.6	QC Batch	BH-41-3.6-4.2	BH-41-3.6-4.2 Lab-Dup	QC Batch	BH-42-0.6-1.2	RDL	QC Batch

Physical Properties									
Moisture	%	35	6602185	36	35	6604038	6.3	0.30	6602185
RDL = Reportable Detection Limit									

Maxxam ID		FS2853	FS2854		
Sampling Date		2013/02/22 13:15	2013/02/22 13:30		
COC Number		S003361	S003361		
	UNITS	BH-42-1.8-2.4	BH-42-3.0-3.6	RDL	QC Batch

Physical Properties					
Moisture	%	31	33	0.30	6602185
RDL = Reportable Detection Limit					



Maxxam Job #: B314774  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		FS2846	FS2847	FS2848	FS2849		
Sampling Date		2013/02/22 10:00	2013/02/22 10:15	2013/02/22 10:30	2013/02/22 11:30		
COC Number		S003361	S003361	S003361	S003361		
	UNITS	BH-40-0.6-1.2	BH-40-2.4-3.0	BH-40-4.8-5.4	BH-41-2.4-3.0	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	2.84	2.84	15.4	15.9	0.10	6602773
RDL = Reportable Detection Limit							

Maxxam ID		FS2850	FS2851	FS2852	FS2853		
Sampling Date		2013/02/22 11:45	2013/02/22 12:00	2013/02/22 13:00	2013/02/22 13:15		
COC Number		S003361	S003361	S003361	S003361		
	UNITS	BH-41-3.0-3.6	BH-41-3.6-4.2	BH-42-0.6-1.2	BH-42-1.8-2.4	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	15.5	17.2	1.63	13.6	0.10	6602773
RDL = Reportable Detection Limit							

Maxxam ID		FS2854		
Sampling Date		2013/02/22 13:30		
COC Number		S003361		
	UNITS	BH-42-3.0-3.6	RDL	QC Batch

Total Metals by ICPMS				
Total Lead (Pb)	mg/kg	16.0	0.10	6602773
RDL = Reportable Detection Limit				



Maxxam Job #: B314774  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		FS2846	FS2847	FS2848	FS2849		
Sampling Date		2013/02/22 10:00	2013/02/22 10:15	2013/02/22 10:30	2013/02/22 11:30		
COC Number		S003361	S003361	S003361	S003361		
	UNITS	BH-40-0.6-1.2	BH-40-2.4-3.0	BH-40-4.8-5.4	BH-41-2.4-3.0	RDL	QC Batch

<b>Volatile Hydrocarbons</b>							
(C6-C10)	mg/kg	<10	<10	<10	65	10	6616058
<b>Volatiles</b>							
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	0.025	6615651
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	1.5	0.0050	6615651
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	6615651
Toluene	mg/kg	<0.020	<0.020	<0.020	0.034	0.020	6615651
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	<0.025	0.025	6615651
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	1.2	0.010	6615651
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.66	0.040	6615651
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	6615651
Xylenes (Total)	mg/kg	<0.040	<0.040	<0.040	0.66	0.040	6615651
RDL = Reportable Detection Limit							

Maxxam ID		FS2850	FS2851	FS2852	FS2853		
Sampling Date		2013/02/22 11:45	2013/02/22 12:00	2013/02/22 13:00	2013/02/22 13:15		
COC Number		S003361	S003361	S003361	S003361		
	UNITS	BH-41-3.0-3.6	BH-41-3.6-4.2	BH-42-0.6-1.2	BH-42-1.8-2.4	RDL	QC Batch

<b>Volatile Hydrocarbons</b>							
(C6-C10)	mg/kg	62	<10	<10	<10	10	6616058
<b>Volatiles</b>							
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	<0.025	0.025	6615651
Benzene	mg/kg	1.5	0.014	<0.0050	<0.0050	0.0050	6615651
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	<0.10	0.10	6615651
Toluene	mg/kg	0.033	<0.020	<0.020	<0.020	0.020	6615651
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	<0.025	0.025	6615651
Ethylbenzene	mg/kg	1.2	0.020	<0.010	<0.010	0.010	6615651
m & p-Xylene	mg/kg	0.65	<0.040	<0.040	<0.040	0.040	6615651
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	0.040	6615651
Xylenes (Total)	mg/kg	0.65	<0.040	<0.040	<0.040	0.040	6615651
RDL = Reportable Detection Limit							



Maxxam Job #: B314774  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		FS2854		
Sampling Date		2013/02/22 13:30		
COC Number		S003361		
	UNITS	BH-42-3.0-3.6	RDL	QC Batch

<b>Volatile Hydrocarbons</b>				
(C6-C10)	mg/kg	<10	10	6616058
<b>Volatiles</b>				
1,2-dichloroethane	mg/kg	<0.025	0.025	6615651
Benzene	mg/kg	<0.0050	0.0050	6615651
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	0.10	6615651
Toluene	mg/kg	<0.020	0.020	6615651
1,2-dibromoethane	mg/kg	<0.025	0.025	6615651
Ethylbenzene	mg/kg	<0.010	0.010	6615651
m & p-Xylene	mg/kg	<0.040	0.040	6615651
o-Xylene	mg/kg	<0.040	0.040	6615651
Xylenes (Total)	mg/kg	<0.040	0.040	6615651
RDL = Reportable Detection Limit				



Maxxam Job #: B314774  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

Package 1	9.2°C
-----------	-------

Each temperature is the average of up to three cooler temperatures taken at receipt

#### General Comments

Results relate only to the items tested.



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB314774

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6602185 LO1	Method Blank	Moisture	2013/02/28	<0.30		%	
	RPD	Moisture	2013/02/28	1.4		%	20
6602773 DJ	Matrix Spike	Total Lead (Pb)	2013/02/27		107	%	75 - 125
	QC Standard	Total Lead (Pb)	2013/02/27		102	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2013/02/27		108	%	75 - 125
	Method Blank	Total Lead (Pb)	2013/02/27	<0.10		mg/kg	
6602790 NS6	Spiked Blank	Soluble (2:1) pH	2013/02/27		102	%	96 - 104
	RPD	Soluble (2:1) pH	2013/02/27	0.1		%	20
6604038 LO1	Method Blank	Moisture	2013/02/28	<0.30		%	
	RPD [FS2851-01]	Moisture	2013/02/28	2.8		%	20
6611348 PN2	Matrix Spike	O-TERPHENYL (sur.)	2013/03/04		99	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04		102	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/03/04		90	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/03/04		81	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/04		103	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04		102	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/03/04		90	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/03/04		81	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/03/04		113	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/03/04	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/03/04	<10		mg/kg	
		Reached Baseline at C50	2013/03/04	YES		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/03/04	8.3		%	40
		F3 (C16-C34 Hydrocarbons)	2013/03/04	NC		%	40
		F4 (C34-C50 Hydrocarbons)	2013/03/04	NC		%	40
		Reached Baseline at C50	2013/03/04	NC		%	50
6615651 MM5	Matrix Spike	1,2-dichloroethane	2013/03/04		82	%	60 - 140
		Benzene	2013/03/04		61	%	60 - 140
		Toluene	2013/03/04		84	%	60 - 140
		1,2-dibromoethane	2013/03/04		92	%	60 - 140
		Ethylbenzene	2013/03/04		NC	%	60 - 140
		m & p-Xylene	2013/03/04		NC	%	60 - 140
		o-Xylene	2013/03/04		NC	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2013/03/04		85	%	60 - 140
		Benzene	2013/03/04		81	%	60 - 140
		Toluene	2013/03/04		79	%	60 - 140
		1,2-dibromoethane	2013/03/04		85	%	60 - 140
		Ethylbenzene	2013/03/04		86	%	60 - 140
		m & p-Xylene	2013/03/04		95	%	60 - 140
		o-Xylene	2013/03/04		89	%	60 - 140
	Method Blank	1,2-dichloroethane	2013/03/04	<0.025		mg/kg	
		Benzene	2013/03/04	<0.0050		mg/kg	
		Methyl-tert-butylether (MTBE)	2013/03/04	<0.10		mg/kg	
		Toluene	2013/03/04	<0.020		mg/kg	
		1,2-dibromoethane	2013/03/04	<0.025		mg/kg	
		Ethylbenzene	2013/03/04	<0.010		mg/kg	
		m & p-Xylene	2013/03/04	<0.040		mg/kg	
		o-Xylene	2013/03/04	<0.040		mg/kg	
		Xylenes (Total)	2013/03/04	<0.040		mg/kg	
	RPD	1,2-dichloroethane	2013/03/04	NC		%	40
		1,2-dibromoethane	2013/03/04	NC		%	40
6616058 MM5	Spiked Blank	(C6-C10)	2013/03/04		79	%	60 - 140
	Method Blank	(C6-C10)	2013/03/04	<10		mg/kg	
	RPD	(C6-C10)	2013/03/04	29.0		%	50



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB314774

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

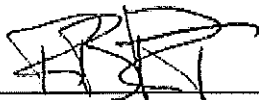
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.



**Validation Signature Page****Maxxam Job #: B314774**

---

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



---

Rob Reinert, Data Validation Coordinator

---

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.





Consulting Company	Parsons
Contact	Adam Whitman
Address	7 Terracotta Place Winnipeg R3J 4R3
Contact ph.	Manitoba 304-489-2364 N/A
Project ID	18-1177.100
Sampled By	Adam Whitman

Report Distribution (E-Mail):
adam.wickman@pacson.com

**REGULATORY GUIDELINES:**

<input type="checkbox"/>	ADP
<input checked="" type="checkbox"/>	ACME low
<input type="checkbox"/>	Prevalence of Drinking Water
<input type="checkbox"/>	Chlorine

SERVICE REQUESTED:	<input type="checkbox"/> RUSH (Contact and to reserve!)
	<input type="checkbox"/> 2 DAY <input type="checkbox"/> 1 DAY <input type="checkbox"/> SAME DAY
Date Required:	
REGULAR (5 Days)	

DOWNSTREAM	<input checked="" type="checkbox"/>
Site address:	208 St Anne Rd
Site City/Prov:	Winnipeg, Manitoba
Cutliff number:	63955
Monitoring (circle) <input checked="" type="checkbox"/> or <input type="checkbox"/> (in parentheses)	
Senior Suncor Advisor:	
Brian Hollings	<input type="checkbox"/>
Rick Lemire	<input checked="" type="checkbox"/>
Other:	

UPSTREAM	<input type="checkbox"/>
LSD#	
StateField	
AGE#	
RCV (if applicable)	
Senior Suncor Advisor:	
Mike Moran	<input type="checkbox"/> Ben Parsons <input type="checkbox"/>
Russell Brown	<input type="checkbox"/> Phil Scalla <input type="checkbox"/>
Other	

SOIL						WATER							Other Analysis				HOLD - Do not Analyze		# of Containers Submitted
	BTEX FI-F4	Glove (75 micron)	Regulated Metals (COMBATI)	Salinity &	CBTX FI	DVOCs	CBTX FI-F2	CBTX FI-F4	<input type="checkbox"/> Routine Water <input type="checkbox"/> Turb <input type="checkbox"/> F	Total Dissolved	Regulated Metals (COMBATI)	Mercury <input type="checkbox"/> Total <input type="checkbox"/> Dissolved	Lead	LAR Sample ID					
100	X			Safety 4									X	F52846			2		
15	X												X	13047			2		
30	X												X	30348			2		
45	X												X	30349			2		
60	X												X	30350			2		
75	X												X	30351			2		
90	X												X	30352			2		
105	X												X	30353			2		
120	X												X	30354			2		

Received by: <u>John Jesse Borer</u> Date: <u>13/02/25</u> Time: <u>14:00</u>	Received by: <u>John Jesse Borer</u> Date: <u>13/02/25</u> Time: <u>14:00</u>	# of items Used & Not Submitted Page 13 of 22
General instructions: Headspace may be present, please proceed with analysis		

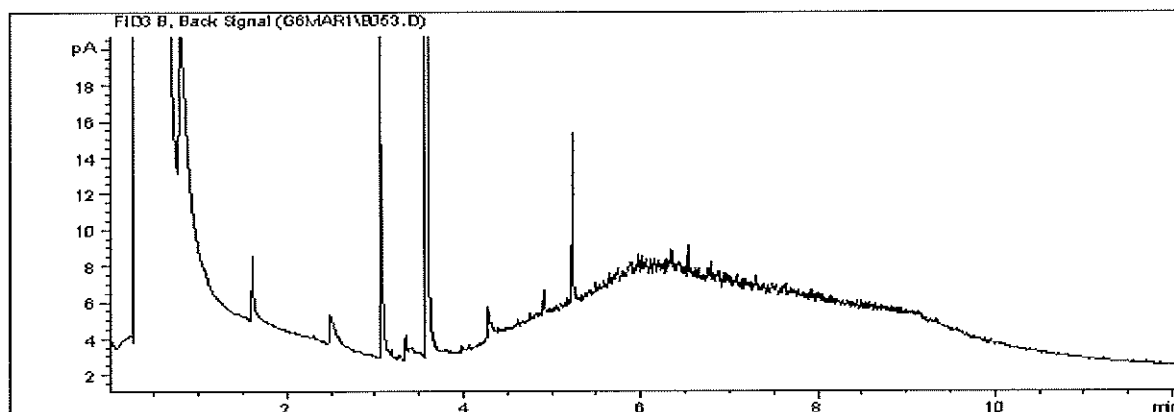
Received By:	Date:	Time:	LAB USE ONLY	
COFFEE	12/25	12:25		
Lab Comments:	Y	9.6, 8.2, 9.9	Clarity	Ice
			Seal	Temperature



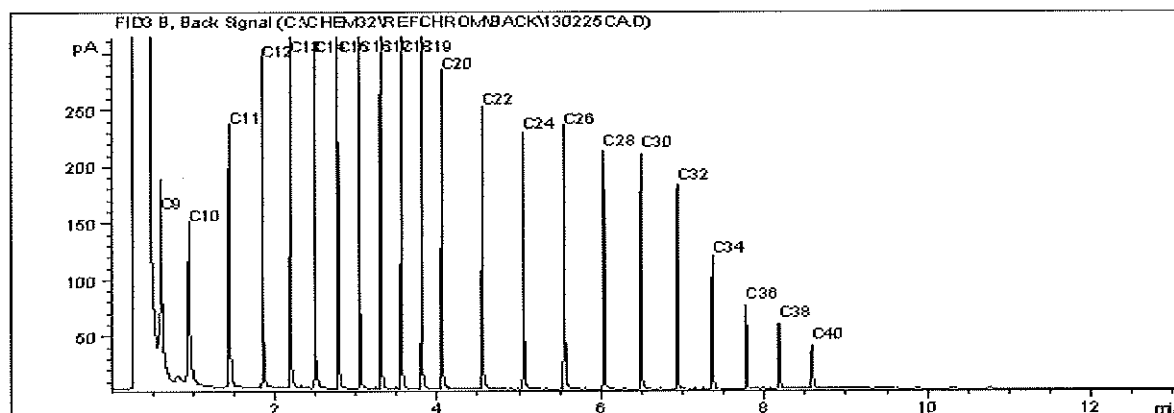
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2846

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-40-0.6-1.2

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

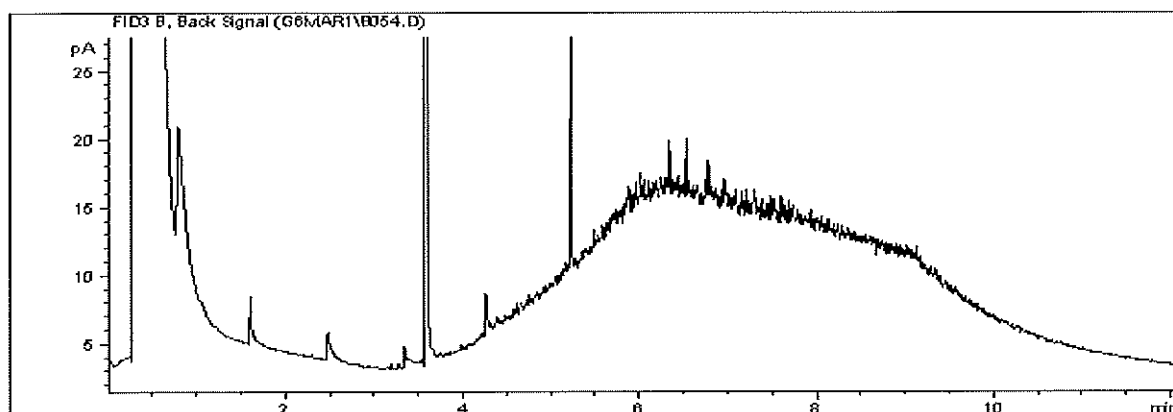
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



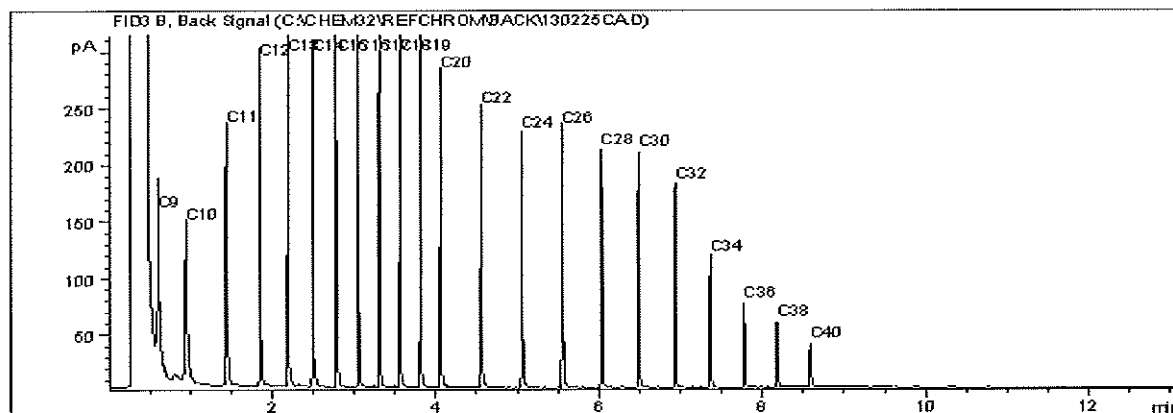
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2847

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-40-2.4-3.0

## CCME Hydrocarbons (F2-F4 In soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

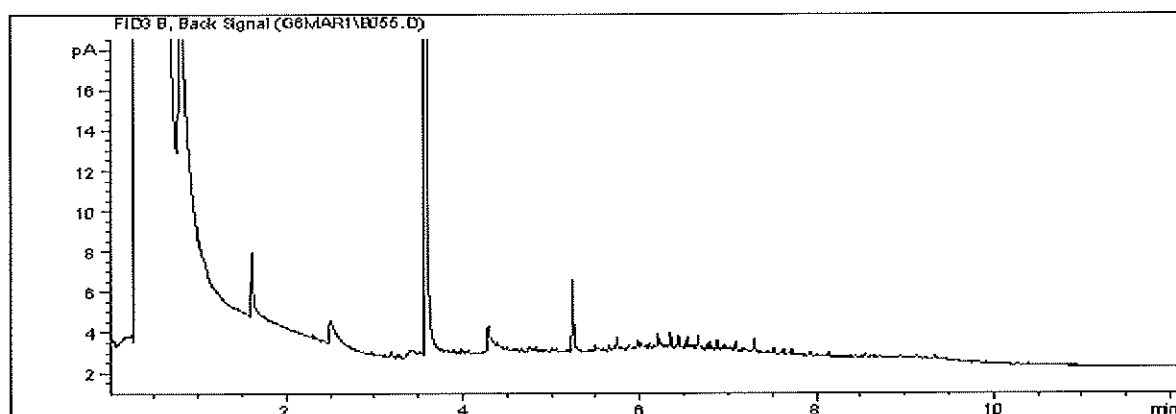
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



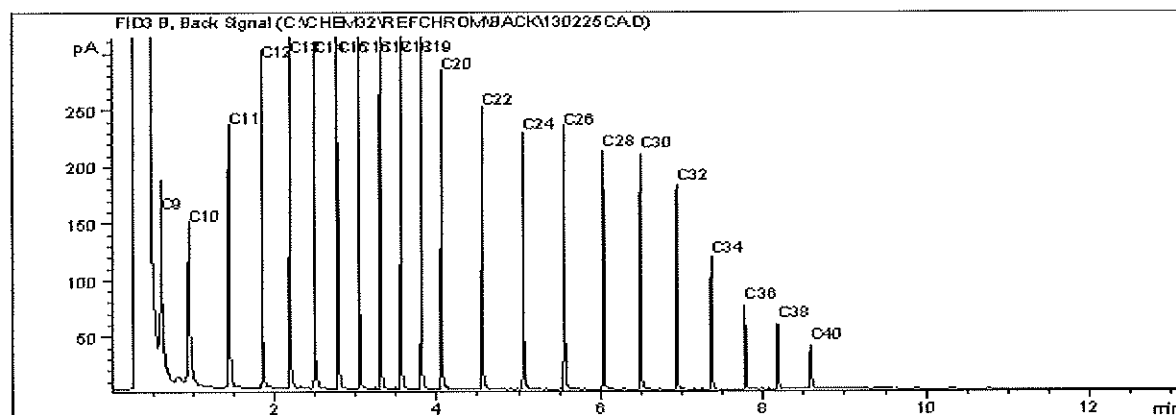
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2848

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-40-4.8-5.4

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

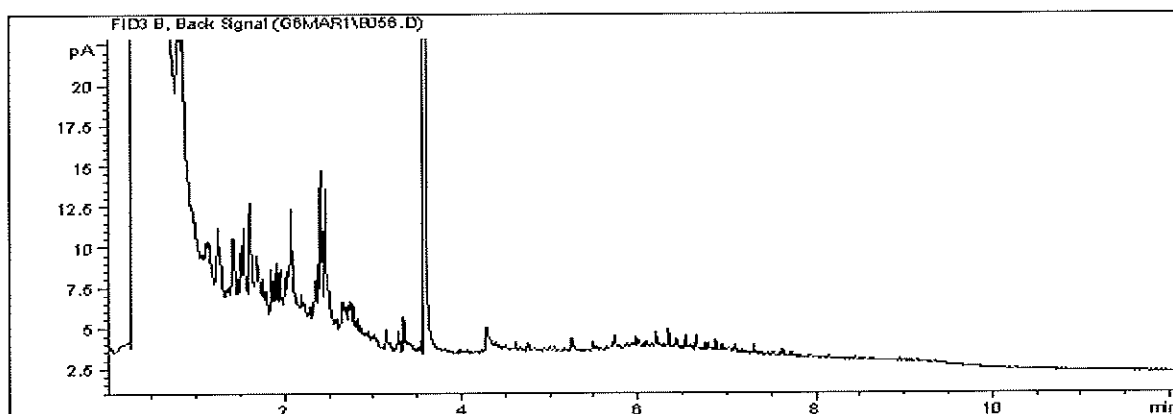
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



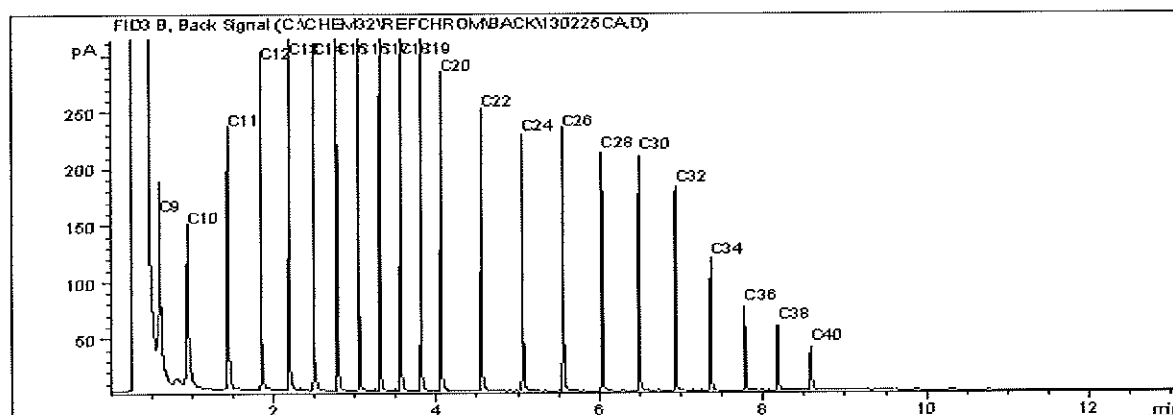
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2849

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-41-2.4-3.0

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

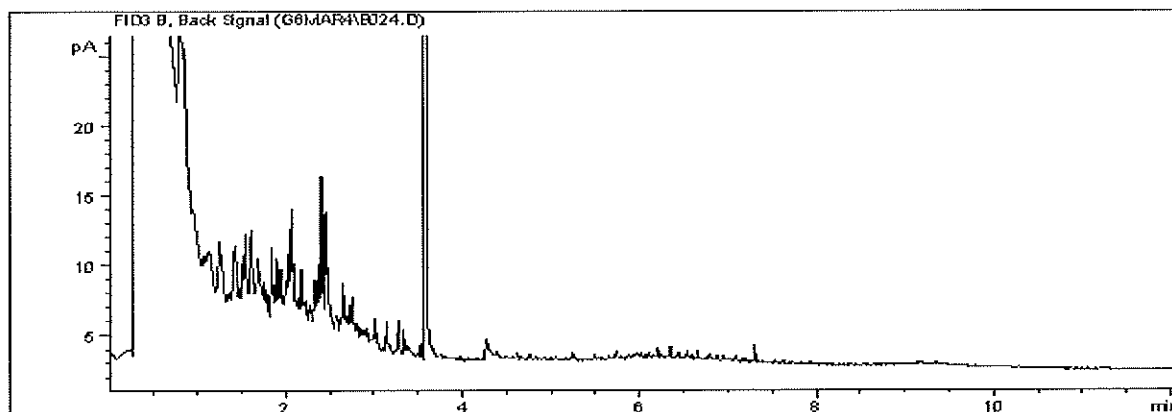
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



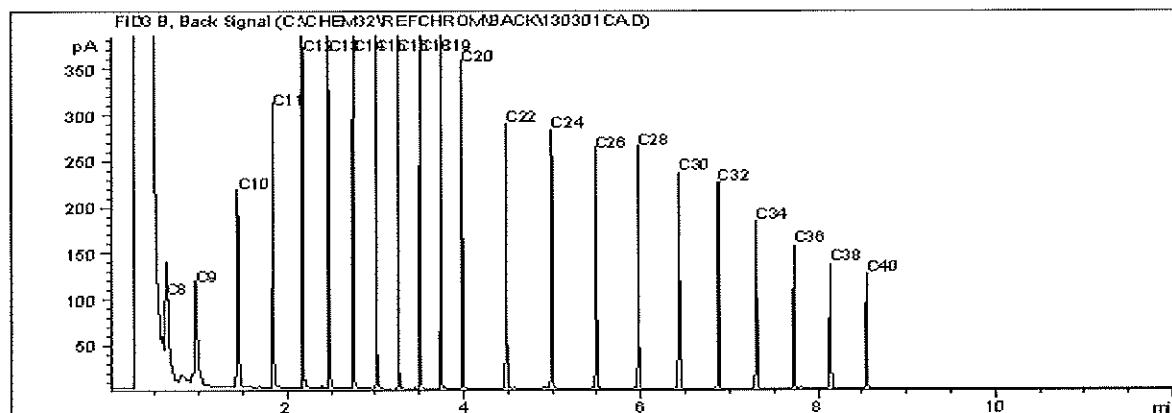
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2850

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-41-3.0-3.6

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

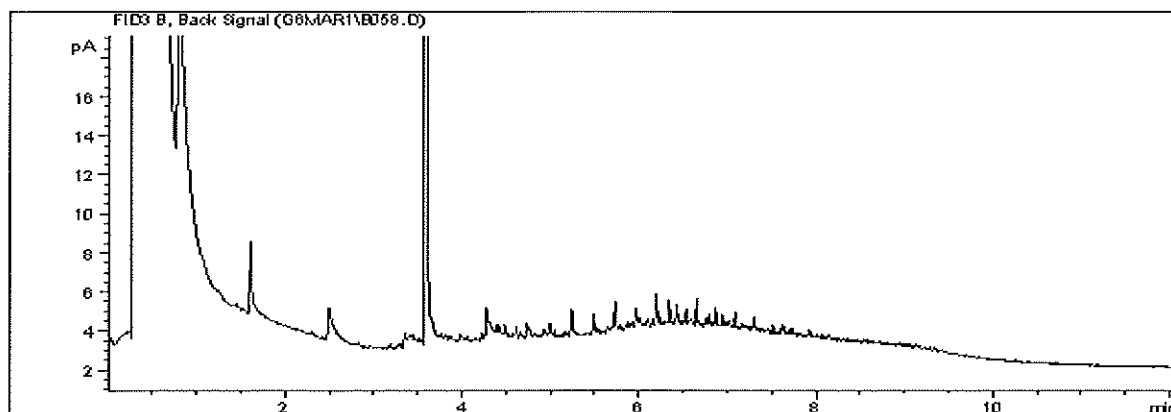
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



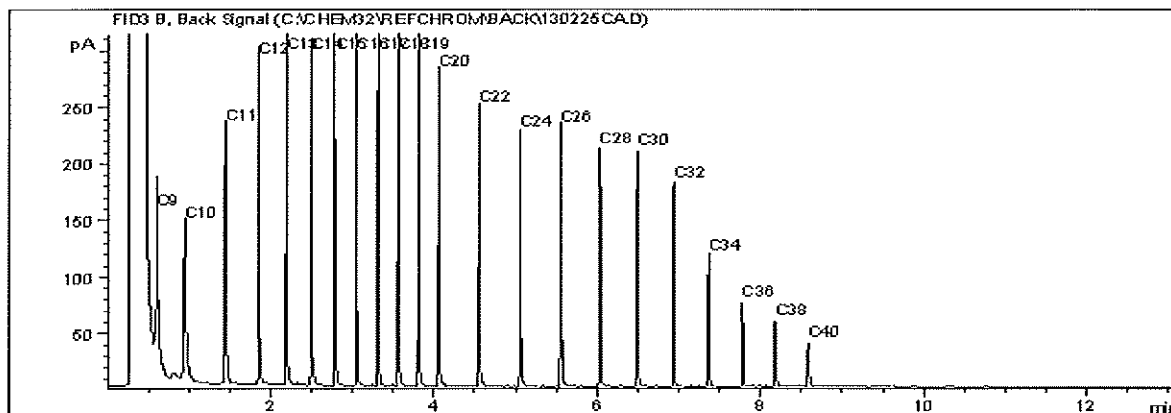
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2851

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-41-3.6-4.2

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

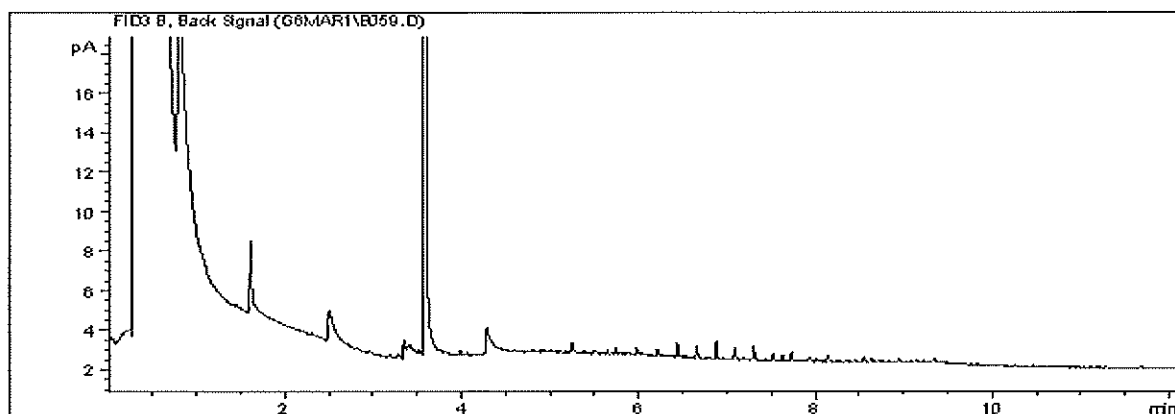
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



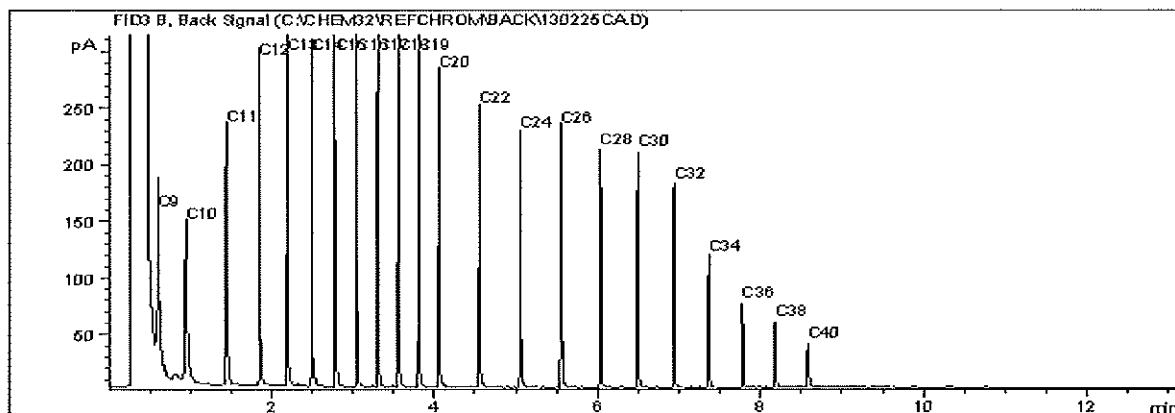
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2852

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-42-0.6-1.2

## CCME Hydrocarbons (F2-F4 In soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

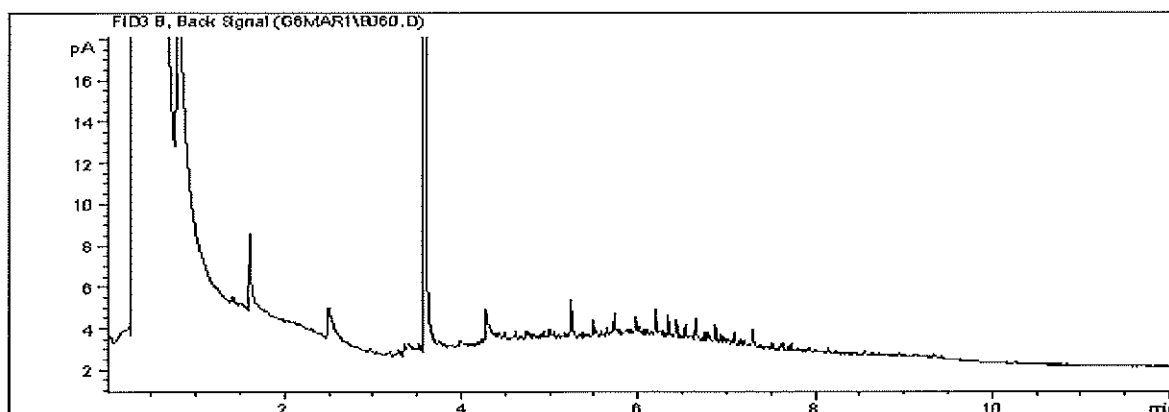
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



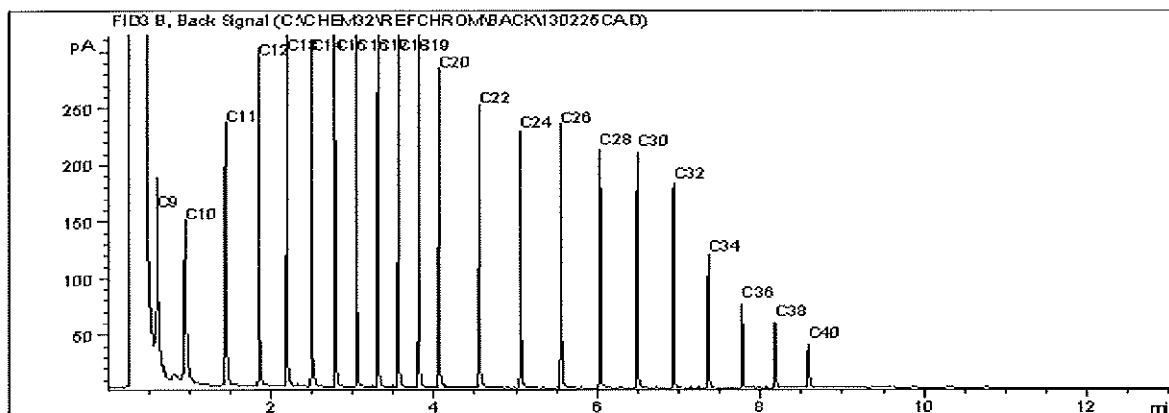
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2853

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-42-1.8-2.4

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

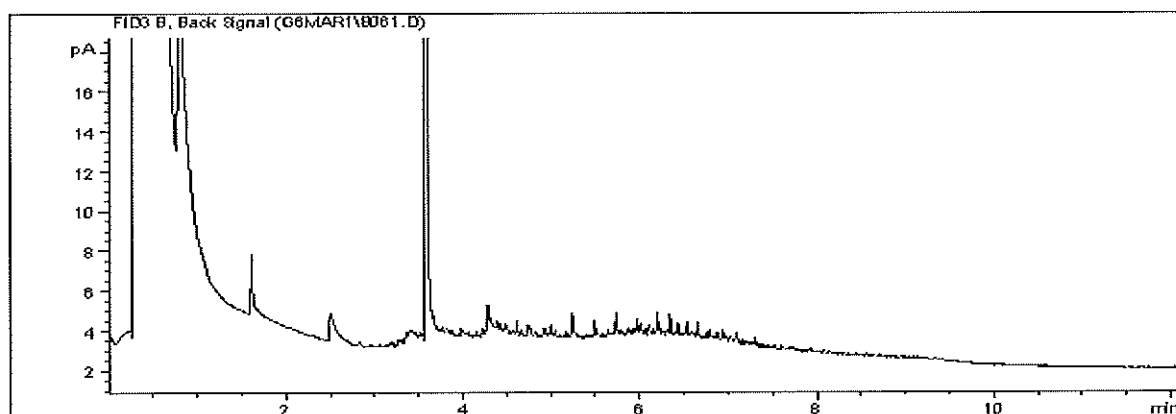
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



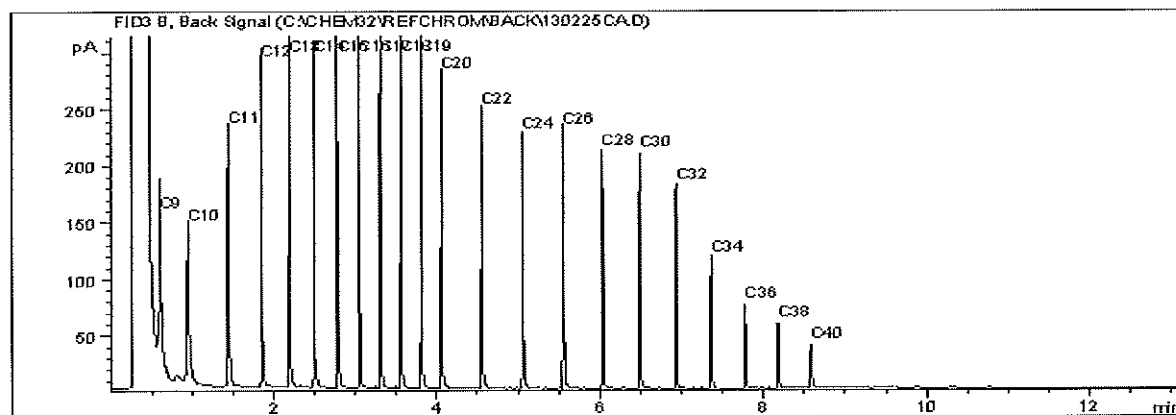
Report Date: 2013/03/06  
Maxxam Job #: B314774  
Maxxam Sample: FS2854

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-42-3.0-3.6

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



**DATA QUALITY REVIEW CHECKLIST**

Consultant: Parsons

Sampling Date: 2013/02/22

Location: 208 St. Anne's Road, Winnipeg, MB

Laboratory : Maxxam Analytics, Winnipeg

Consultant Project Number: 10-1177.100

Sample Submission Number: B314774

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration	<i>X</i>			
Matrix Duplicate RPD	<i>X</i>			
Matrix Spike Recovery	<i>X</i>			
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<i>X</i>	<i>No field QC were submitted.</i>
Trip Blank Concentration			<i>X</i>	
Field Duplicate RPD			<i>X</i>	

Has CoA been signed off (Yes/No)?:

Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?:

Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:

Yes

Were all samples analyzed within hold times (Yes/No)?:

Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:

N/A

Is Chain of Custody completed and signed (Yes/No)?:

Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?:

Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?:

No

Date Issued: \_\_\_\_\_

Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?:


Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-Naurocki

Review Date: 2013/03/08

Revision Date (if applicable): \_\_\_\_\_

Data Reviewed by (Signature): 

Revised by (Signature): \_\_\_\_\_



Your Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Your C.O.C. #: S003359

**Attention: Adam Wickman**

O'CONNOR ASSOCIATES ENVIRONMENTAL  
7 TERRACON PLACE  
WINNIPEG, MB  
CANADA R2J 4B3

**Report Date: 2013/03/06**

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B314801**

**Received: 2013/02/25, 12:25**

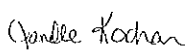
Sample Matrix: Soil  
# Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Volatile F1-BTEX (1)	10	N/A	2013/03/05	BBY WI-00033	BC MOE Lab Method
Volatile F1-BTEX (1)	1	N/A	2013/03/06	BBY WI-00033	BC MOE Lab Method
CCME Hydrocarbons (F2-F4 in soil) (1)	10	2013/03/01	2013/03/04	BBY8SOP-00030	CCME Soil Tier 1
CCME Hydrocarbons (F2-F4 in soil) (1)	1	2013/03/01	2013/03/05	BBY8SOP-00030	CCME Soil Tier 1
Elements by ICPMS (total) (1)	4	2013/02/28	2013/02/28	BBY7SOP-00001	EPA 6020A
Elements by ICPMS (total) (1)	7	2013/03/01	2013/03/01	BBY7SOP-00001	EPA 6020A
Molsture (1)	11	N/A	2013/02/28	BBY8SOP-00017	Ont MOE -E 3139
pH (2:1 DI Water Extract) (1)	4	2013/02/28	2013/02/28	BBY6SOP-00028	Carter, SSMA 16.2
pH (2:1 DI Water Extract) (1)	7	2013/03/01	2013/03/01	BBY6SOP-00028	Carter, SSMA 16.2
CCME F1 C6-C10 in Soil by GC/FID (1)	6	2013/02/27	2013/03/04	BBY8SOP-00012	EPA SW8260C
CCME F1 C6-C10 in Soil by GC/FID (1)	4	2013/02/27	2013/03/05	BBY8SOP-00012	EPA SW8260C
CCME F1 C6-C10 in Soil by GC/FID (1)	1	2013/02/27	2013/03/06	BBY8SOP-00012	EPA SW8260C
VOCs in Soil by HS GC/MS (1)	6	2013/02/27	2013/03/04	BBY8-SOP-0009	EPA 8260C
VOCs in Soil by HS GC/MS (1)	4	2013/02/27	2013/03/05	BBY8-SOP-0009	EPA 8260C
VOCs in Soil by HS GC/MS (1)	1	2013/02/27	2013/03/06	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

**Encryption Key**

 Janelle Kochan  
06 Mar 2013 18:00:13 -08:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
Email: JKochan@maxxam.ca  
Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B314801  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF SOIL

Maxxam ID		FS2967	FS2968	FS2969	FS2970		
Sampling Date		2013/02/22 14:30	2013/02/22 14:45	2013/02/22 14:45	2013/02/22 15:00		
COC Number		S003359	S003359	S003359	S003359		
	UNITS	BH-43-0.0-0.6	BH-43-1.8-2.4	DUP-43	BH-43-2.4-3.0	RDL	QC Batch

Calculated Parameters							
F1 (C6-C10) - BTEX	mg/kg	54	840	550	140	10	6608165
Physical Properties							
Soluble (2:1) pH	pH Units	8.51	8.39	8.59	8.33	0.010	6606556
RDL = Reportable Detection Limit							

Maxxam ID		FS2971	FS2972		FS2973		FS2974		
Sampling Date		2013/02/22 15:15	2013/02/22 16:15		2013/02/22 16:30		2013/02/22 16:45		
COC Number		S003359	S003359		S003359		S003359		
	UNITS	BH-43-3.0-3.6	BH-44-0.0-0.6	RDL	BH-44-1.2-1.8	RDL	BH-44-1.8-2.4	RDL	QC Batch

Calculated Parameters									
F1 (C6-C10) - BTEX	mg/kg	<10	160	10	1500	50	550	10	6608165
Physical Properties									
Soluble (2:1) pH	pH Units	7.92	8.06	0.010	8.43	0.010	8.76	0.010	6610533
RDL = Reportable Detection Limit									

Maxxam ID		FS2975	FS2976		FS2977	FS2977		
Sampling Date		2013/02/22 16:45	2013/02/22 17:00		2013/02/22 17:15	2013/02/22 17:15		
COC Number		S003359	S003359		S003359	S003359		
	UNITS	DUP-44	BH-44-2.4-3.0	QC Batch	BH-44-3.0-3.6	BH-44-3.0-3.6 Lab-Dup	RDL	QC Batch

Calculated Parameters								
F1 (C6-C10) - BTEX	mg/kg	460	250	6608165	<10	N/A	10	6608165
Physical Properties								
Soluble (2:1) pH	pH Units	8.75	8.70	6610533	7.99	7.84	0.010	6610517
N/A = Not Applicable RDL = Reportable Detection Limit								



Maxxam Job #: B314801  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FS2967	FS2968	FS2969	FS2970		
Sampling Date		2013/02/22 14:30	2013/02/22 14:45	2013/02/22 14:45	2013/02/22 15:00		
COC Number		S003359	S003359	S003359	S003359		
	UNITS	BH-43-0.0-0.6	BH-43-1.8-2.4	DUP-43	BH-43-2.4-3.0	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/kg	200	260	82	64	10	6611348
F3 (C16-C34 Hydrocarbons)	mg/kg	350	17	24	13	10	6611348
F4 (C34-C50 Hydrocarbons)	mg/kg	270	<10	<10	<10	10	6611348
Reached Baseline at C50	mg/kg	Yes	Yes	Yes	Yes	N/A	6611348
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	93	97	93	89	N/A	6611348
N/A = Not Applicable RDL = Reportable Detection Limit							

Maxxam ID		FS2971		FS2972	FS2973	FS2974		
Sampling Date		2013/02/22 15:15		2013/02/22 16:15	2013/02/22 16:30	2013/02/22 16:45		
COC Number		S003359		S003359	S003359	S003359		
	UNITS	BH-43-3.0-3.6	QC Batch	BH-44-0.0-0.6	BH-44-1.2-1.8	BH-44-1.8-2.4	RDL	QC Batch

Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	<10	6611348	110	520	130	10	6610325
F3 (C16-C34 Hydrocarbons)	mg/kg	33	6611348	170	<10	<10	10	6610325
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	6611348	64	<10	<10	10	6610325
Reached Baseline at C50	mg/kg	Yes	6611348	Yes	Yes	Yes	N/A	6610325
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	82	6611348	91	91	108	N/A	6610325
N/A = Not Applicable RDL = Reportable Detection Limit								



Maxxam Job #: B314801  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FS2975		FS2976	FS2976	FS2977		
Sampling Date		2013/02/22 16:45		2013/02/22 17:00	2013/02/22 17:00	2013/02/22 17:15		
COC Number		S003359		S003359	S003359	S003359		
	UNITS	DUP-44	QC Batch	BH-44-2.4-3.0	BH-44-2.4-3.0 Lab-Dup	BH-44-3.0-3.6	RDL	QC Batch

Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/kg	170	6610325	84	77	<10	10	6611348
F3 (C16-C34 Hydrocarbons)	mg/kg	<10	6610325	<10	<10	18	10	6611348
F4 (C34-C50 Hydrocarbons)	mg/kg	<10	6610325	<10	<10	10	10	6611348
Reached Baseline at C50	mg/kg	Yes	6610325	Yes	Yes	Yes	N/A	6611348
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	99	6610325	99	100	91	N/A	6611348

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B314801  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PHYSICAL TESTING (SOIL)

Maxxam ID		FS2967	FS2968	FS2969	FS2969	FS2970		
Sampling Date		2013/02/22 14:30	2013/02/22 14:45	2013/02/22 14:45	2013/02/22 14:45	2013/02/22 15:00		
COC Number		S003359	S003359	S003359	S003359	S003359		
	UNITS	BH-43-0.0-0.6	BH-43-1.8-2.4	DUP-43	DUP-43 Lab-Dup	BH-43-2.4-3.0	RDL	QC Batch

Physical Properties								
Moisture	%	18	26	29	28	31	0.30	6602185

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		FS2971	FS2972	FS2973	FS2974	FS2975		
Sampling Date		2013/02/22 15:15	2013/02/22 16:15	2013/02/22 16:30	2013/02/22 16:45	2013/02/22 16:45		
COC Number		S003359	S003359	S003359	S003359	S003359		
	UNITS	BH-43-3.0-3.6	BH-44-0.0-0.6	BH-44-1.2-1.8	BH-44-1.8-2.4	DUP-44	RDL	QC Batch

Physical Properties								
Moisture	%	34	22	23	18	18	0.30	6602185

RDL = Reportable Detection Limit

Maxxam ID		FS2976	FS2977		
Sampling Date		2013/02/22 17:00	2013/02/22 17:15		
COC Number		S003359	S003359		
	UNITS	BH-44-2.4-3.0	BH-44-3.0-3.6	RDL	QC Batch

Physical Properties					
Moisture	%	17	33	0.30	6602185

RDL = Reportable Detection Limit



Maxxam Job #: B314801  
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O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		FS2967	FS2968	FS2969	FS2970		
Sampling Date		2013/02/22 14:30	2013/02/22 14:45	2013/02/22 14:45	2013/02/22 15:00		
COC Number		S003359	S003359	S003359	S003359		
	UNITS	BH-43-0.0-0.6	BH-43-1.8-2.4	DUP-43	BH-43-2.4-3.0	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	49.2	15.5	13.7	17.7	0.10	6606514
RDL = Reportable Detection Limit							

Maxxam ID		FS2971	FS2972	FS2973	FS2974		
Sampling Date		2013/02/22 15:15	2013/02/22 16:15	2013/02/22 16:30	2013/02/22 16:45		
COC Number		S003359	S003359	S003359	S003359		
	UNITS	BH-43-3.0-3.6	BH-44-0.0-0.6	BH-44-1.2-1.8	BH-44-1.8-2.4	RDL	QC Batch

Total Metals by ICPMS							
Total Lead (Pb)	mg/kg	16.3	56.8	18.1	6.87	0.10	6610528
RDL = Reportable Detection Limit							

Maxxam ID		FS2975	FS2976		FS2977	FS2977		
Sampling Date		2013/02/22 16:45	2013/02/22 17:00		2013/02/22 17:15	2013/02/22 17:15		
COC Number		S003359	S003359		S003359	S003359		
	UNITS	DUP-44	BH-44-2.4-3.0	QC Batch	BH-44-3.0-3.6	BH-44-3.0-3.6 Lab-Dup	RDL	QC Batch

Total Metals by ICPMS								
Total Lead (Pb)	mg/kg	6.75	6.58	6610528	15.1	14.8	0.10	6610501
RDL = Reportable Detection Limit								



Maxxam Job #: B314801  
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O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		FS2967	FS2968	FS2969		FS2970		
Sampling Date		2013/02/22 14:30	2013/02/22 14:45	2013/02/22 14:45		2013/02/22 15:00		
COC Number		S003359	S003359	S003359		S003359		
	UNITS	BH-43-0.0-0.6	BH-43-1.8-2.4	DUP-43	RDL	BH-43-2.4-3.0	RDL	QC Batch

<b>Volatile Hydrocarbons</b>								
(C6-C10)	mg/kg	57	940	680	10	160	10	6616058
<b>Volatiles</b>								
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	<0.025	0.025	6615651
Benzene	mg/kg	0.29	0.97	2.5	0.0050	1.5	0.0050	6615651
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	0.10	<0.10	0.10	6615651
Toluene	mg/kg	0.076	2.2	4.9	0.020	<0.029 (1)	0.029	6615651
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	0.025	<0.025	0.025	6615651
Ethylbenzene	mg/kg	0.85	20	22	0.010	6.1	0.010	6615651
m & p-Xylene	mg/kg	1.4	61	78	0.040	7.4	0.040	6615651
o-Xylene	mg/kg	0.59	16	25	0.040	0.040	0.040	6615651
Xylenes (Total)	mg/kg	2.0	77	100	0.040	7.4	0.040	6615651

RDL = Reportable Detection Limit

( 1 ) RDL raised due to sample matrix interference.

Maxxam ID		FS2971	FS2972	FS2972		FS2973		
Sampling Date		2013/02/22 15:15	2013/02/22 16:15	2013/02/22 16:15		2013/02/22 16:30		
COC Number		S003359	S003359	S003359		S003359		
	UNITS	BH-43-3.0-3.6	BH-44-0.0-0.6	BH-44-0.0-0.6 Lab-Dup	RDL	BH-44-1.2-1.8	RDL	QC Batch

<b>Volatile Hydrocarbons</b>								
(C6-C10)	mg/kg	<10	220	300	10	1700 (1)	50	6616058
<b>Volatiles</b>								
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	<0.025	0.025	6615651
Benzene	mg/kg	<0.0050	1.6	N/A	0.0050	3.1 (1)	0.025	6615651
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	N/A	0.10	<0.50 (1)	0.50	6615651
Toluene	mg/kg	<0.020	0.59	N/A	0.020	19 (1)	0.10	6615651
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	0.025	<0.025	0.025	6615651
Ethylbenzene	mg/kg	0.032	5.9	N/A	0.010	17 (1)	0.050	6615651
m & p-Xylene	mg/kg	0.059	32	N/A	0.040	87 (1)	0.20	6615651
o-Xylene	mg/kg	<0.040	16	N/A	0.040	69 (1)	0.20	6615651

N/A = Not Applicable

RDL = Reportable Detection Limit

( 1 ) RDL raised due to sample dilution.



Maxxam Job #: B314801  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (SOIL)

Maxxam ID		FS2971	FS2972	FS2972		FS2973		
Sampling Date		2013/02/22 15:15	2013/02/22 16:15	2013/02/22 16:15		2013/02/22 16:30		
COC Number		S003359	S003359	S003359		S003359		
	UNITS	BH-43-3.0-3.6	BH-44-0.0-0.6	BH-44-0.0-0.6 Lab-Dup	RDL	BH-44-1.2-1.8	RDL	QC Batch

Xylenes (Total)	mg/kg	0.059	49	N/A	0.040	160	0.20	6615651
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N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		FS2974	FS2975	FS2976		FS2977		
Sampling Date		2013/02/22 16:45	2013/02/22 16:45	2013/02/22 17:00		2013/02/22 17:15		
COC Number		S003359	S003359	S003359		S003359		
	UNITS	BH-44-1.8-2.4	DUP-44	BH-44-2.4-3.0	RDL	BH-44-3.0-3.6	RDL	QC Batch

<b>Volatile Hydrocarbons</b>								
(C6-C10)	mg/kg	710	590	280	10	<10	10	6617587
<b>Volatiles</b>								
1,2-dichloroethane	mg/kg	<0.025	<0.025	<0.025	0.025	<0.025	0.025	6615668
Benzene	mg/kg	6.5	5.3	1.1	0.0050	<0.017 (1)	0.017	6615668
Methyl-tert-butylether (MTBE)	mg/kg	<0.10	<0.10	<0.10	0.10	<0.10	0.10	6615668
Toluene	mg/kg	28	20	1.1	0.020	0.043	0.020	6615668
1,2-dibromoethane	mg/kg	<0.025	<0.025	<0.025	0.025	<0.025	0.025	6615668
Ethylbenzene	mg/kg	19	15	8.4	0.010	0.041	0.010	6615668
m & p-Xylene	mg/kg	66	52	18	0.040	0.094	0.040	6615668
o-Xylene	mg/kg	40	30	5.0	0.040	0.054	0.040	6615668
Xylenes (Total)	mg/kg	110	81	23	0.040	0.15	0.040	6615668

RDL = Reportable Detection Limit  
(1) RDL raised due to sample matrix interference.



Maxxam Job #: B314801  
Report Date: 2013/03/06

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

Package 1	9.2°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: Adam Wickman

Client Project #: 10-1177.100

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB314801

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6602185 LO1	Method Blank	Moisture	2013/02/28	<0.30		%	
	RPD [FS2969-01]	Moisture	2013/02/28	1.4		%	20
6606514 DJ	Matrix Spike	Total Lead (Pb)	2013/02/28		99	%	75 - 125
	QC Standard	Total Lead (Pb)	2013/02/28		98	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2013/02/28		103	%	75 - 125
	Method Blank	Total Lead (Pb)	2013/02/28	<0.10		mg/kg	
6606556 NS6	Spiked Blank	Soluble (2:1) pH	2013/02/28		102	%	96 - 104
	RPD	Soluble (2:1) pH	2013/02/28	0.1		%	20
6610325 TL2	Matrix Spike	O-TERPHENYL (sur.)	2013/03/01		97	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01		96	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/03/01		79	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/03/01		79	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/01		82	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01		102	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/03/01		83	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/03/01		84	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/03/01		93	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/01	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/03/01	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/03/01	<10		mg/kg	
		Reached Baseline at C50	2013/03/01	YES		mg/kg	
	RPD	F2 (C10-C16 Hydrocarbons)	2013/03/01	NC		%	40
		F3 (C16-C34 Hydrocarbons)	2013/03/01	NC		%	40
		F4 (C34-C50 Hydrocarbons)	2013/03/01	NC		%	40
		Reached Baseline at C50	2013/03/01	NC		%	50
6610501 DJ	Matrix Spike	Total Lead (Pb)	2013/03/01		103	%	75 - 125
	[FS2977-02]	Total Lead (Pb)	2013/03/01		96	%	70 - 130
	QC Standard	Total Lead (Pb)	2013/03/01		105	%	75 - 125
	Spiked Blank	Total Lead (Pb)	2013/03/01				
	Method Blank	Total Lead (Pb)	2013/03/01	<0.10		mg/kg	
	RPD [FS2977-02]	Total Lead (Pb)	2013/03/01	1.9		%	35
6610517 NS6	Spiked Blank	Soluble (2:1) pH	2013/03/01		102	%	96 - 104
	RPD [FS2977-02]	Soluble (2:1) pH	2013/03/01	1.9		%	20
6610528 DJ	Matrix Spike	Total Lead (Pb)	2013/03/01		104	%	75 - 125
	QC Standard	Total Lead (Pb)	2013/03/01		98	%	70 - 130
	Spiked Blank	Total Lead (Pb)	2013/03/01		101	%	75 - 125
	Method Blank	Total Lead (Pb)	2013/03/01	0.18, RDL=0.10		mg/kg	
	RPD	Total Lead (Pb)	2013/03/01	0.7		%	35
6610533 NS6	Spiked Blank	Soluble (2:1) pH	2013/03/01		101	%	96 - 104
	RPD	Soluble (2:1) pH	2013/03/01	0.9		%	20
6611348 PN2	Matrix Spike	O-TERPHENYL (sur.)	2013/03/04		99	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04		102	%	50 - 130
		F3 (C16-C34 Hydrocarbons)	2013/03/04		90	%	50 - 130
		F4 (C34-C50 Hydrocarbons)	2013/03/04		81	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/04		103	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04		102	%	80 - 120
		F3 (C16-C34 Hydrocarbons)	2013/03/04		90	%	80 - 120
		F4 (C34-C50 Hydrocarbons)	2013/03/04		81	%	80 - 120
	Method Blank	O-TERPHENYL (sur.)	2013/03/04		113	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/04	<10		mg/kg	
		F3 (C16-C34 Hydrocarbons)	2013/03/04	<10		mg/kg	
		F4 (C34-C50 Hydrocarbons)	2013/03/04	<10		mg/kg	
		Reached Baseline at C50	2013/03/04	YES		mg/kg	
	RPD [FS2976-01]	F2 (C10-C16 Hydrocarbons)	2013/03/04	8.3		%	40



O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Attention: Adam Wickman  
 Client Project #: 10-1177.100  
 P.O. #:  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB314801

QA/QC Batch			Date Analyzed				
Num Init	QC Type	Parameter	yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6611348 PN2	RPD [FS2976-01]	F3 (C16-C34 Hydrocarbons)	2013/03/04	NC		%	40
		F4 (C34-C50 Hydrocarbons)	2013/03/04	NC		%	40
		Reached Baseline at C50	2013/03/04	NC		%	50
6615651 MM5	Matrix Spike [FS2972-01]	1,2-dichloroethane	2013/03/04		82	%	60 - 140
		Benzene	2013/03/04		61	%	60 - 140
		Toluene	2013/03/04		84	%	60 - 140
		1,2-dibromoethane	2013/03/04		92	%	60 - 140
		Ethylbenzene	2013/03/04		NC	%	60 - 140
		m & p-Xylene	2013/03/04		NC	%	60 - 140
		o-Xylene	2013/03/04		NC	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2013/03/04		85	%	60 - 140
		Benzene	2013/03/04		81	%	60 - 140
		Toluene	2013/03/04		79	%	60 - 140
		1,2-dibromoethane	2013/03/04		85	%	60 - 140
		Ethylbenzene	2013/03/04		86	%	60 - 140
		m & p-Xylene	2013/03/04		95	%	60 - 140
		o-Xylene	2013/03/04		89	%	60 - 140
	Method Blank	1,2-dichloroethane	2013/03/04	<0.025		mg/kg	
		Benzene	2013/03/04	<0.0050		mg/kg	
		Methyl-tert-butylether (MTBE)	2013/03/04	<0.10		mg/kg	
		Toluene	2013/03/04	<0.020		mg/kg	
		1,2-dibromoethane	2013/03/04	<0.025		mg/kg	
		Ethylbenzene	2013/03/04	<0.010		mg/kg	
		m & p-Xylene	2013/03/04	<0.040		mg/kg	
		o-Xylene	2013/03/04	<0.040		mg/kg	
		Xylenes (Total)	2013/03/04	<0.040		mg/kg	
	RPD [FS2972-01]	1,2-dichloroethane	2013/03/04	NC		%	40
		1,2-dibromoethane	2013/03/04	NC		%	40
6615668 MM5	Matrix Spike	1,2-dichloroethane	2013/03/05		87	%	60 - 140
		Benzene	2013/03/05		87	%	60 - 140
		Toluene	2013/03/05		87	%	60 - 140
		1,2-dibromoethane	2013/03/05		97	%	60 - 140
		Ethylbenzene	2013/03/05		94	%	60 - 140
		m & p-Xylene	2013/03/05		102	%	60 - 140
		o-Xylene	2013/03/05		98	%	60 - 140
	Spiked Blank	1,2-dichloroethane	2013/03/05		84	%	60 - 140
		Benzene	2013/03/05		74	%	60 - 140
		Toluene	2013/03/05		85	%	60 - 140
		1,2-dibromoethane	2013/03/05		101	%	60 - 140
		Ethylbenzene	2013/03/05		98	%	60 - 140
		m & p-Xylene	2013/03/05		107	%	60 - 140
		o-Xylene	2013/03/05		102	%	60 - 140
	Method Blank	1,2-dichloroethane	2013/03/05	<0.025		mg/kg	
		Benzene	2013/03/05	<0.0050		mg/kg	
		Methyl-tert-butylether (MTBE)	2013/03/05	<0.10		mg/kg	
		Toluene	2013/03/05	<0.020		mg/kg	
		1,2-dibromoethane	2013/03/05	<0.025		mg/kg	
		Ethylbenzene	2013/03/05	<0.010		mg/kg	
		m & p-Xylene	2013/03/05	<0.040		mg/kg	
		o-Xylene	2013/03/05	<0.040		mg/kg	
		Xylenes (Total)	2013/03/05	<0.040		mg/kg	
	RPD	1,2-dichloroethane	2013/03/05	NC		%	40
		Benzene	2013/03/05	NC		%	40
		Methyl-tert-butylether (MTBE)	2013/03/05	NC		%	40



O'CONNOR ASSOCIATES ENVIRONMENTAL  
Attention: Adam Wickman  
Client Project #: 10-1177.100  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB314801

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6615668 MM5	RPD	Toluene	2013/03/05	NC		%	40
		Ethylbenzene	2013/03/05	NC		%	40
		m & p-Xylene	2013/03/05	NC		%	40
		o-Xylene	2013/03/05	NC		%	40
		Xylenes (Total)	2013/03/05	NC		%	40
6616058 MM5	Spiked Blank	(C6-C10)	2013/03/04		79	%	60 - 140
	Method Blank	(C6-C10)	2013/03/04	<10		mg/kg	
	RPD [FS2972-01]	(C6-C10)	2013/03/04	29.0		%	50
6617587 MM5	Spiked Blank	(C6-C10)	2013/03/05		79	%	60 - 140
	Method Blank	(C6-C10)	2013/03/05	<10		mg/kg	
	RPD	(C6-C10)	2013/03/05	NC		%	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

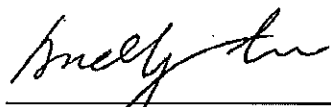


**Validation Signature Page**

Maxxam Job #: B314801

---

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



---

Andy Lu, Data Validation Coordinator

---

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



and the  $\mathcal{O}(1)$  term is bounded by  $\frac{1}{2} \log 2$ .

Consulting Company:	Prisons
Contact:	Adam Wiseman
Address:	<del>7 Terrace St</del> 7 Terrace St Winnipeg Manitoba R3T 4B3
Contact No.:	204-489-2864
Project ID:	10-1177-100
Sample By:	Adam Brisson

Report Distribution (E-Mail):  
 wickman@parsons.com

**REGULATORY GUIDELINES:**

<input type="checkbox"/>	ATT
<input checked="" type="checkbox"/>	OClef <i>low</i>
<input type="checkbox"/>	Regulated/Drinking Water
<input type="checkbox"/>	Clean



<b>DOWSTREAM</b>	<input checked="" type="checkbox"/>
Site address: 208 St. Annes Rd.	
Site City/Town: W. Winnipeg, Manitoba	
Quoted number: 63955	
Mandatory	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Applicable
<b>Senior Suncor Advisor:</b>	
Brian Holmes	<input type="checkbox"/>
Hack Lemstra	<input checked="" type="checkbox"/>
Other:	

[illegible]

SERVICE REQUESTED:	<input type="checkbox"/> RUSH (Contact lab to reserve)
	<input type="checkbox"/> 2 DAY <input type="checkbox"/> 1 DAY <input type="checkbox"/> SAME DAY
	Date Required: _____ <input checked="" type="checkbox"/> REGULAR (5 Day)

UPSTREAM	<input type="checkbox"/>
LSUW:	
Staff/Field	
AFL #	
HOW (if applicable)	
Senior Suncor Advisor:	
Miles Morton	<input type="checkbox"/>
Ben Parsons	<input type="checkbox"/>
Arthur Brown	<input type="checkbox"/>
Paul Scott	<input type="checkbox"/>
Other:	

Please indicate Filled, Preserved or Both (F. P. F/P)

(The undersigned hereby declares that the <i>Alvin Jesse Bruce</i> is the person who has been authorized to execute this certificate of ownership for the	Date of Signature 13/02/25	Time of Day 14:00
(The undersigned hereby declares that the is the person who has been authorized to execute this certificate of ownership for the	Date of Signature	Time of Day

LAB USE ONLY						
Received By: <i>MC Graw-Hill</i>	Date: <i>11/13</i>	Time: <i>12:25</i>				
			Maximum Job #:			
Lab Comments:						
			<table border="1"> <thead> <tr> <th>Endo Total</th> <th>Temperature</th> <th>ISO</th> </tr> </thead> <tbody> <tr> <td><i>Y</i></td> <td><i>9.6.8.8.9.3</i></td> <td><i>Y</i></td> </tr> </tbody> </table>	Endo Total	Temperature	ISO
Endo Total	Temperature	ISO				
<i>Y</i>	<i>9.6.8.8.9.3</i>	<i>Y</i>				

Section 1033(b)(5)

If a subspace may be present, please proceed w. the analysis

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

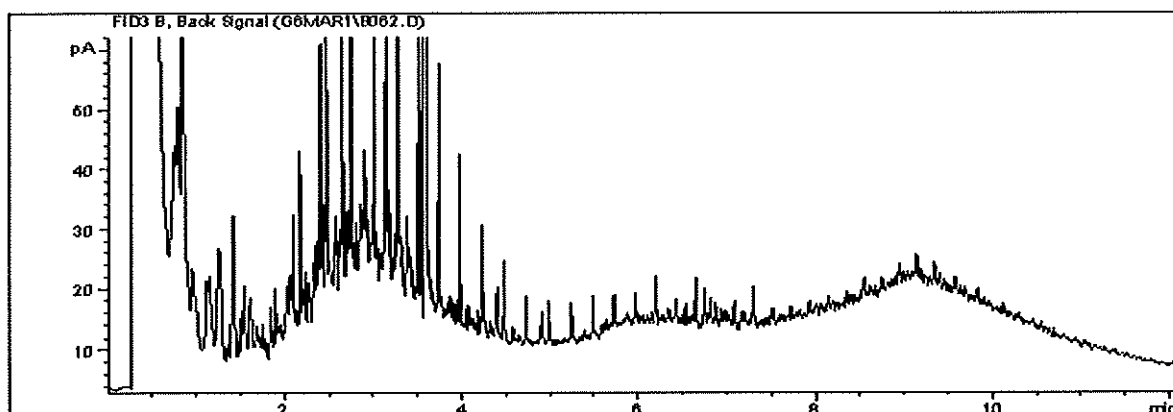
Page 14 of 26



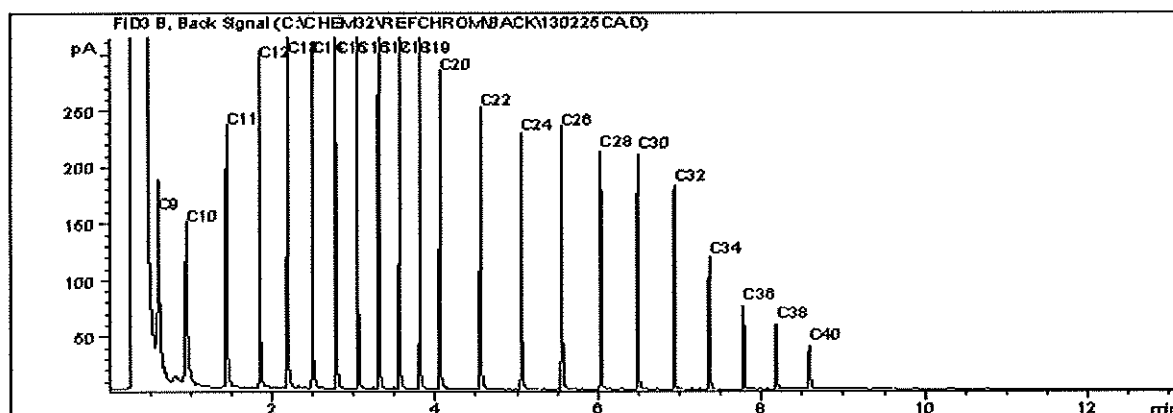
Report Date: 2013/03/06  
 Maxxam Job #: B314801  
 Maxxam Sample: FS2967

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-43-0.0-0.6

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

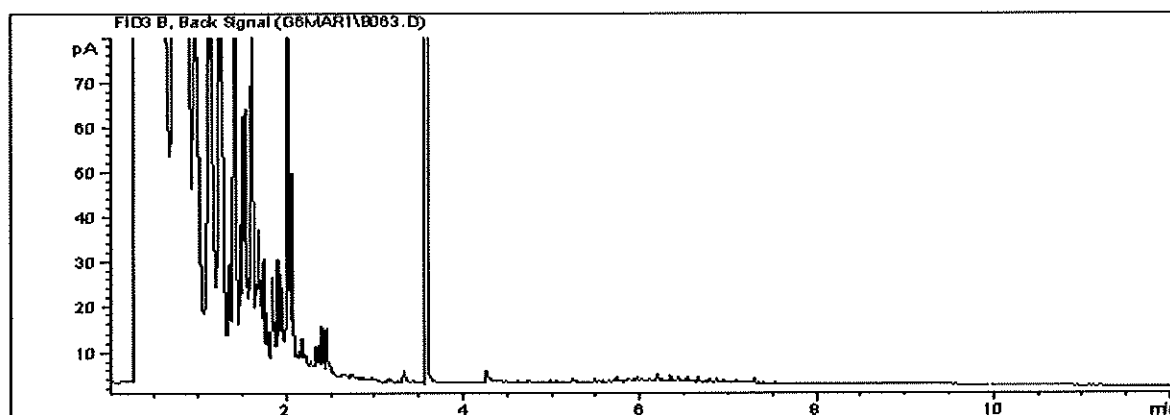
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



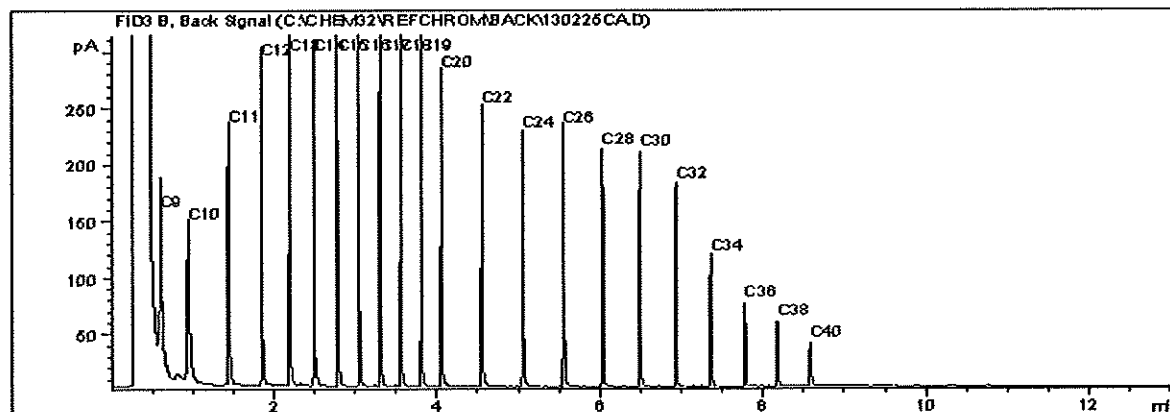
Report Date: 2013/03/06  
 Maxxam Job #: B314801  
 Maxxam Sample: FS2968

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-43-1.8-2.4

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

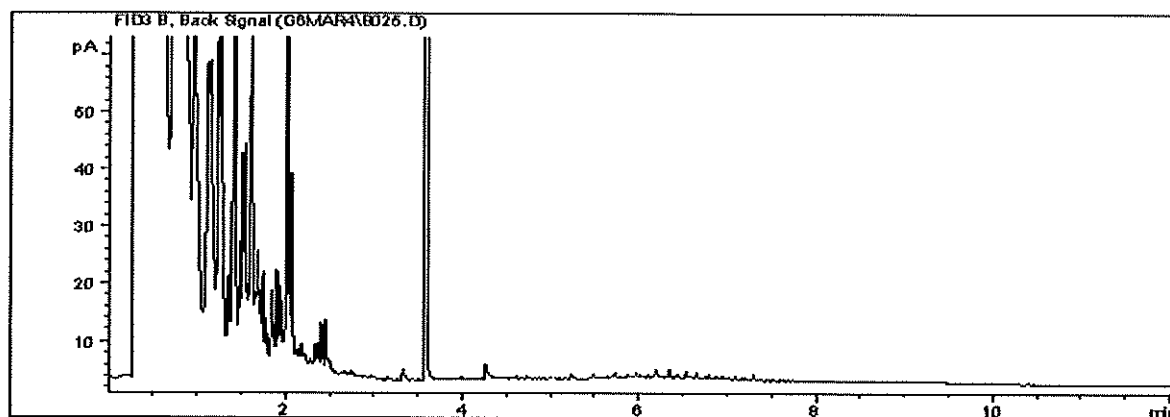
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



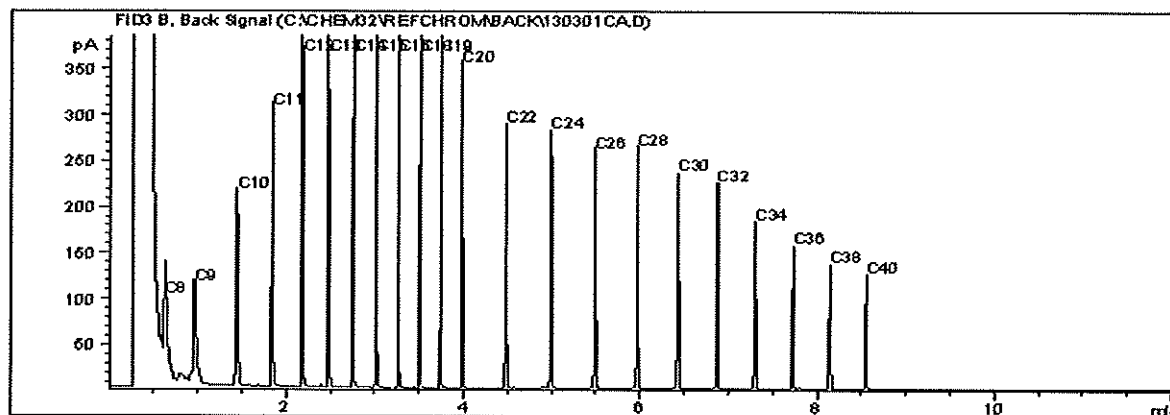
Report Date: 2013/03/06  
Maxxam Job #: B314801  
Maxxam Sample: FS2969

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-43

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

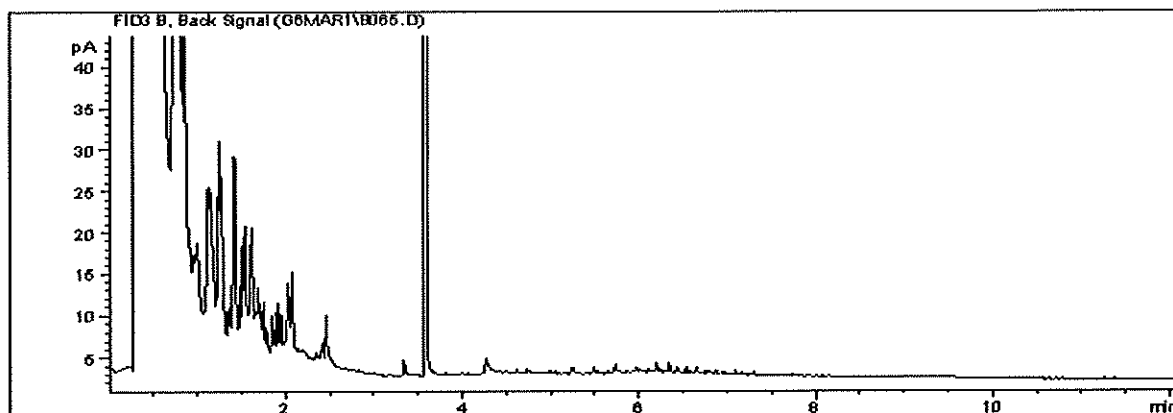
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



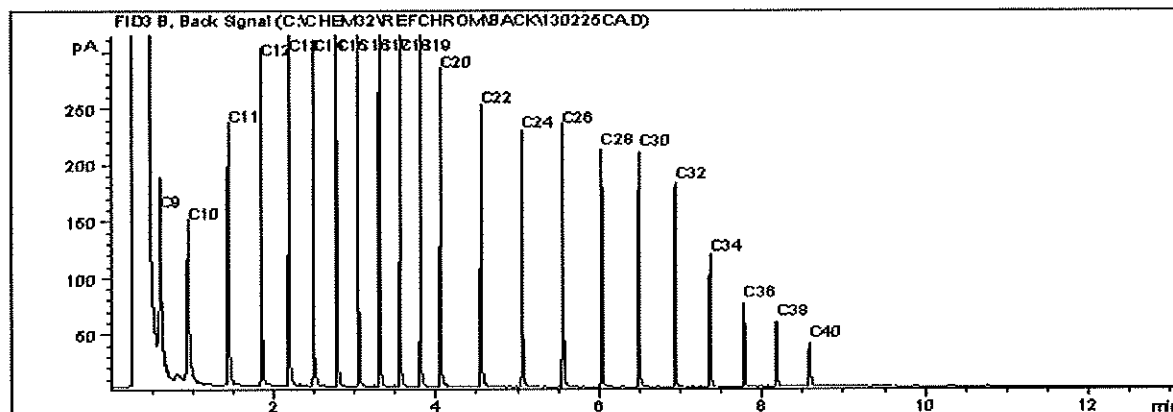
Report Date: 2013/03/06  
Maxxam Job #: B314801  
Maxxam Sample: FS2970

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-43-2.4-3.0

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



#### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Versol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

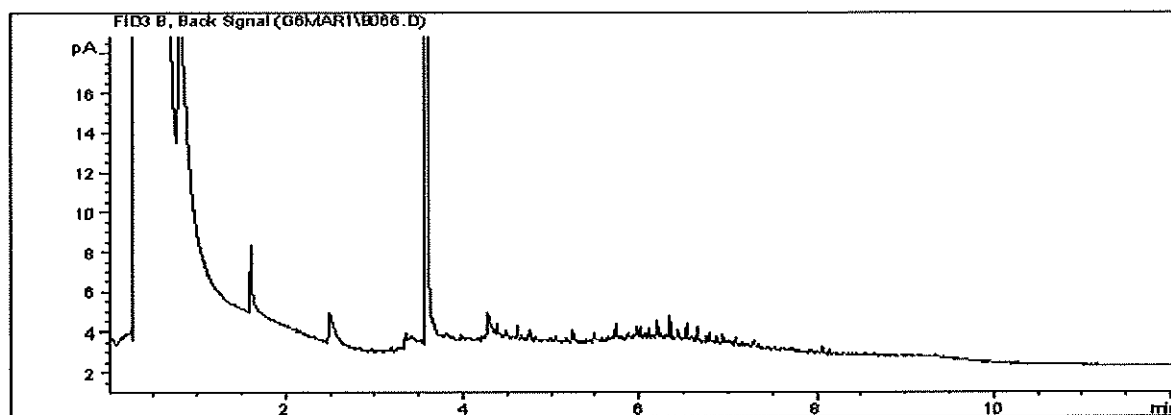
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



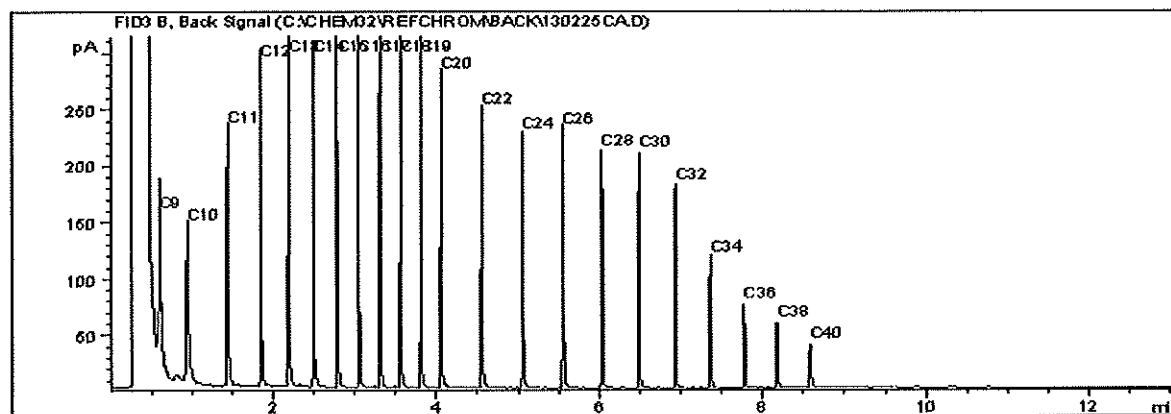
Report Date: 2013/03/06  
Maxxam Job #: B314801  
Maxxam Sample: FS2971

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-43-3.0-3.6

### CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Versol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

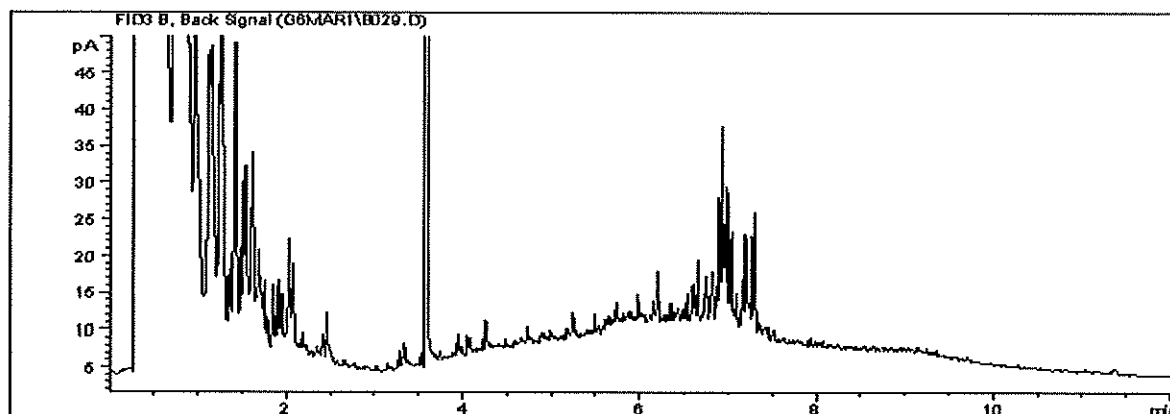
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



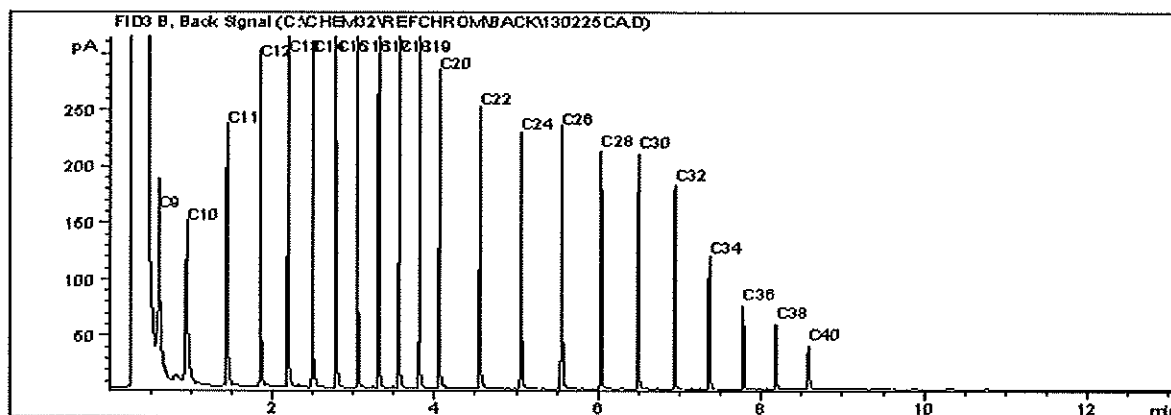
Report Date: 2013/03/06  
Maxxam Job #: B314801  
Maxxam Sample: FS2972

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-44-0.0-0.6

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Versol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

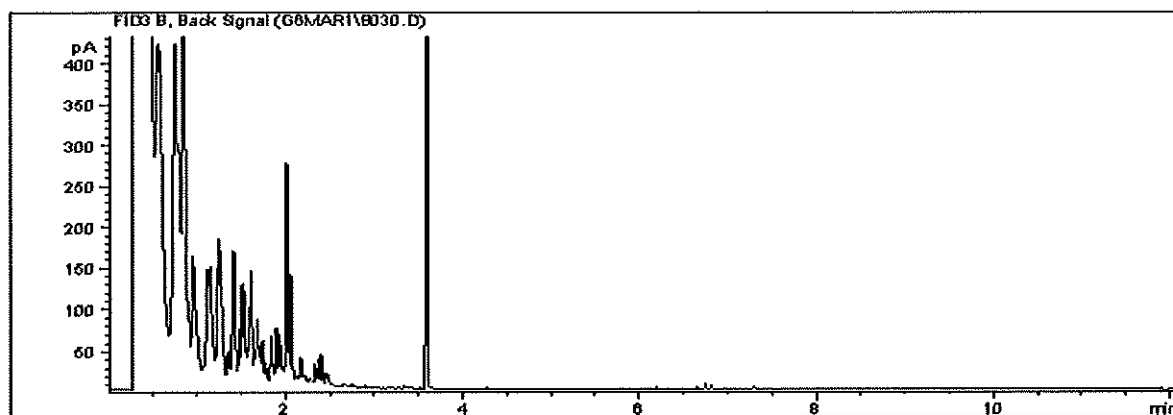
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



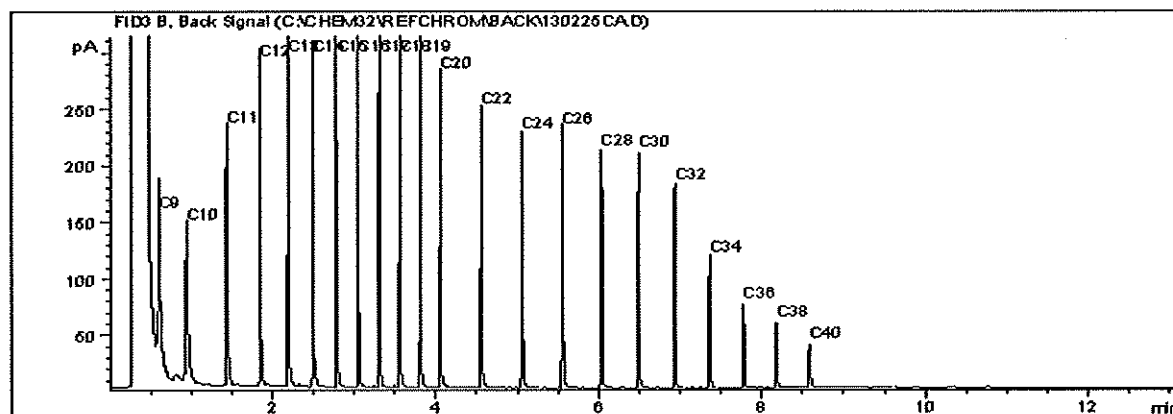
Report Date: 2013/03/06  
 Maxxam Job #: B314801  
 Maxxam Sample: FS2973

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-44-1.2-1.8

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution -- Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

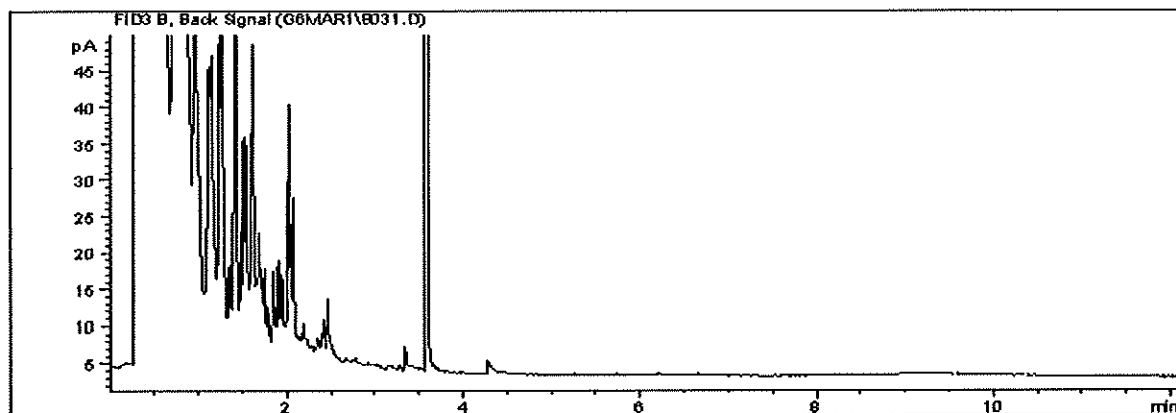
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



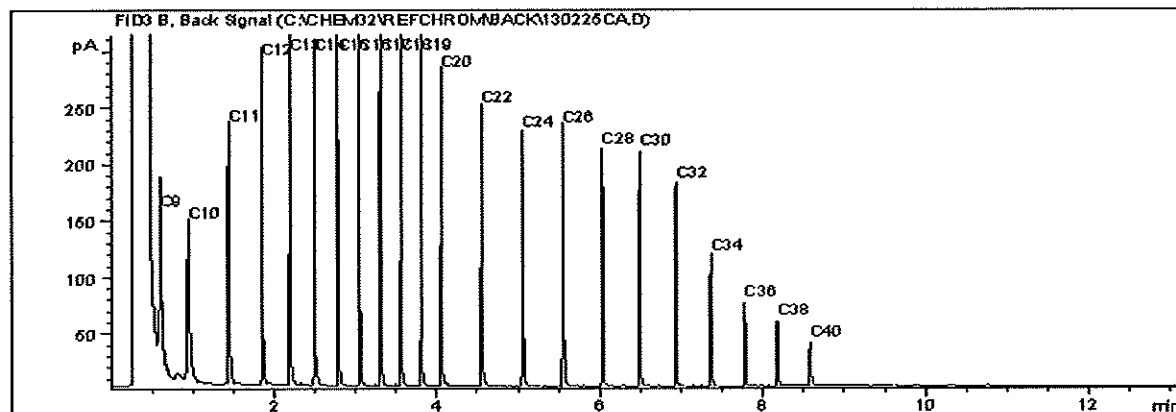
Report Date: 2013/03/06  
Maxxam Job #: B314801  
Maxxam Sample: FS2974

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-44-1.8-2.4

### CCME Hydrocarbons (F2-F4 In soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

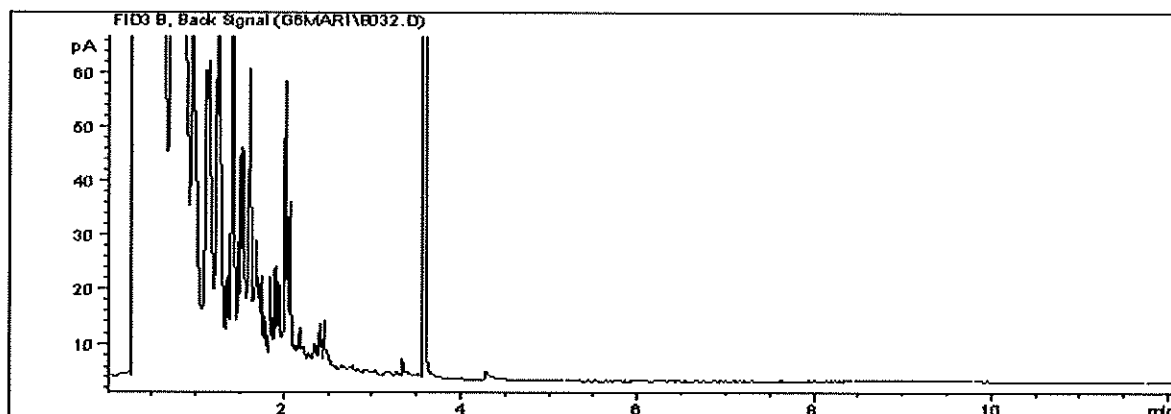
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



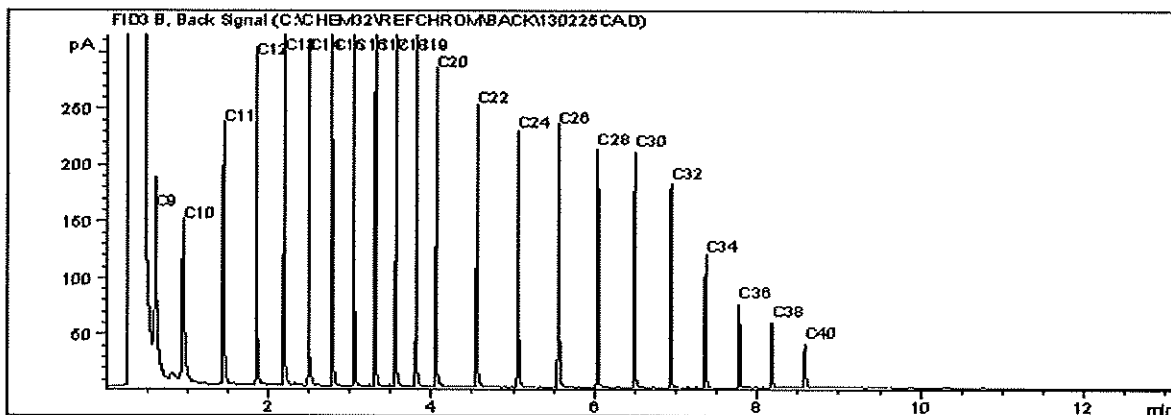
Report Date: 2013/03/06  
Maxxam Job #: B314801  
Maxxam Sample: FS2975

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-44

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C6 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

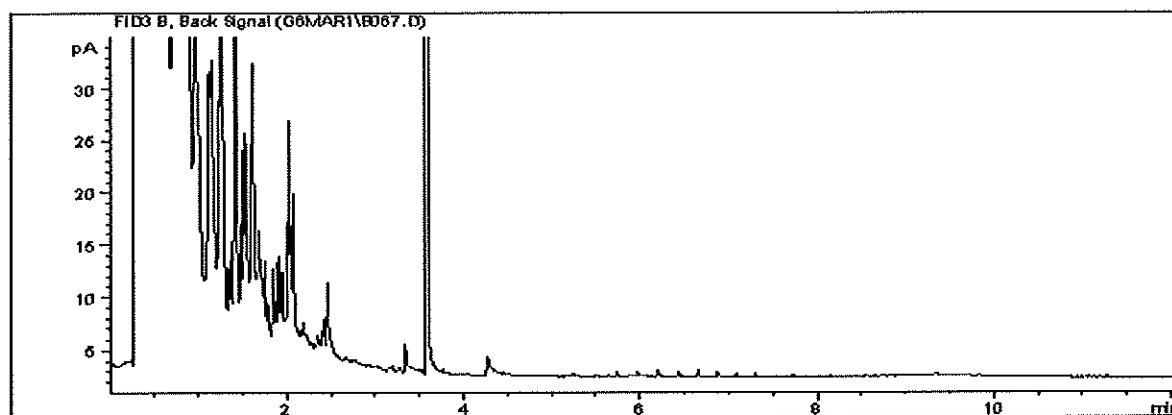
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



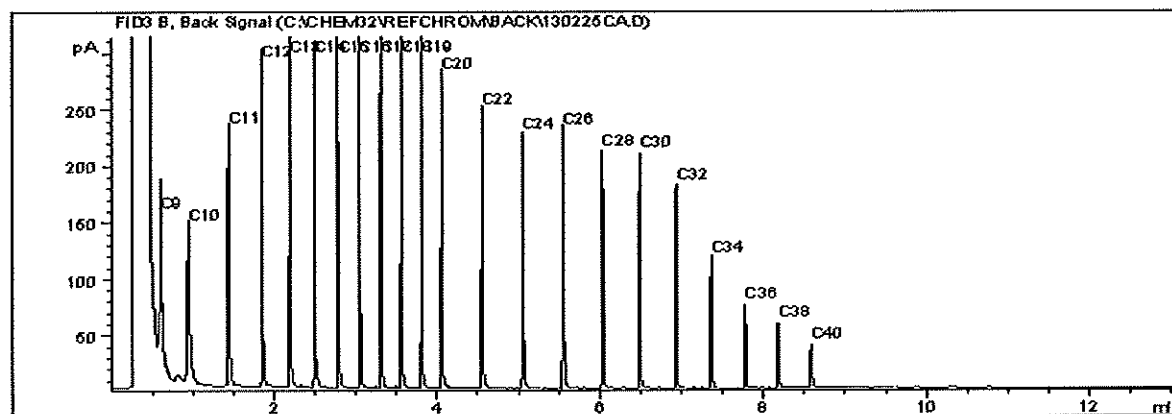
Report Date: 2013/03/06  
Maxxam Job #: B314801  
Maxxam Sample: FS2976

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-44-2.4-3.0

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

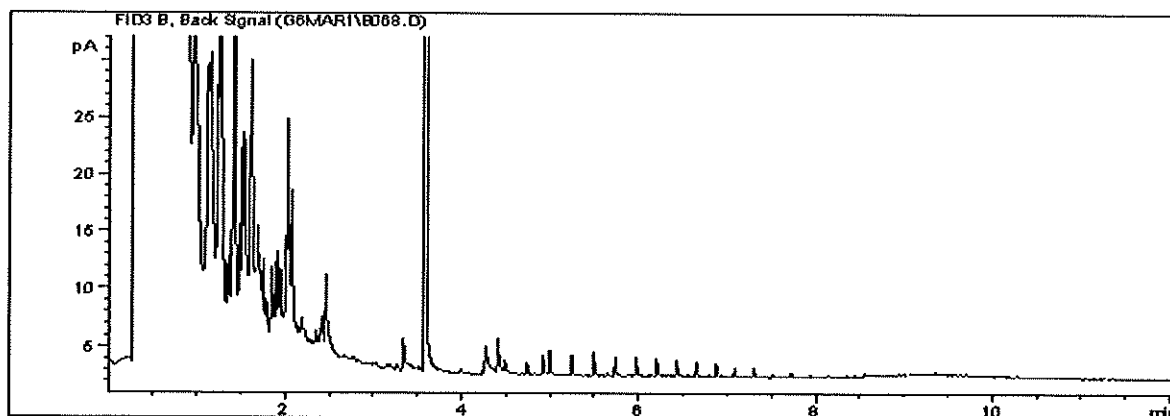
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



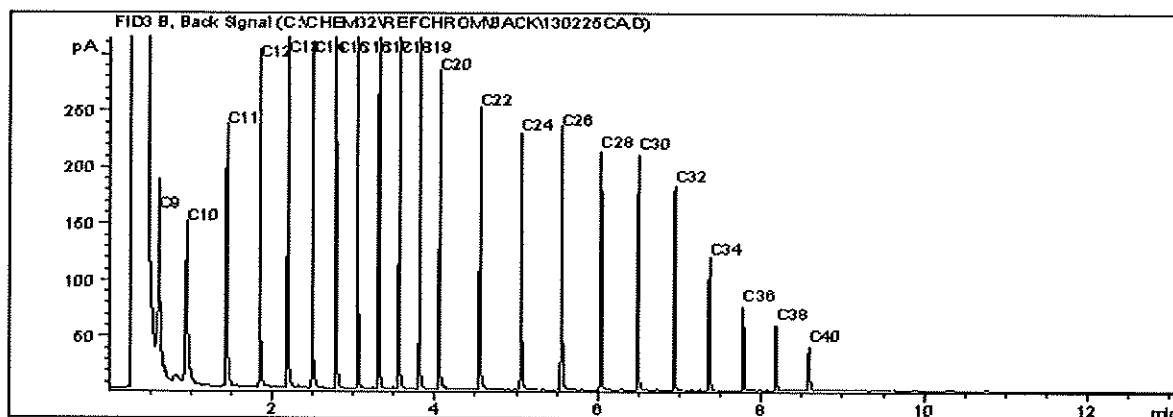
Report Date: 2013/03/06  
 Maxxam Job #: B314801  
 Maxxam Sample: FS2976 Lab-Dup

O'CONNOR ASSOCIATES ENVIRONMENTAL  
 Client Project #: 10-1177.100  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-44-2.4-3.0

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

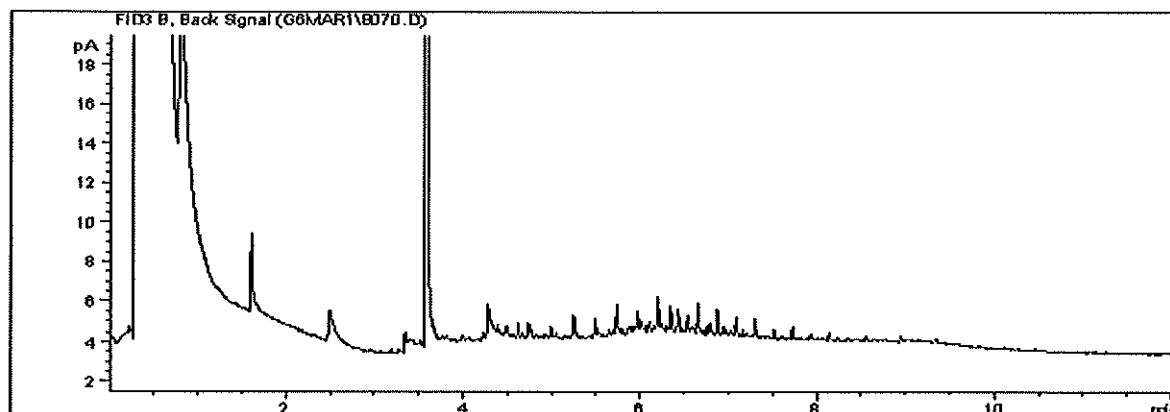
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



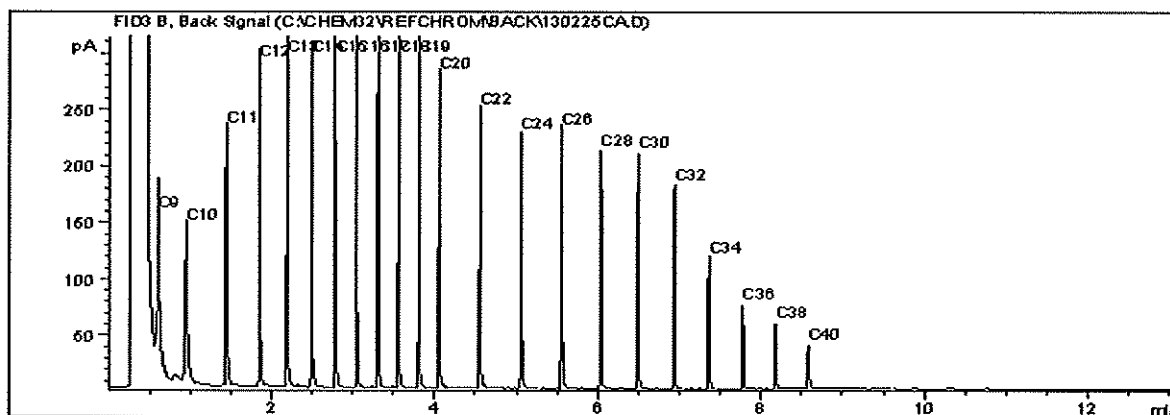
Report Date: 2013/03/06  
Maxxam Job #: B314801  
Maxxam Sample: FS2977

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177.100  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-44-3.0-3.6

## CCME Hydrocarbons (F2-F4 in soil) Chromatogram



Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



**DATA QUALITY REVIEW CHECKLIST**

Consultant: Parsons

Sampling Date: 2013/02/22

Location: 208 St. Anne's Road, Winnipeg, MB

Laboratory : Maxxam Analytics, Winnipeg

Consultant Project Number: 10-1177.100

Sample Submission Number: B314801

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	<i>X</i>			<i>All lab QC met acceptance criteria.</i>
Extraction Surrogate Recovery	<i>X</i>			
Method Blank Concentration	<i>X</i>			
Matrix Duplicate RPD	<i>X</i>			
Matrix Spike Recovery	<i>X</i>			
Lab Control Sample Recovery			<i>X</i>	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			<i>X</i>	<i>The field duplicate RPD for PHC F1 (104%) is beyond the acceptable limits.</i>
Trip Blank Concentration			<i>X</i>	
Field Duplicate RPD		<i>X</i>		

Has CoA been signed off (Yes/No)? Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)? Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)? Yes

Were all samples analyzed within hold times (Yes/No)? Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)? N/A

Is Chain of Custody completed and signed (Yes/No)? Yes

Were sample temperatures acceptable when they reached lab (Yes/No)? Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)? No

Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_


Is data considered to be reliable (Yes/No)? Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-Naurocki

Review Date: 2013/03/08

Revision Date (if applicable): \_\_\_\_\_

Data Reviewed by (Signature): 

Revised by (Signature): \_\_\_\_\_



Your Project #: 10-1177  
 Site#: 63955  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
 Your C.O.C. #: S003367

**Attention: ADAM WICKMAN**  
 PARSONS  
 7 TERRACON PLACE  
 WINNIPEG, MB  
 CANADA R2J 4B3

**Report Date: 2013/03/22**

## CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B320732**

**Received: 2013/03/15, 14:30**

Sample Matrix: Water

# Samples Received: 5

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 In Water by HS GC/MS	3	N/A	2013/03/18	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCW
BTEX/F1 In Water by HS GC/MS	2	N/A	2013/03/21	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCW
CCME Hydrocarbons (F2-F4 In water)	5	2013/03/18	2013/03/18	WINSOP-00056	CCME PHC-CWS
Elements by CRC ICPMS (dissolved) (1)	5	N/A	2013/03/21	BBY7SOP-00002	EPA 6020A
Filter and HNO3 Preserve for Metals (1)	5	N/A	2013/03/18	BBY6WI-00001	EPA 200.2
VOCs In Water by HS GC/MS (1)	4	2013/03/18	2013/03/19	BBY8-SOP-0009	EPA 8260C
VOCs In Water by HS GC/MS (1)	1	2013/03/19	2013/03/20	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

Encryption Key

Diljeet Brar

22 Mar 2013 18:42:55 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc. Project Manager,  
 Email: JKochan@maxxam.ca  
 Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B320732  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		FW9268	FW9305	FW9306	FW9307	FW9308	
Sampling Date		2013/03/14 10:30	2013/03/14 10:45	2013/03/14 11:00	2013/03/14 11:15	2013/03/14 11:30	
COC Number		S003367	S003367	S003367	S003367	S003367	
	<b>UNITS</b>	<b>BH-25</b>	<b>BH-20</b>	<b>BH-28</b>	<b>BH-24</b>	<b>BH-19</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>							
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	FIELD	ONSITE



Maxxam Job #: B320732  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FW9268	FW9305	FW9306	FW9307		
Sampling Date		2013/03/14 10:30	2013/03/14 10:45	2013/03/14 11:00	2013/03/14 11:15		
COC Number		S003367	S003367	S003367	S003367		
	UNITS	BH-25	BH-20	BH-28	BH-24	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	0.80	1.2	<0.15	1.3	0.15	6656864
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	103	99	101	98	N/A	6656864
N/A = Not Applicable RDL = Reportable Detection Limit							

Maxxam ID		FW9308		
Sampling Date		2013/03/14 11:30		
COC Number		S003367		
	UNITS	BH-19	RDL	QC Batch

Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/L	<0.15	0.15	6656864
Surrogate Recovery (%)				
O-TERPHENYL (sur.)	%	97	N/A	6656864
N/A = Not Applicable RDL = Reportable Detection Limit				



Maxxam Job #: B320732  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		FW9268	FW9305		FW9306		FW9307		
Sampling Date		2013/03/14 10:30	2013/03/14 10:45		2013/03/14 11:00		2013/03/14 11:15		
COC Number		S003367	S003367		S003367		S003367		
	UNITS	BH-25	BH-20	RDL	BH-28	RDL	BH-24	RDL	QC Batch

Dissolved Metals by ICPMS									
Dissolved Lead (Pb)	ug/L	<0.20	0.86	0.20	<0.40	0.40	1.01	0.20	6672222

RDL = Reportable Detection Limit

Maxxam ID		FW9308		
Sampling Date		2013/03/14 11:30		
COC Number		S003367		
	UNITS	BH-19	RDL	QC Batch

Dissolved Metals by ICPMS				
Dissolved Lead (Pb)	ug/L	<0.20	0.20	6672222

RDL = Reportable Detection Limit



Maxxam Job #: B320732  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9268	FW9268			FW9305		
Sampling Date		2013/03/14 10:30	2013/03/14 10:30			2013/03/14 10:45		
COC Number		S003367	S003367			S003367		
	UNITS	BH-25	BH-25 Lab-Dup	RDL	QC Batch	BH-20	RDL	QC Batch

<b>Volatiles</b>								
Benzene	mg/L	0.53	0.55	0.0004	6656929	1.2	0.0004	6656929
Toluene	mg/L	0.0065	0.0068	0.0004	6656929	0.0020	0.0004	6656929
Ethylbenzene	mg/L	0.23	0.24	0.0004	6656929	0.45	0.0004	6656929
o-Xylene	mg/L	0.0037	0.0038	0.0004	6656929	0.0092	0.0004	6656929
m & p-Xylene	mg/L	0.43	0.45	0.0008	6656929	0.90	0.0008	6656929
Xylenes (Total)	mg/L	0.43	0.45	0.0008	6656929	0.91	0.0008	6656929
Methyl-tert-butylether (MTBE)	mg/L	<0.004	<0.004	0.004	6656929	<0.004	0.004	6656929
F1 (C6-C10) - BTEX	mg/L	0.6	0.7	0.3	6656929	2.8	0.3	6656929
(C6-C10)	mg/L	1.8	1.9	0.3	6656929	5.3	0.3	6656929
1,2-dichloroethane	ug/L	<0.50	<0.50	0.50	6664031	<180 (1)	180	6660578
1,2-dibromoethane	ug/L	<0.20	<0.20	0.20	6664031	<0.20	0.20	6660578
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	91	95	N/A	6656929	95	N/A	6656929
D4-1,2-DICHLOROETHANE (sur.)	%	94	100	N/A	6656929	82	N/A	6656929
D8-TOLUENE (sur.)	%	99	98	N/A	6656929	101	N/A	6656929

N/A = Not Applicable  
RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate  
( 1 ) RDL raised due to sample matrix interference.



Maxxam Job #: B320732  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9306		FW9307		FW9308		
Sampling Date		2013/03/14 11:00		2013/03/14 11:15		2013/03/14 11:30		
COC Number		S003367		S003367		S003367		
	UNITS	BH-28	RDL	BH-24	RDL	BH-19	RDL	QC Batch

<b>Volatiles</b>								
Benzene	mg/L	<0.0004	0.0004	14 (1)	0.004	0.0031	0.0004	6656929
Toluene	mg/L	<0.0004	0.0004	11 (1)	0.004	<0.0004	0.0004	6656929
Ethylbenzene	mg/L	<0.0004	0.0004	2.2 (1)	0.004	<0.0004	0.0004	6656929
o-Xylene	mg/L	<0.0004	0.0004	2.9 (1)	0.004	<0.0004	0.0004	6656929
m & p-Xylene	mg/L	<0.0008	0.0008	6.6 (1)	0.008	<0.0008	0.0008	6656929
Xylenes (Total)	mg/L	<0.0008	0.0008	9.5	0.008	<0.0008	0.0008	6656929
Methyl-tert-butylether (MTBE)	mg/L	<0.004	0.004	<0.004	0.004	<0.004	0.004	6656929
F1 (C6-C10) - BTEX	mg/L	<0.3	0.3	4	3	<0.3	0.3	6656929
(C6-C10)	mg/L	<0.3	0.3	41 (1)	3	<0.3	0.3	6656929
1,2-dichloroethane	ug/L	<0.50	0.50	<0.50	0.50	<0.50	0.50	6660578
1,2-dibromoethane	ug/L	<0.20	0.20	<0.20	0.20	<0.20	0.20	6660578
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	98	N/A	96	N/A	102	N/A	6656929
D4-1,2-DICHLOROETHANE (sur.)	%	105	N/A	88	N/A	100	N/A	6656929
D8-TOLUENE (sur.)	%	97	N/A	103	N/A	102	N/A	6656929

N/A = Not Applicable  
RDL = Reportable Detection Limit  
( 1 ) RDL raised due to sample dilution.



Maxxam Job #: B320732  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

Package 1	9.2°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

**ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments**

Sample FW9306-04 Elements by CRC ICPMS (dissolved): Detection limits raised due to matrix interference.

**Results relate only to the items tested.**



PARSONS  
Attention: ADAM WICKMAN  
Client Project #: 10-1177  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

Quality Assurance Report  
Maxxam Job Number: NB320732

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6656864 CD3	Matrix Spike	O-TERPHENYL (sur.)	2013/03/18		116	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18		102	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/18		109	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18		98	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2013/03/18		107	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18	<0.15		mg/L	
6656929 CD3	Matrix Spike (FW9305-01)	4-BROMOFLUOROBENZENE (sur.)	2013/03/18		100	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		88	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		103	%	60 - 140
		Benzene	2013/03/18		NC	%	70 - 130
		Toluene	2013/03/18		93	%	70 - 130
		Ethylbenzene	2013/03/18		102	%	70 - 130
		o-Xylene	2013/03/18		105	%	70 - 130
		m & p-Xylene	2013/03/18		107	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/18		100	%	70 - 130
		(C6-C10)	2013/03/18		NC	%	70 - 130
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2013/03/18		106	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		99	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		101	%	60 - 140
		Benzene	2013/03/18		94	%	70 - 130
		Toluene	2013/03/18		96	%	70 - 130
		Ethylbenzene	2013/03/18		103	%	70 - 130
		o-Xylene	2013/03/18		109	%	70 - 130
		m & p-Xylene	2013/03/18		109	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/18		101	%	70 - 130
		(C6-C10)	2013/03/18		116	%	70 - 130
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2013/03/18		102	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		101	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		101	%	60 - 140
		Benzene	2013/03/18	<0.0004		mg/L	
		Toluene	2013/03/18	<0.0004		mg/L	
		Ethylbenzene	2013/03/18	<0.0004		mg/L	
		o-Xylene	2013/03/18	<0.0004		mg/L	
		m & p-Xylene	2013/03/18	<0.0008		mg/L	
		Xylenes (Total)	2013/03/18	<0.0008		mg/L	
		Methyl-tert-butylether (MTBE)	2013/03/18	<0.004		mg/L	
	RPD [FW9268-01]	F1 (C6-C10) - BTEX	2013/03/18	<0.3		mg/L	
		(C6-C10)	2013/03/18	<0.3		mg/L	
		Benzene	2013/03/18	5.0		%	40
		Toluene	2013/03/18	4.1		%	40
		Ethylbenzene	2013/03/18	3.5		%	40
		o-Xylene	2013/03/18	3.7		%	40
		m & p-Xylene	2013/03/18	4.8		%	40
		Xylenes (Total)	2013/03/18	4.8		%	40
		Methyl-tert-butylether (MTBE)	2013/03/18	NC		%	40
		F1 (C6-C10) - BTEX	2013/03/18	NC		%	40
6660578 MM5	Matrix Spike	1,2-dichloroethane	2013/03/19		97	%	70 - 130
		1,2-dibromoethane	2013/03/19		96	%	70 - 130
	Spiked Blank	1,2-dichloroethane	2013/03/19		97	%	70 - 130
		1,2-dibromoethane	2013/03/19		94	%	70 - 130
	Method Blank	1,2-dichloroethane	2013/03/19	<0.50		ug/L	
		1,2-dibromoethane	2013/03/19	<0.20		ug/L	
	RPD	1,2-dichloroethane	2013/03/19	NC		%	30



PARSONS  
Attention: ADAM WICKMAN  
Client Project #: 10-1177  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB320732

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6660578 MM5	RPD	1,2-dibromoethane	2013/03/19	NC		%	30
6664031 MM5	Matrix Spike	1,2-dichloroethane	2013/03/20		96	%	70 - 130
		1,2-dibromoethane	2013/03/20		93	%	70 - 130
	Spiked Blank	1,2-dichloroethane	2013/03/20		93	%	70 - 130
		1,2-dibromoethane	2013/03/20		89	%	70 - 130
	Method Blank	1,2-dichloroethane	2013/03/20	<0.50		ug/L	
		1,2-dibromoethane	2013/03/20	<0.20		ug/L	
	RPD [FW9268-03]	1,2-dichloroethane	2013/03/20	NC		%	30
		1,2-dibromoethane	2013/03/20	NC		%	30
6672222 GS2	Matrix Spike	Dissolved Lead (Pb)	2013/03/21		113	%	80 - 120
	Spiked Blank	Dissolved Lead (Pb)	2013/03/21		101	%	80 - 120
	Method Blank	Dissolved Lead (Pb)	2013/03/21	<0.20		ug/L	
	RPD	Dissolved Lead (Pb)	2013/03/21	NC		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

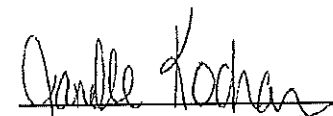


**Validation Signature Page**

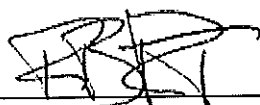
**Maxxam Job #: B320732**

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Janelle Kochan, B.Sc., Project Manager



Rob Reinert, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



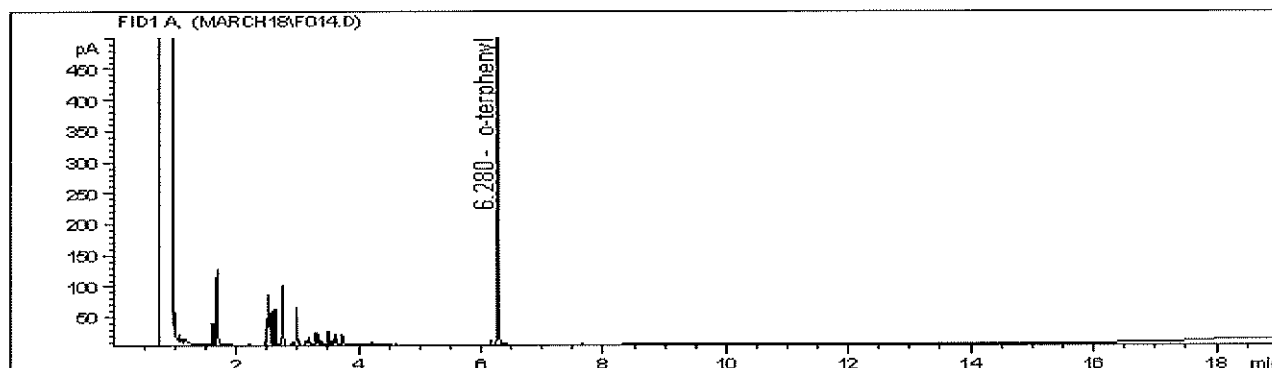




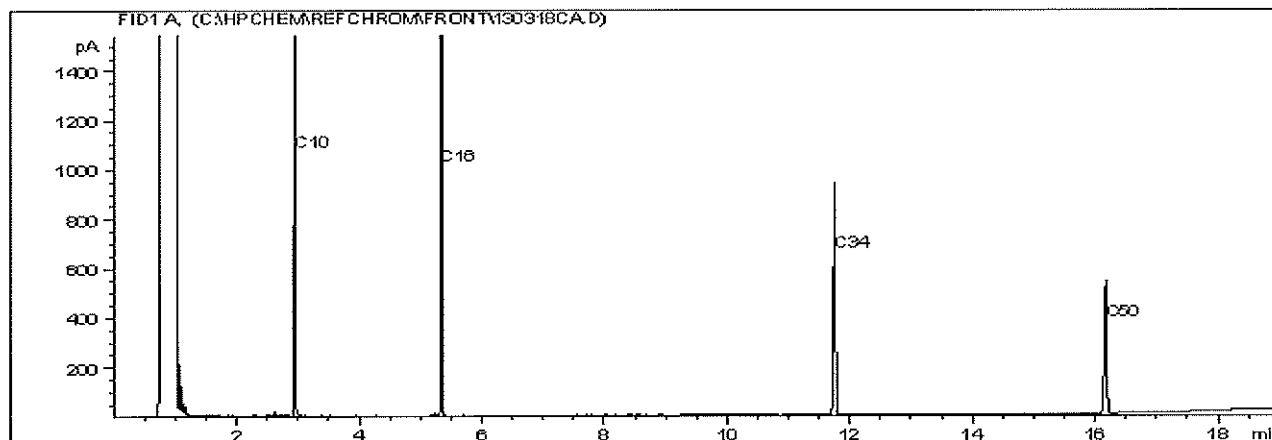
Report Date: 2013/03/22  
Maxxam Job #: B320732  
Maxxam Sample: FW9268

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-25

# CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

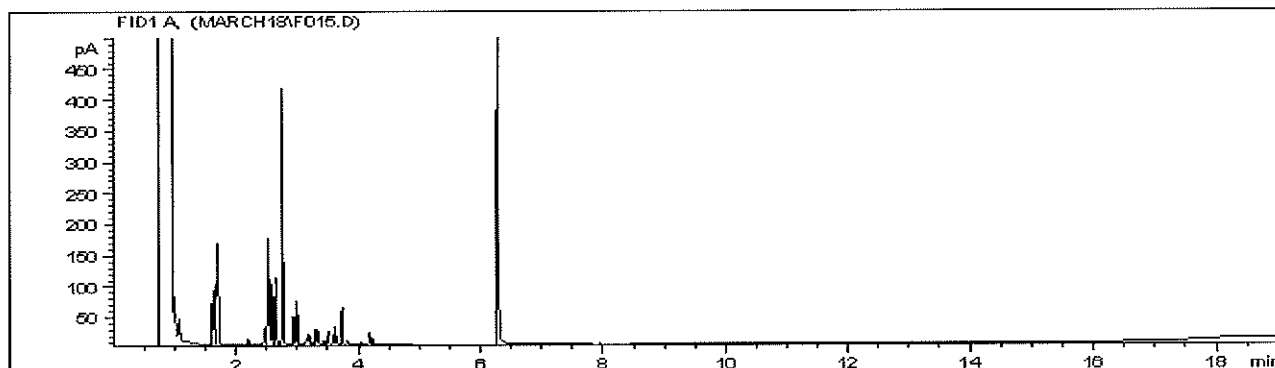
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



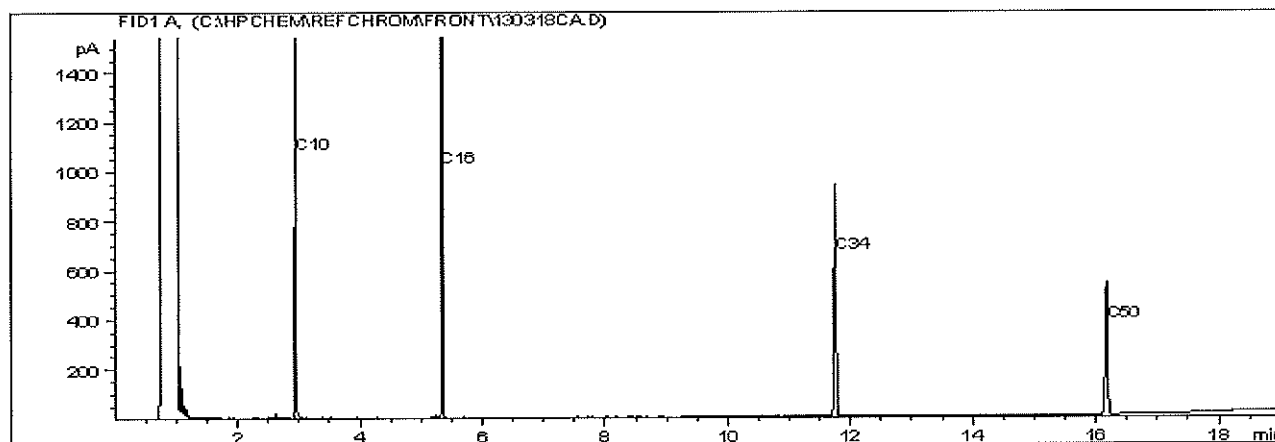
Report Date: 2013/03/22  
Maxxam Job #: B320732  
Maxxam Sample: FW9305

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-20

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

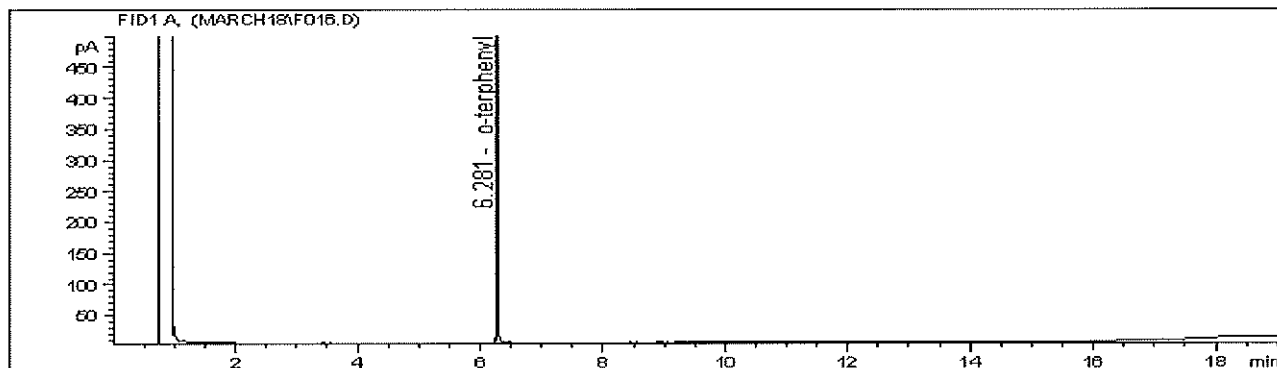
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



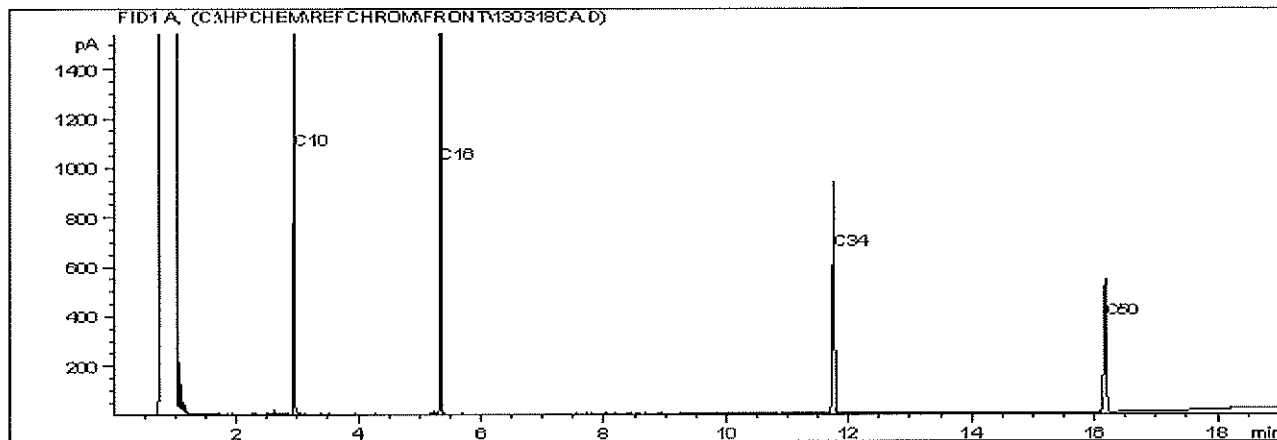
Report Date: 2013/03/22  
Maxxam Job #: B320732  
Maxxam Sample: FW9306

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-28

CCME Hydrocarbons (F2-F4 In water) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

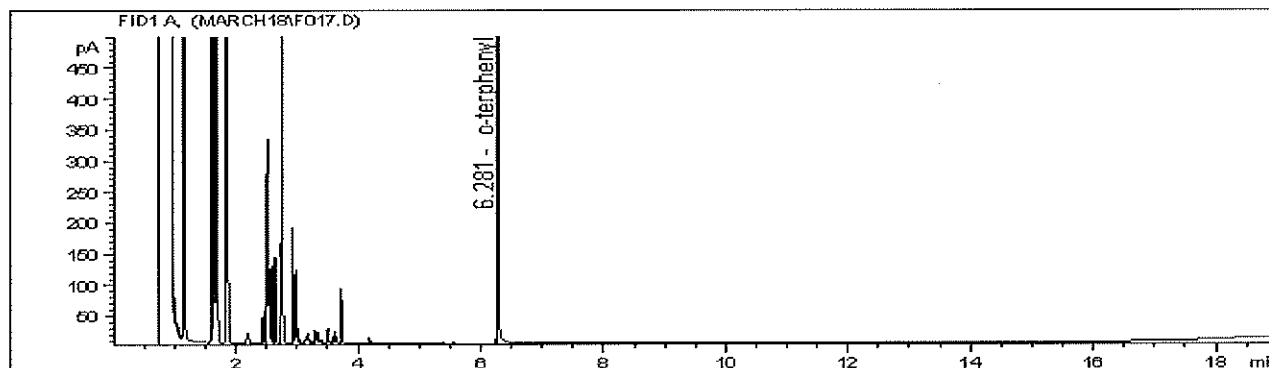
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



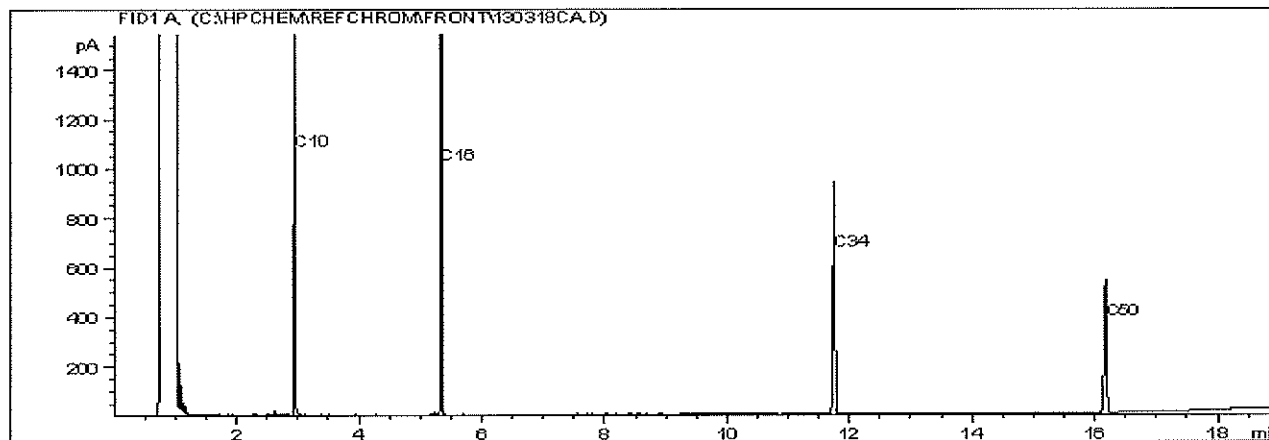
Report Date: 2013/03/22  
Maxxam Job #: B320732  
Maxxam Sample: FW9307

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-24

### CCME Hydrocarbons (F2-F4 in water) Chromatogram



### Carbon Range Distribution - Reference Chromatogram



### TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

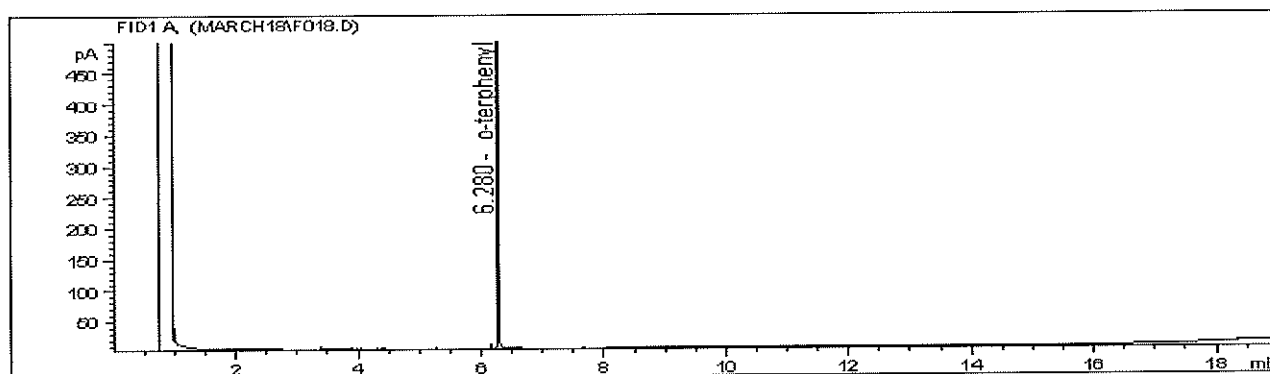
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



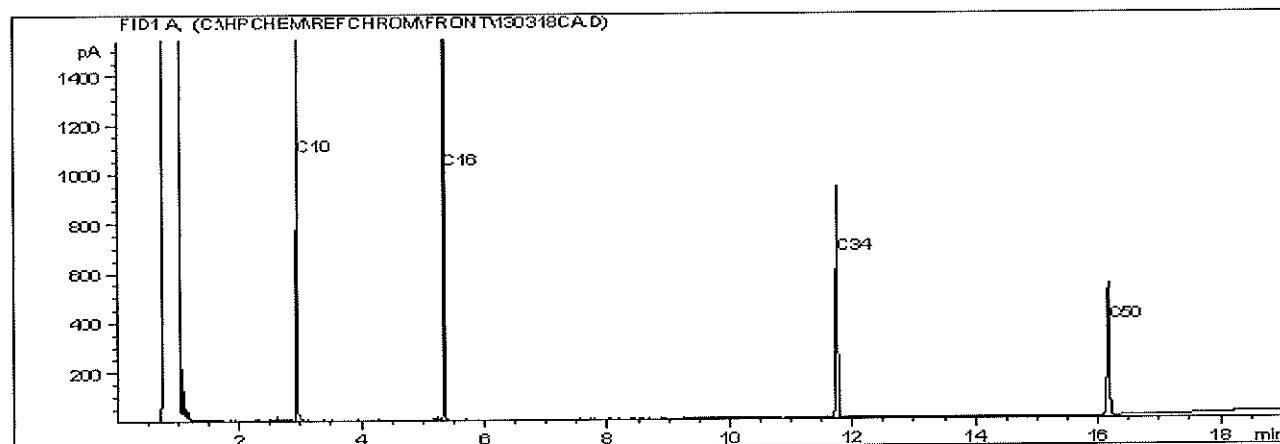
Report Date: 2013/03/22  
Maxxam Job #: B320732  
Maxxam Sample: FW9308

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-19

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



# DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2013/03/14</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory : <u>Maxxam Analytics, Winnipeg</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B320732</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	X			All lab QC met acceptance criteria.
Extraction Surrogate Recovery	X			
Method Blank Concentration	X			
Matrix Duplicate RPD	X			
Matrix Spike Recovery	X			
Lab Control Sample Recovery			X	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			X	No field QC were submitted.
Trip Blank Concentration			X	
Field Duplicate RPD			X	

Has CoA been signed off (Yes/No)?:

Has lab warranted all tests were in statistical control in CoA (Yes/No)?:

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:

Were all samples analyzed within hold times (Yes/No)?:

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:

Is Chain of Custody completed and signed (Yes/No)?:

Were sample temperatures acceptable when they reached lab (Yes/No)?:

	Yes
	Yes
	Yes
	Yes
	NA
	Yes
	Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?:

No

Date Issued: \_\_\_\_\_

Date of Response: \_\_\_\_\_


  

Is data considered to be reliable (Yes/No)?:

Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): <u>Alexia Reske-Naurocki</u>	Data Reviewed by (Signature): <u></u>
Review Date: <u>2013/03/25</u>	
Revision Date (if applicable): _____	Revised by (Signature): _____



Your Project #: 10-1177  
 Site#: 63955  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
 Your C.O.C. #: S003366

**Attention: ADAM WICKMAN**  
 O'CONNOR ASSOCIATES ENVIRONMENTAL  
 7 TERRACON PLACE  
 WINNIPEG, MB  
 CANADA R2J 4B3

**Report Date: 2013/03/22**

## CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B320748**  
**Received: 2013/03/15, 14:30**

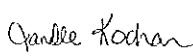
Sample Matrix: Water  
 # Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS	2	N/A	2013/03/19	WINSOP-00054	EPA8260C/CCME PHCCW
				WINSOP-00055	
BTEX/F1 in Water by HS GC/MS	2	N/A	2013/03/21	WINSOP-00054	EPA8260C/CCME PHCCW
				WINSOP-00055	
CCME Hydrocarbons (F2-F4 in water)	4	2013/03/18	2013/03/18	WINSOP-00056	CCME PHC-CWS
Elements by CRC ICPMS (dissolved) (1)	4	N/A	2013/03/21	BBY7SOP-00002	EPA 6020A
Filter and HNO3 Preserve for Metals (1)	4	N/A	2013/03/18	BBY6WI-00001	EPA 200.2
VOCs in Water by HS GC/MS (1)	4	2013/03/18	2013/03/19	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

### Encryption Key

 Janelle Kochan  
 22 Mar 2013 15:16:00 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
 Email: JKochan@maxxam.ca  
 Phone# (204) 772-7276 Ext:2209

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B320748  
Report Date: 2013/03/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		FW9339	FW9341	FW9343	FW9345	
Sampling Date		2013/03/15 10:00	2013/03/15 11:00	2013/03/15 11:00	2013/03/15 11:30	
COC Number		S003366	S003366	S003366	S003366	
	<b>UNITS</b>	<b>BH1</b>	<b>BH-5</b>	<b>DUP-1</b>	<b>BH6</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>						
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	ONSITE



Maxxam Job #: B320748  
Report Date: 2013/03/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FW9339	FW9341	FW9343	FW9345		
Sampling Date		2013/03/15 10:00	2013/03/15 11:00	2013/03/15 11:00	2013/03/15 11:30		
COC Number		S003366	S003366	S003366	S003366		
	UNITS	BH1	BH-5	DUP-1	BH6	RDL	QC Batch

Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.15	2.9	2.9	1.1	0.15	6656864
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	97	101	96	102	N/A	6656864

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B320748  
Report Date: 2013/03/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		FW9339	FW9341	FW9343	FW9345		
Sampling Date		2013/03/15 10:00	2013/03/15 11:00	2013/03/15 11:00	2013/03/15 11:30		
COC Number		S003366	S003366	S003366	S003366		
	<b>UNITS</b>	<b>BH1</b>	<b>BH-5</b>	<b>DUP-1</b>	<b>BH6</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Dissolved Metals by ICPMS</b>							
Dissolved Lead (Pb)	ug/L	0.21	0.61	0.61	0.25	0.20	6672222

RDL = Reportable Detection Limit



Maxxam Job #: B320748  
Report Date: 2013/03/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9339		FW9341		FW9343		
Sampling Date		2013/03/15 10:00		2013/03/15 11:00		2013/03/15 11:00		
COC Number		S003366		S003366		S003366		
	UNITS	BH1	RDL	BH-5	RDL	DUP-1	RDL	QC Batch

<b>Volatiles</b>								
Benzene	mg/L	<0.0004	0.0004	0.76	0.0004	0.71	0.0004	6656929
Toluene	mg/L	<0.0004	0.0004	0.12	0.0004	0.12	0.0004	6656929
Ethylbenzene	mg/L	<0.0004	0.0004	2.1 (1)	0.004	2.1 (1)	0.004	6656929
o-Xylene	mg/L	<0.0004	0.0004	2.3 (1)	0.004	2.9 (1)	0.004	6656929
m & p-Xylene	mg/L	<0.0008	0.0008	8.8 (1)	0.008	9.3 (1)	0.008	6656929
Xylenes (Total)	mg/L	<0.0008	0.0008	11	0.008	12	0.008	6656929
Methyl-tert-butylether (MTBE)	mg/L	<0.004	0.004	<0.004	0.004	<0.004	0.004	6656929
F1 (C6-C10) - BTEX	mg/L	<0.3	0.3	5.3	0.3	2.5	0.3	6656929
(C6-C10)	mg/L	<0.3	0.3	19	0.3	18	0.3	6656929
1,2-dichloroethane	ug/L	3.9	0.50	<31 (2)	31	<27	27	6660578
1,2-dibromoethane	ug/L	<0.20	0.20	<0.20	0.20	<0.20	0.20	6660578
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	99	N/A	104	N/A	101	N/A	6656929
D4-1,2-DICHLOROETHANE (sur.)	%	100	N/A	94	N/A	96	N/A	6656929
D8-TOLUENE (sur.)	%	98	N/A	101	N/A	109	N/A	6656929

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) RDL raised due to sample dilution.

(2) RDL raised due to sample matrix interference.



Maxxam Job #: B320748  
Report Date: 2013/03/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9345		
Sampling Date		2013/03/15 11:30		
COC Number		S003366		
	UNITS	BH6	RDL	QC Batch
<b>Volatiles</b>				
Benzene	mg/L	0.40	0.0004	6656929
Toluene	mg/L	0.022	0.0004	6656929
Ethylbenzene	mg/L	0.76	0.0004	6656929
o-Xylene	mg/L	0.35	0.0004	6656929
m & p-Xylene	mg/L	2.0	0.0008	6656929
Xylenes (Total)	mg/L	2.4	0.0008	6656929
Methyl-tert-butylether (MTBE)	mg/L	<0.004	0.004	6656929
F1 (C6-C10) - BTEX	mg/L	1.1	0.3	6656929
(C6-C10)	mg/L	4.7	0.3	6656929
1,2-dichloroethane	ug/L	<23 (1)	23	6660578
1,2-dibromoethane	ug/L	<0.20	0.20	6660578
<b>Surrogate Recovery (%)</b>				
4-BROMOFLUOROBENZENE (sur.)	%	104	N/A	6656929
D4-1,2-DICHLOROETHANE (sur.)	%	96	N/A	6656929
D8-TOLUENE (sur.)	%	98	N/A	6656929
<p>N/A = Not Applicable RDL = Reportable Detection Limit (1) RDL raised due to sample matrix interference.</p>				



Maxxam Job #: B320748  
Report Date: 2013/03/22

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

Package 1	9.1°C
-----------	-------

Each temperature is the average of up to three cooler temperatures taken at receipt

**General Comments**

**Results relate only to the items tested.**



## O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: ADAM WICKMAN

Client Project #: 10-1177

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report

Maxxam Job Number: NB320748

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6656864 CD3	Matrix Spike	O-TERPHENYL (sur.)	2013/03/18		116	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18		102	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/18		109	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18		98	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2013/03/18		107	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18	<0.15		mg/L	
6656929 CD3	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2013/03/18		100	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		88	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		103	%	60 - 140
		Benzene	2013/03/18		NC	%	70 - 130
	Spiked Blank	Toluene	2013/03/18		93	%	70 - 130
		Ethylbenzene	2013/03/18		102	%	70 - 130
		o-Xylene	2013/03/18		105	%	70 - 130
		m & p-Xylene	2013/03/18		107	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/18		100	%	70 - 130
		(C6-C10)	2013/03/18		NC	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/18		106	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		99	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		101	%	60 - 140
		Benzene	2013/03/18		94	%	70 - 130
		Toluene	2013/03/18		96	%	70 - 130
		Ethylbenzene	2013/03/18		103	%	70 - 130
	Method Blank	o-Xylene	2013/03/18		109	%	70 - 130
		m & p-Xylene	2013/03/18		109	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/18		101	%	70 - 130
		(C6-C10)	2013/03/18		116	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/18		102	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		101	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		101	%	60 - 140
		Benzene	2013/03/18	<0.0004		mg/L	
		Toluene	2013/03/18	<0.0004		mg/L	
		Ethylbenzene	2013/03/18	<0.0004		mg/L	
		o-Xylene	2013/03/18	<0.0004		mg/L	
		m & p-Xylene	2013/03/18	<0.0008		mg/L	
	RPD	Xylenes (Total)	2013/03/18	<0.0008		mg/L	
		Methyl-tert-butylether (MTBE)	2013/03/18	<0.004		mg/L	
		F1 (C6-C10) - BTEX	2013/03/18	<0.3		mg/L	
		(C6-C10)	2013/03/18	<0.3		mg/L	
		Benzene	2013/03/18	5.0		%	40
		Toluene	2013/03/18	4.1		%	40
		Ethylbenzene	2013/03/18	3.5		%	40
		o-Xylene	2013/03/18	3.7		%	40
		m & p-Xylene	2013/03/18	4.8		%	40
		Xylenes (Total)	2013/03/18	4.8		%	40
		Methyl-tert-butylether (MTBE)	2013/03/18	NC		%	40
		F1 (C6-C10) - BTEX	2013/03/18	NC		%	40
6660578 MM5	Matrix Spike	1,2-dichloroethane	2013/03/19		97	%	70 - 130
		1,2-dibromoethane	2013/03/19		96	%	70 - 130
	Spiked Blank	1,2-dichloroethane	2013/03/19		97	%	70 - 130
		1,2-dibromoethane	2013/03/19		94	%	70 - 130
	Method Blank	1,2-dichloroethane	2013/03/19	<0.50		ug/L	
		1,2-dibromoethane	2013/03/19	<0.20		ug/L	
	RPD	1,2-dichloroethane	2013/03/19	NC		%	30
		1,2-dibromoethane	2013/03/19	NC		%	30



O'CONNOR ASSOCIATES ENVIRONMENTAL

Attention: ADAM WICKMAN

Client Project #: 10-1177

P.O. #:

Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

## Quality Assurance Report (Continued)

Maxxam Job Number: NB320748

QA/QC Batch			Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6672222	GS2	Matrix Spike	2013/03/21		113	%	80 - 120
		Spiked Blank	2013/03/21		101	%	80 - 120
		Method Blank	2013/03/21	<0.20		ug/L	
		RPD	2013/03/21	NC		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

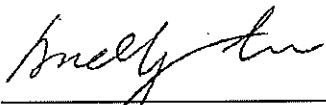


**Validation Signature Page**

Maxxam Job #: B320748


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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).




---

Andy Lu, Data Validation Coordinator




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Janelle Kochan, B.Sc., Project Manager

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.





Consulting Company	Parsons
Contact:	Adam Wasserman
Address:	7 Tercession Place New York, NY 10019 Tel: 212 463 4633
Contact Tel:	616-448-2444
Project ID:	10-177
Submitted By:	Adam Wasserman

☐ **PUSH (Container to Reserve)**

**SERVICE REQUESTED:**

☐ 2 DAY    ☐ 1 DAY    ☐ SAME DAY

**Date Required:**

☒ **REGULAR (5 Days)**

[illegible]

**REGULATORY GUIDELINES:**

☐ *Not*

☒ *DO COME TO US*

☐ *Recommends Drinking Water*

☐ *Don't*

<b>DOWNSTREAM</b>	<b>82</b>
Solo Address:	209 St Anne's Rd.
State/Country:	Wisconsin, Mb
Cover Number:	63455
Mailing Date:	May 17, 1981
Senior Advisor:	
Brian Holmes	<input type="checkbox"/>
Rick Lamore	<input checked="" type="checkbox"/>
Gabe	

UPSTREAM	<input type="checkbox"/>
USD#	
STATUS	
ALP#	
FCM ADDRESS	
Senior Suncor Advisor:	
Age Match	<input type="checkbox"/>
Age Group	<input type="checkbox"/>
Relationship	<input type="checkbox"/>
Other	

[illegible]

Please indicate interest in the following products

Received By (Signature Print) <i>[Signature]</i>	Date (MM/DD/YY) 11/03/15	Time (24:00) 14:50
Received By (Signature Print)	Date (MM/DD/YY)	Time (24:00)
Special Instructions: Please place my 62 present please placed with the analysis. N/A		

Received By: <i>[Signature]</i>	Date: Mar 15/13	Time: 1430	Maximum Job #: 1030748
Lab Comments: <i>[Signature]</i>	Custody Seal: Y	Temperature: 9.2, 9.0, 9.0	Log: Y

[illegible]

Page 11 of 15

Page 1012

Berry Street

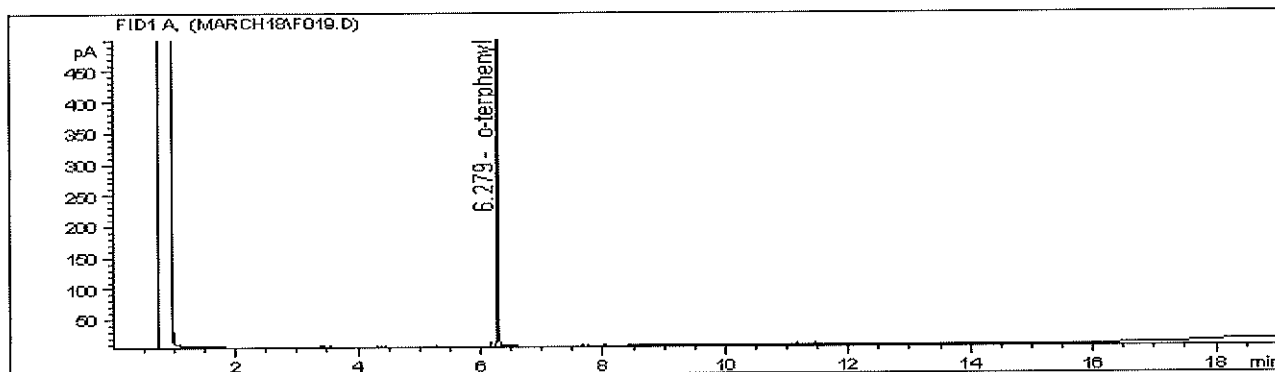
1. *Conduct a literature review* to identify the current state of research on the topic.



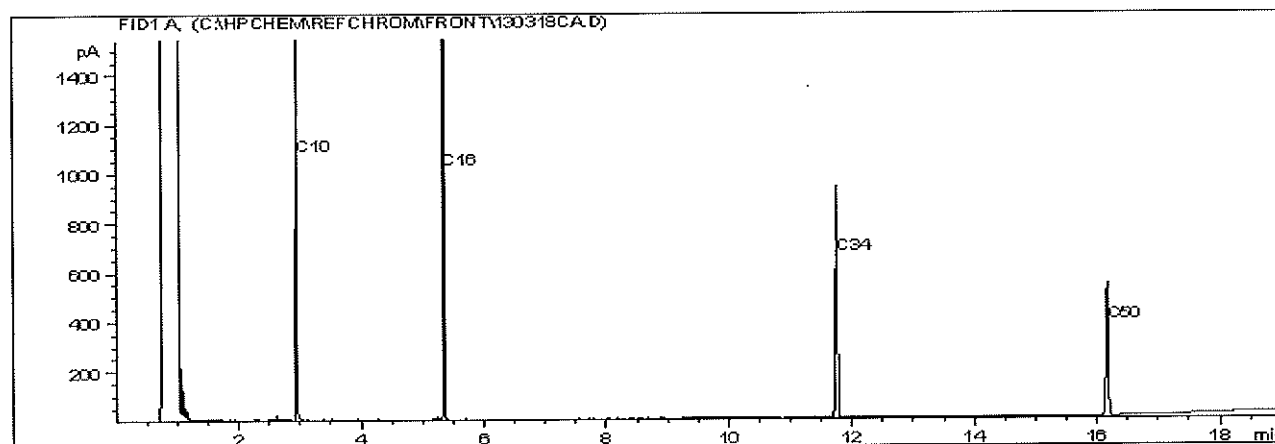
Report Date: 2013/03/22  
Maxxam Job #: B320748  
Maxxam Sample: FW9339

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH1

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

Page 1 of 1

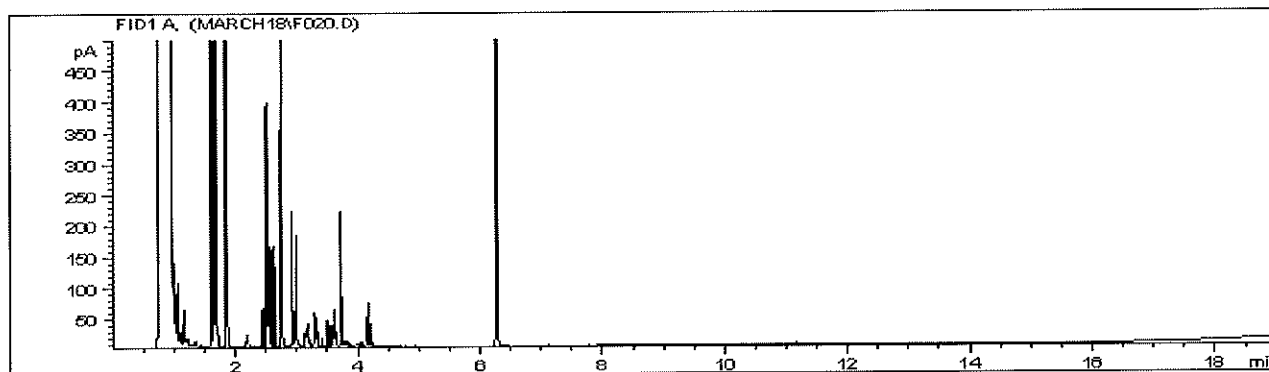
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



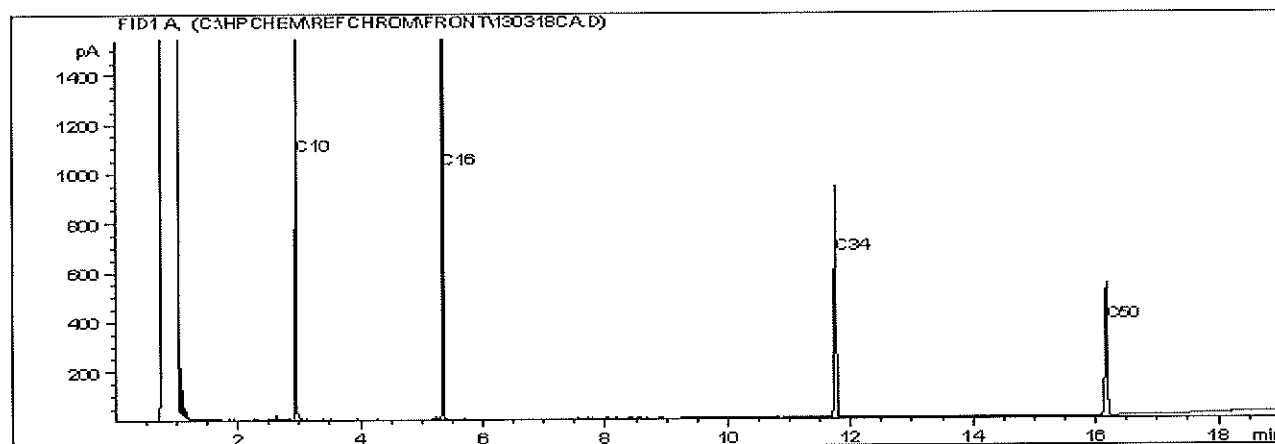
Report Date: 2013/03/22  
Maxxam Job #: B320748  
Maxxam Sample: FW9341

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-5

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

Page 1 of 1

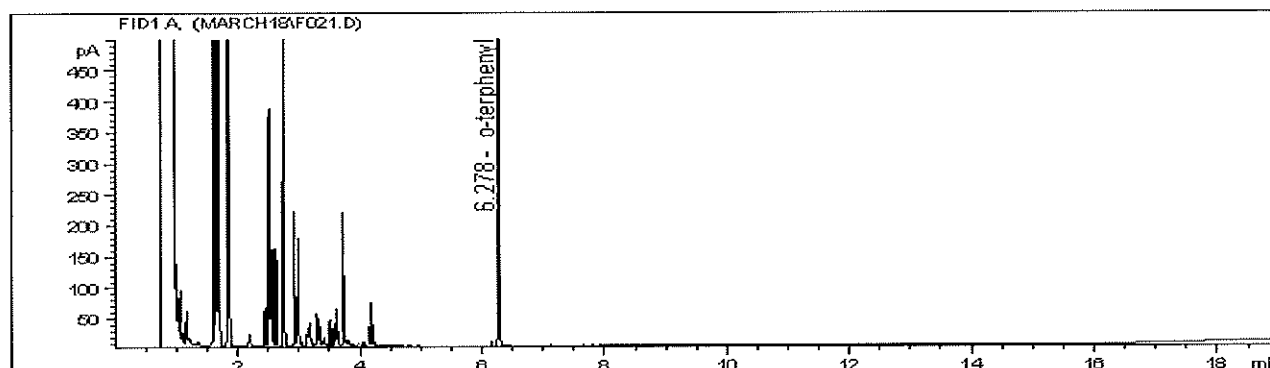
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



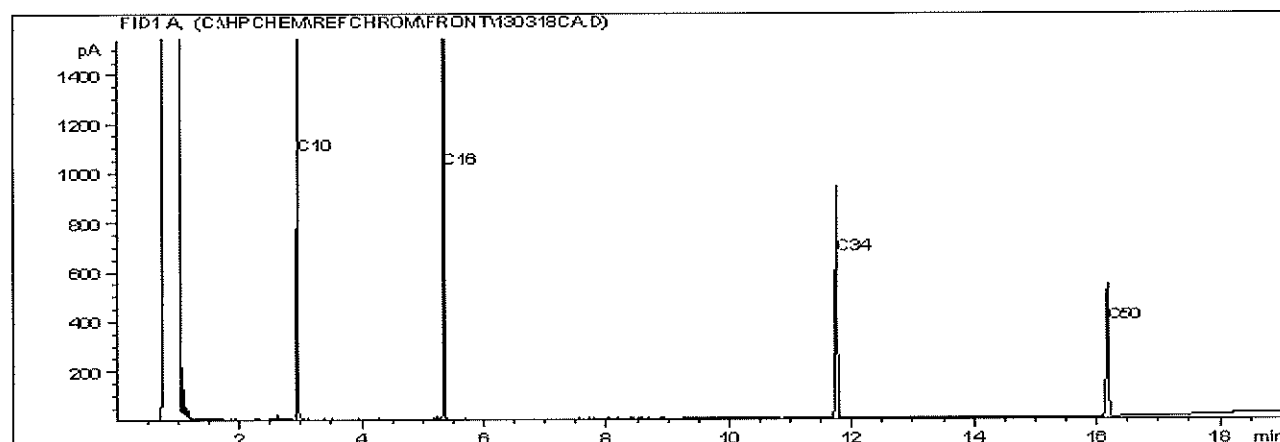
Report Date: 2013/03/22  
Maxxam Job #: B320748  
Maxxam Sample: FW9343

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-1

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C6 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

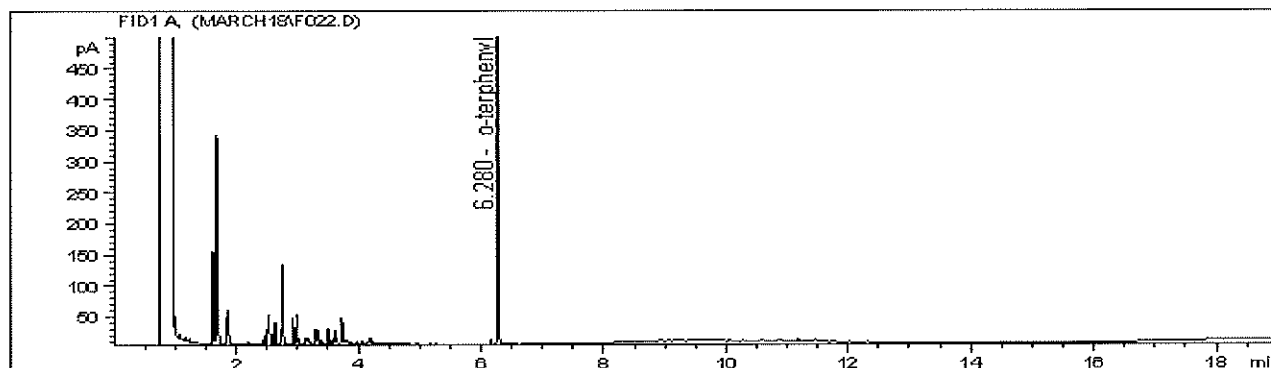
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



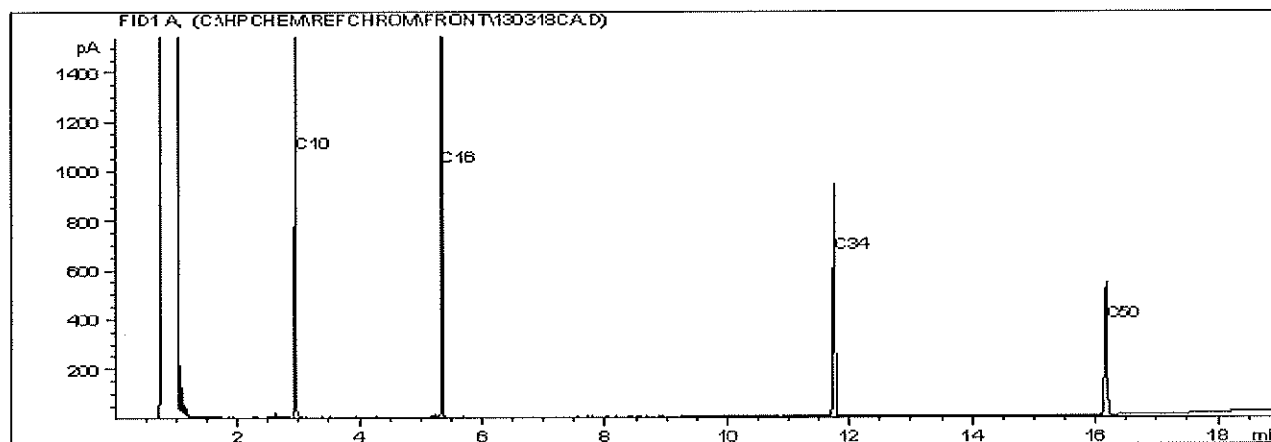
Report Date: 2013/03/22  
Maxxam Job #: B320748  
Maxxam Sample: FW9345

O'CONNOR ASSOCIATES ENVIRONMENTAL  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH6

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



# DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2013/03/15</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory : <u>Maxxam Analytics, Winnipeg</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B320748</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	X			All lab QC met acceptance criteria.
Extraction Surrogate Recovery	X			
Method Blank Concentration	X			
Matrix Duplicate RPD	X			
Matrix Spike Recovery	X			
Lab Control Sample Recovery			X	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			X	All field QC met alert limits.
Trip Blank Concentration			X	
Field Duplicate RPD	X			

Has CoA been signed off (Yes/No)?: \_\_\_\_\_ Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: \_\_\_\_\_ Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: \_\_\_\_\_ Yes

Were all samples analyzed within hold times (Yes/No)?: \_\_\_\_\_ Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: \_\_\_\_\_ NA

Is Chain of Custody completed and signed (Yes/No)?: \_\_\_\_\_ Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?: \_\_\_\_\_ Yes

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: \_\_\_\_\_ No

Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?: \_\_\_\_\_ Yes


If answer is "No", describe and provide rationale:

Data Reviewed by (Print): Alexia Reske-Naurocki

Review Date: 2013/03/25

Revision Date (if applicable): \_\_\_\_\_

Data Reviewed by (Signature): 

Revised by (Signature): \_\_\_\_\_



Your Project #: 10-1177  
 Site#: 63955  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
 Your C.O.C. #: S003370

**Attention: ADAM WICKMAN**  
 PARSONS  
 7 TERRACON PLACE  
 WINNIPEG, MB  
 CANADA R2J 4B3

Report Date: 2013/03/25

## CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B320765**  
**Received: 2013/03/15, 15:30**

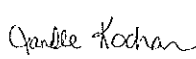
Sample Matrix: Water  
 # Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 In Water by HS GC/MS	6	N/A	2013/03/19	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCW
CCME Hydrocarbons (F2-F4 in water)	6	2013/03/18	2013/03/18	WINSOP-00056	CCME PHC-CWS
Elements by CRC ICPMS (dissolved) (1)	4	N/A	2013/03/20	BBY7SOP-00002	EPA 6020A
Elements by CRC ICPMS (dissolved) (1)	1	N/A	2013/03/21	BBY7SOP-00002	EPA 6020A
Filter and HNO3 Preserve for Metals (1)	5	N/A	2013/03/18	BBY6WI-00001	EPA 200.2
VOCs In Water by HS GC/MS (1)	4	2013/03/18	2013/03/19	BBY8-SOP-0009	EPA 8260C
VOCs in Water by HS GC/MS (1)	2	2013/03/19	2013/03/20	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

### Encryption Key

 Janelle Kochan  
 25 Mar 2013 16:26:14 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
 Email: JKochan@maxxam.ca  
 Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B320765  
Report Date: 2013/03/25

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		FW9465	FW9466	FW9467	FW9474	FW9475	
Sampling Date		2013/03/14 09:00	2013/03/14 09:15	2013/03/14 09:30	2013/03/14 10:00	2013/03/14 10:15	
COC Number		S003370	S003370	S003370	S003370	S003370	
	<b>UNITS</b>	<b>BH3A</b>	<b>BH-26</b>	<b>BH-21</b>	<b>BH-35</b>	<b>BH-29</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>							
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	FIELD	ONSITE



Maxxam Job #: B320765  
Report Date: 2013/03/25

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FW9465	FW9466	FW9467	FW9468		
Sampling Date		2013/03/14 09:00	2013/03/14 09:15	2013/03/14 09:30	2013/03/14 09:45		
COC Number		S003370	S003370	S003370	S003370		
	<b>UNITS</b>	<b>BH3A</b>	<b>BH-26</b>	<b>BH-21</b>	<b>BH-27</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Ext. Pet. Hydrocarbon</b>							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.15	<0.15	0.31	3.8	0.15	6656864
<b>Surrogate Recovery (%)</b>							
O-TERPHENYL (sur.)	%	102	99	99	97	N/A	6656864

N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		FW9474	FW9475		
Sampling Date		2013/03/14 10:00	2013/03/14 10:15		
COC Number		S003370	S003370		
	<b>UNITS</b>	<b>BH-35</b>	<b>BH-29</b>	<b>RDL</b>	<b>QC Batch</b>

<b>Ext. Pet. Hydrocarbon</b>					
F2 (C10-C16 Hydrocarbons)	mg/L	<0.15	<0.15	0.15	6656864
<b>Surrogate Recovery (%)</b>					
O-TERPHENYL (sur.)	%	98	98	N/A	6656864

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B320765  
Report Date: 2013/03/25

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		FW9465	FW9466		FW9467	FW9467		
Sampling Date		2013/03/14 09:00	2013/03/14 09:15		2013/03/14 09:30	2013/03/14 09:30		
COC Number		S003370	S003370		S003370	S003370		
	UNITS	BH3A	BH-26	RDL	BH-21	BH-21 Lab-Dup	RDL	QC Batch

Dissolved Metals by ICPMS								
Dissolved Lead (Pb)	ug/L	<0.20	<0.20	0.20	<0.40	<0.40	0.40	6671904

RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		FW9474	FW9475		
Sampling Date		2013/03/14 10:00	2013/03/14 10:15		
COC Number		S003370	S003370		
	UNITS	BH-35	BH-29	RDL	QC Batch

Dissolved Metals by ICPMS					
Dissolved Lead (Pb)	ug/L	<0.20	<0.20	0.20	6671904

RDL = Reportable Detection Limit



Maxxam Job #: B320765  
Report Date: 2013/03/25

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9465		FW9466		FW9467		
Sampling Date		2013/03/14 09:00		2013/03/14 09:15		2013/03/14 09:30		
COC Number		S003370		S003370		S003370		
	UNITS	BH3A	RDL	BH-26	RDL	BH-21	RDL	QC Batch

<b>Volatiles</b>								
Benzene	mg/L	<0.0004	0.0004	<0.0004	0.0004	0.0028	0.0004	6656929
Toluene	mg/L	<0.0004	0.0004	<0.0004	0.0004	<0.0004	0.0004	6656929
Ethylbenzene	mg/L	<0.0004	0.0004	<0.0004	0.0004	0.0007	0.0004	6656929
o-Xylene	mg/L	<0.0004	0.0004	<0.0004	0.0004	<0.0004	0.0004	6656929
m & p-Xylene	mg/L	<0.0008	0.0008	<0.0008	0.0008	<0.0008	0.0008	6656929
Xylenes (Total)	mg/L	<0.0008	0.0008	<0.0008	0.0008	<0.0008	0.0008	6656929
Methyl-tert-butylether (MTBE)	mg/L	<0.004	0.004	<0.004	0.004	<0.004	0.004	6656929
F1 (C6-C10) - BTEX	mg/L	<0.3	0.3	<0.3	0.3	<0.3	0.3	6656929
(C6-C10)	mg/L	<0.3	0.3	<0.3	0.3	<0.3	0.3	6656929
1,2-dichloroethane	ug/L	<2.8 (1)	2.8	<0.50	0.50	<9.7 (1)	9.7	6660578
1,2-dibromoethane	ug/L	<0.20	0.20	<0.20	0.20	<0.20	0.20	6660578
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	101	N/A	101	N/A	102	N/A	6656929
D4-1,2-DICHLOROETHANE (sur.)	%	97	N/A	97	N/A	109	N/A	6656929
D8-TOLUENE (sur.)	%	102	N/A	102	N/A	97	N/A	6656929

N/A = Not Applicable  
RDL = Reportable Detection Limit  
(1) RDL raised due to sample matrix interference.



Maxxam Job #: B320765  
Report Date: 2013/03/25

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9468			FW9474	FW9475		
Sampling Date		2013/03/14 09:45			2013/03/14 10:00	2013/03/14 10:15		
COC Number		S003370			S003370	S003370		
	UNITS	BH-27	RDL	QC Batch	BH-35	BH-29	RDL	QC Batch

Volatiles								
Benzene	mg/L	0.0030	0.0004	6656929	<0.0004	<0.0004	0.0004	6656929
Toluene	mg/L	0.0006	0.0004	6656929	<0.0004	<0.0004	0.0004	6656929
Ethylbenzene	mg/L	0.35	0.0004	6656929	<0.0004	<0.0004	0.0004	6656929
o-Xylene	mg/L	0.0026	0.0004	6656929	<0.0004	<0.0004	0.0004	6656929
m & p-Xylene	mg/L	0.61	0.0008	6656929	<0.0008	<0.0008	0.0008	6656929
Xylenes (Total)	mg/L	0.61	0.0008	6656929	<0.0008	<0.0008	0.0008	6656929
Methyl-tert-butylether (MTBE)	mg/L	<0.004	0.004	6656929	<0.004	<0.004	0.004	6656929
F1 (C6-C10) - BTEX	mg/L	7.1	0.3	6656929	<0.3	<0.3	0.3	6656929
(C6-C10)	mg/L	8.1	0.3	6656929	<0.3	<0.3	0.3	6656929
1,2-dichloroethane	ug/L	<2.3 (1)	2.3	6660578	<0.50	<0.50	0.50	6664031
1,2-dibromoethane	ug/L	<0.20	0.20	6660578	<0.20	<0.20	0.20	6664031
<b>Surrogate Recovery (%)</b>								
4-BROMOFLUOROBENZENE (sur.)	%	99	N/A	6656929	102	102	N/A	6656929
D4-1,2-DICHLOROETHANE (sur.)	%	97	N/A	6656929	106	106	N/A	6656929
D8-TOLUENE (sur.)	%	101	N/A	6656929	98	99	N/A	6656929

N/A = Not Applicable  
RDL = Reportable Detection Limit  
(1) RDL raised due to sample matrix interference.



Maxxam Job #: B320765  
Report Date: 2013/03/25

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

Package 1	11.5°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

#### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER) Comments

Sample FW9467-04 Elements by CRC ICPMS (dissolved): RDL raised due to sample matrix interference.

**Results relate only to the items tested.**



PARSONS  
 Attention: ADAM WICKMAN  
 Client Project #: 10-1177  
 P.O. #:  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

Quality Assurance Report  
 Maxxam Job Number: NB320765

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6656864 CD3	Matrix Spike	O-TERPHENYL (sur.)	2013/03/18		116	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18		102	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/18		109	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18		98	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2013/03/18		107	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18	<0.15		mg/L	
6656929 CD3	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2013/03/18		100	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		88	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		103	%	60 - 140
		Benzene	2013/03/18		NC	%	70 - 130
		Toluene	2013/03/18		93	%	70 - 130
		Ethylbenzene	2013/03/18		102	%	70 - 130
		o-Xylene	2013/03/18		105	%	70 - 130
		m & p-Xylene	2013/03/18		107	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/18		100	%	70 - 130
		(C6-C10)	2013/03/18		NC	%	70 - 130
	Spiked Blank	4-BROMOFLUOROBENZENE (sur.)	2013/03/18		106	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		99	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		101	%	60 - 140
		Benzene	2013/03/18		94	%	70 - 130
		Toluene	2013/03/18		96	%	70 - 130
		Ethylbenzene	2013/03/18		103	%	70 - 130
		o-Xylene	2013/03/18		109	%	70 - 130
		m & p-Xylene	2013/03/18		109	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/18		101	%	70 - 130
		(C6-C10)	2013/03/18		116	%	70 - 130
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2013/03/18		102	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		101	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		101	%	60 - 140
		Benzene	2013/03/18	<0.0004		mg/L	
		Toluene	2013/03/18	<0.0004		mg/L	
		Ethylbenzene	2013/03/18	<0.0004		mg/L	
		o-Xylene	2013/03/18	<0.0004		mg/L	
		m & p-Xylene	2013/03/18	<0.0008		mg/L	
		Xylenes (Total)	2013/03/18	<0.0008		mg/L	
		Methyl-tert-butylether (MTBE)	2013/03/18	<0.004		mg/L	
		F1 (C6-C10) - BTEX	2013/03/18	<0.3		mg/L	
		(C6-C10)	2013/03/18	<0.3		mg/L	
	RPD	Benzene	2013/03/18	5.0		%	40
		Toluene	2013/03/18	4.1		%	40
		Ethylbenzene	2013/03/18	3.5		%	40
		o-Xylene	2013/03/18	3.7		%	40
		m & p-Xylene	2013/03/18	4.8		%	40
		Xylenes (Total)	2013/03/18	4.8		%	40
		Methyl-tert-butylether (MTBE)	2013/03/18	NC		%	40
		F1 (C6-C10) - BTEX	2013/03/18	NC		%	40
6660578 MM5	Matrix Spike	1,2-dichloroethane	2013/03/19		97	%	70 - 130
		1,2-dibromoethane	2013/03/19		96	%	70 - 130
	Spiked Blank	1,2-dichloroethane	2013/03/19		97	%	70 - 130
		1,2-dibromoethane	2013/03/19		94	%	70 - 130
	Method Blank	1,2-dichloroethane	2013/03/19	<0.50		ug/L	
		1,2-dibromoethane	2013/03/19	<0.20		ug/L	
	RPD	1,2-dichloroethane	2013/03/19	NC		%	30
		1,2-dibromoethane	2013/03/19	NC		%	30



PARSONS  
 Attention: ADAM WICKMAN  
 Client Project #: 10-1177  
 P.O. #:  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB320765

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6664031 MM5	Matrix Spike [FW9474-01]	1,2-dichloroethane	2013/03/20		96	%	70 - 130
		1,2-dibromoethane	2013/03/20		93	%	70 - 130
	Spiked Blank	1,2-dichloroethane	2013/03/20		93	%	70 - 130
		1,2-dibromoethane	2013/03/20		89	%	70 - 130
	Method Blank	1,2-dichloroethane	2013/03/20	<0.50		ug/L	
		1,2-dibromoethane	2013/03/20	<0.20		ug/L	
	RPD	1,2-dichloroethane	2013/03/20	NC		%	30
		1,2-dibromoethane	2013/03/20	NC		%	30
6671904 AD5	Matrix Spike [FW9467-04]	Dissolved Lead (Pb)	2013/03/21		95	%	80 - 120
	Spiked Blank	Dissolved Lead (Pb)	2013/03/21		104	%	80 - 120
	Method Blank	Dissolved Lead (Pb)	2013/03/21	<0.20		ug/L	
	RPD [FW9467-04]	Dissolved Lead (Pb)	2013/03/21	NC		%	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.



**Validation Signature Page****Maxxam Job #: B320765**

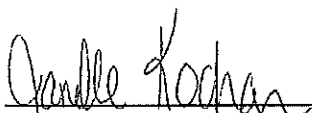
---

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



---

Andy Lu, Data Validation Coordinator



---

Janelle Kochan, B.Sc., Project Manager

---

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Consulting Company:	Parsons			
Contact:	Adam Wickman			
Address:	7 Parsons Place Winnipeg			
	Prov:	MB	City:	R2J 4G3
Contact by:	Tel:		(204) 489-2964	
	Fax:		NA	
Project ID:	10-1177			
Sampled by:	Adam Wickman			

SERVICE REQUESTED:	<input type="checkbox"/> RUSH (Contact lab to reserve)	_____ Date Required:
	<input type="checkbox"/> 2 DAY	_____ REGULAR (5 Days)
	<input type="checkbox"/> 1 DAY	
	<input type="checkbox"/> SAME DAY	

Report Distribution (E-Mail):
Adam, who know! Passions exist

**REGULATORY GUIDELINES:**

<input type="checkbox"/>	ATI
<input checked="" type="checkbox"/>	OTM   OW
<input type="checkbox"/>	Fluorescent Emergency Wagon
<input type="checkbox"/>	Other

DOWNSTREAM ☒ Site address: 208 St. Annes Rd  
Site contact: Winnipeg, MB  
Contact number: 63955  
Mandating Organization: (Name of the community)  
Senior Suncor Advisor:  
☐ Brian Higgins ☒ Rick Lymbone  
Other:

UPSTREAM	<input type="checkbox"/>
LEDA	
SiteField:	
AFE#:	
FROM (if applicable):	
<b>Senior Suncor Advisors:</b>	
Malke-Manders	<input type="checkbox"/> Best Partners
Pursell-Brownie	<input type="checkbox"/> Phil Scullin
Other:	

[illegible]

Analyzed by (signature) <i>W. H. H. H. H.</i> Date (YYMMDD) 13/03/15	Time (24 hr) 14:00
Analyzed by (signature) Date (YYMMDD)	Time (24 hr) 14:00
Special instructions: Headspace and/or sediment may be present, please analyse with analysis.	
# of Jars Used & Jar Information 000 N/A	

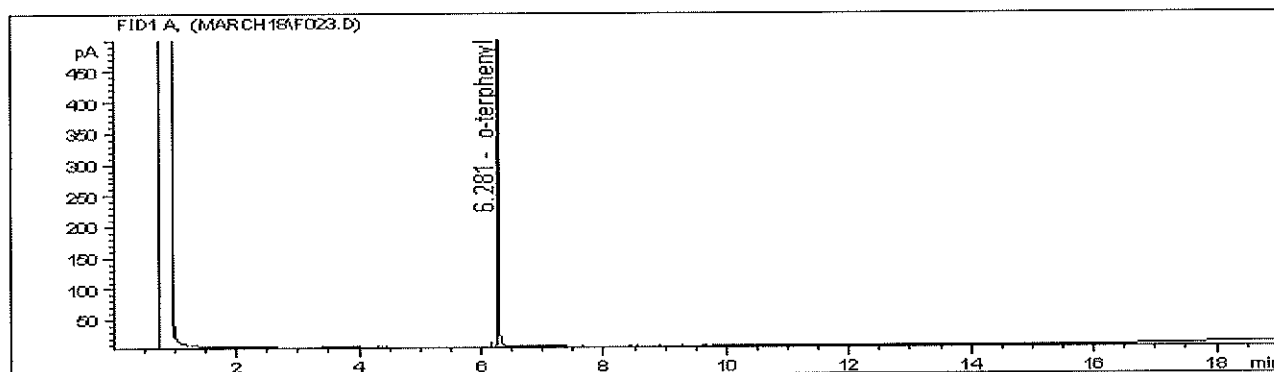
LAB USE ONLY		Maximum Job #: B320765	
Received By:	Date:	Clarity Time	Temperature
Leah Green	Mar 5, 2003 10:30	Y	18-10.6 12.3
Lab Comments:			



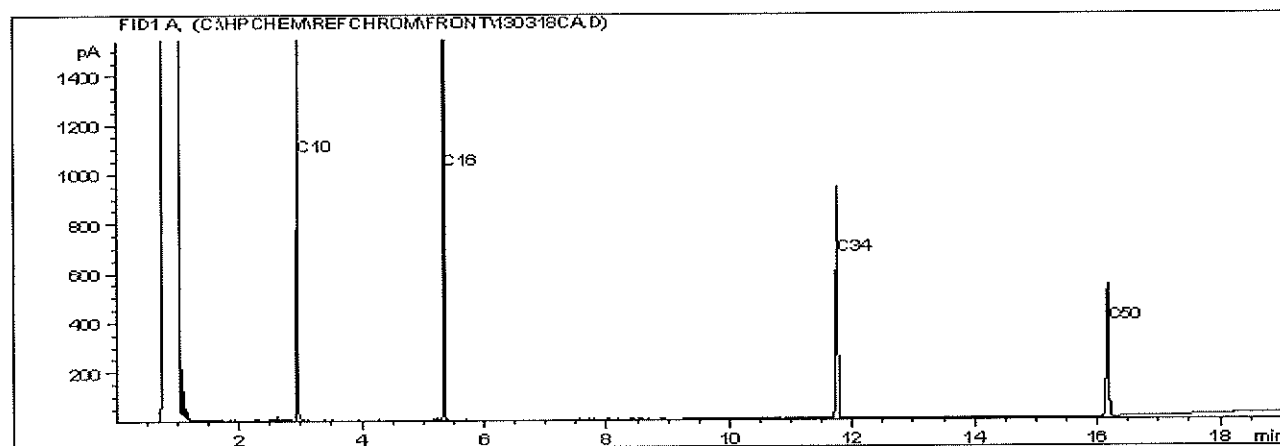
Report Date: 2013/03/25  
Maxxam Job #: B320765  
Maxxam Sample: FW9465

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH3A

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

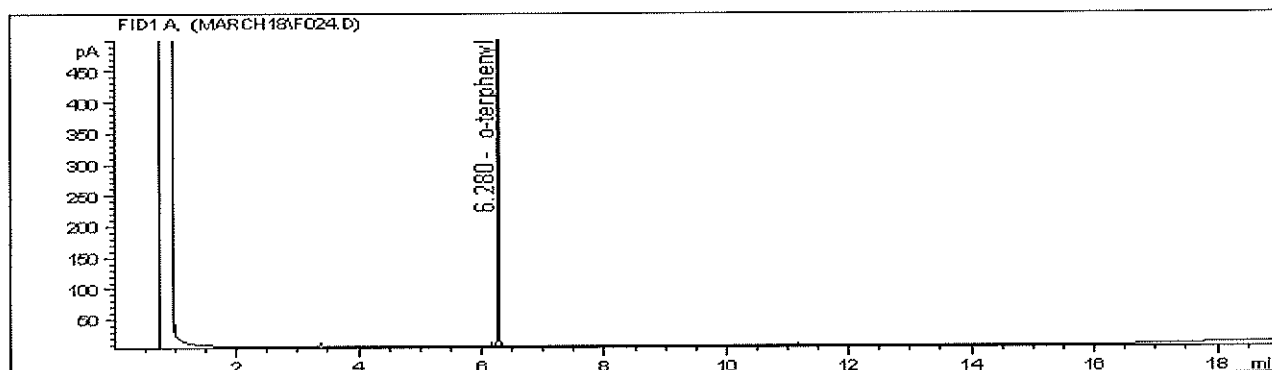
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



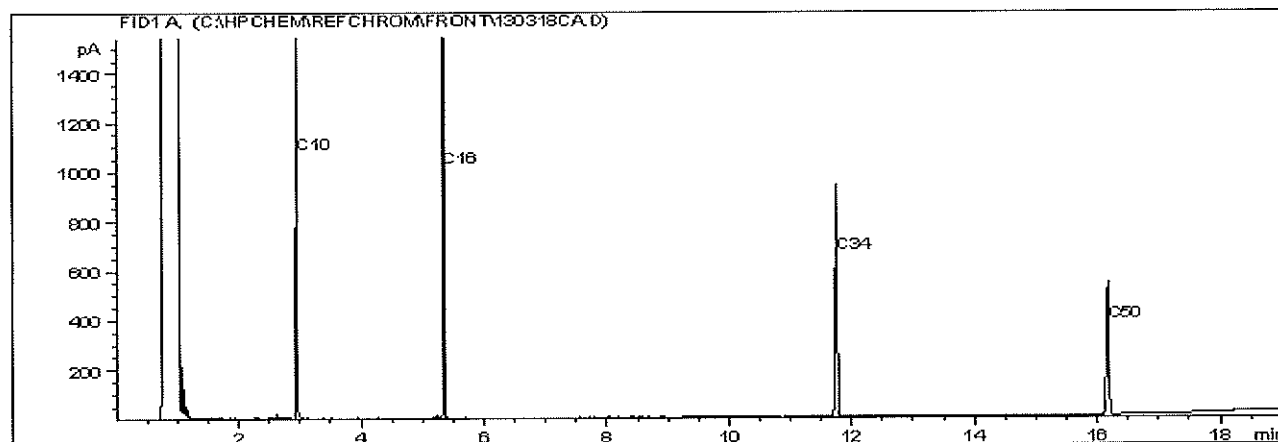
Report Date: 2013/03/25  
Maxxam Job #: B320765  
Maxxam Sample: FW9466

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-26

# CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

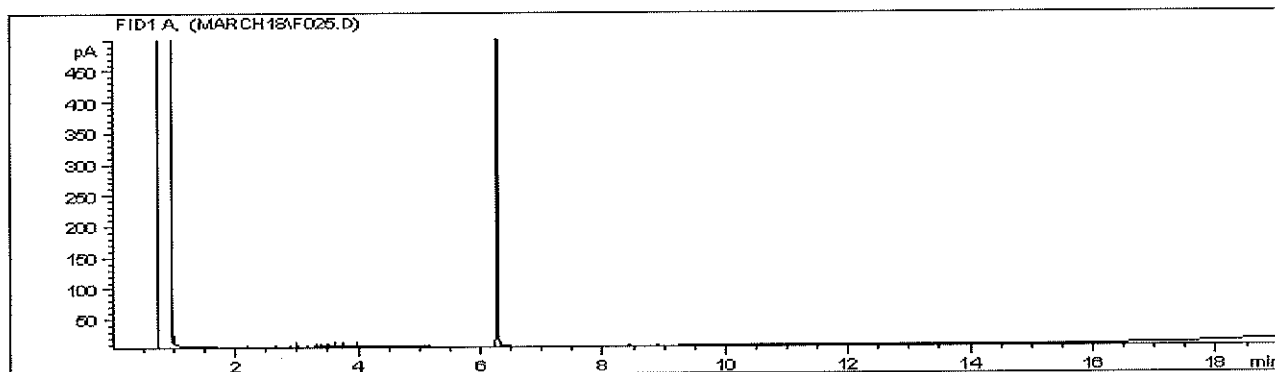
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



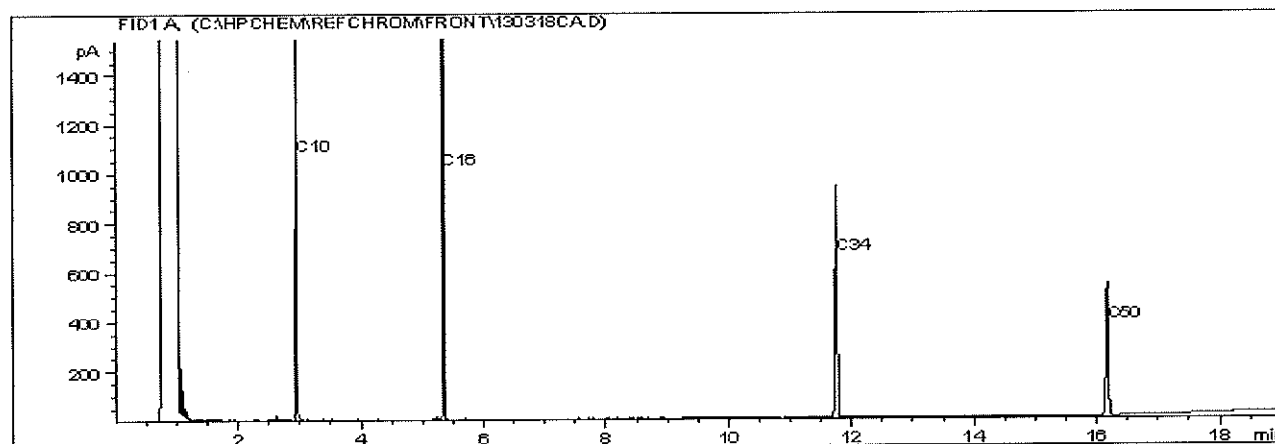
Report Date: 2013/03/25  
 Maxxam Job #: B320765  
 Maxxam Sample: FW9467

PARSONS  
 Client Project #: 10-1177  
 Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
 Client ID: BH-21

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

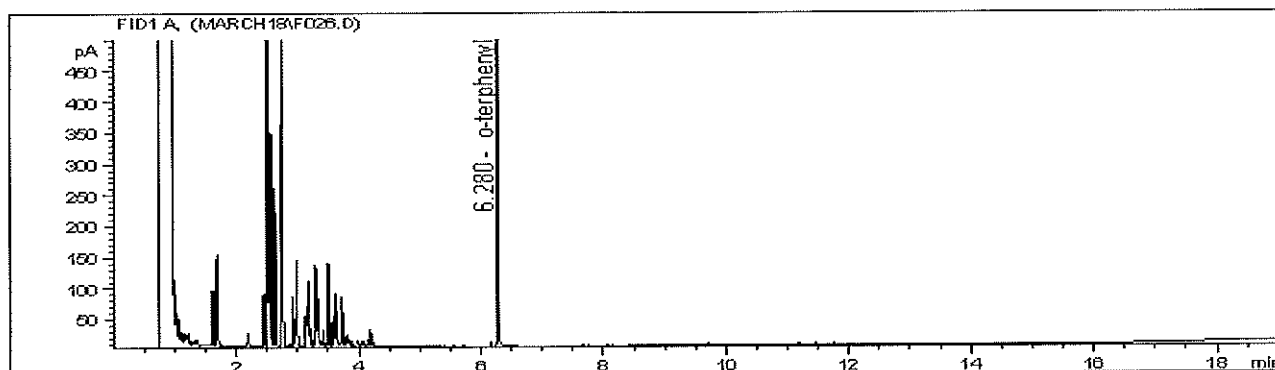
**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



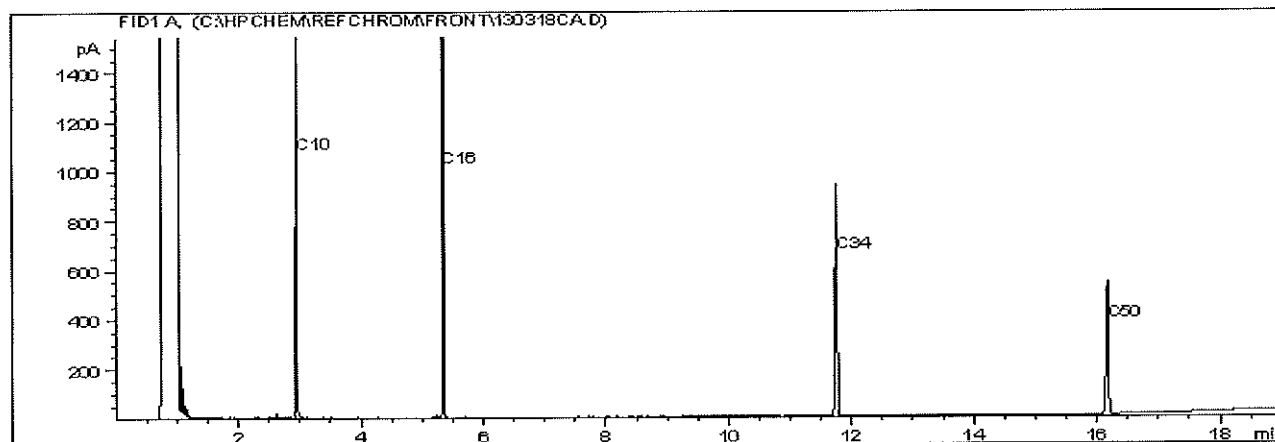
Report Date: 2013/03/25  
Maxxam Job #: B320765  
Maxxam Sample: FW9468

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-27

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

Page 1 of 1

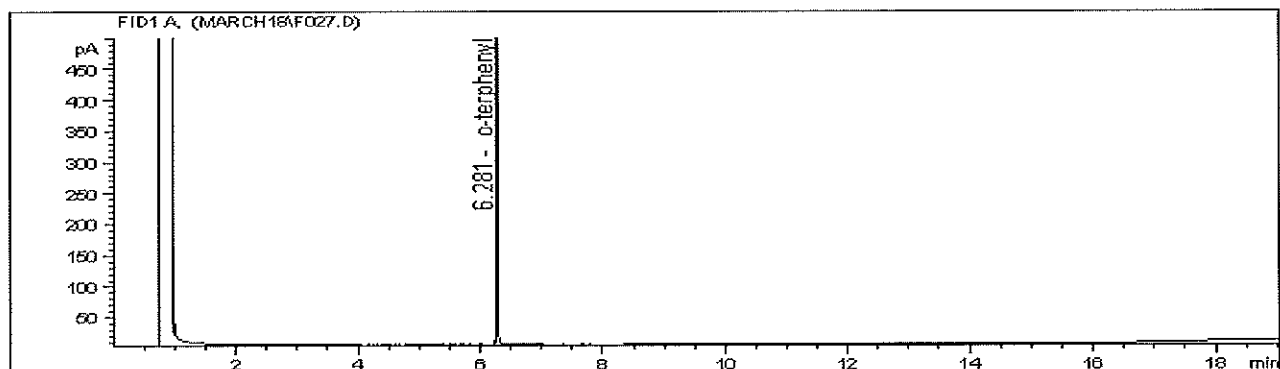
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



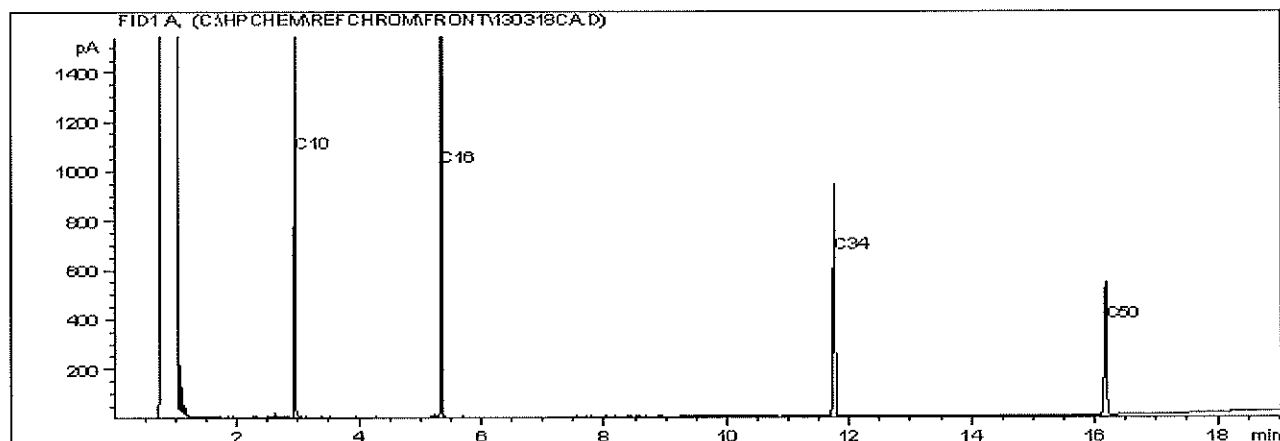
Report Date: 2013/03/25  
Maxxam Job #: B320765  
Maxxam Sample: FW9474

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-35

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

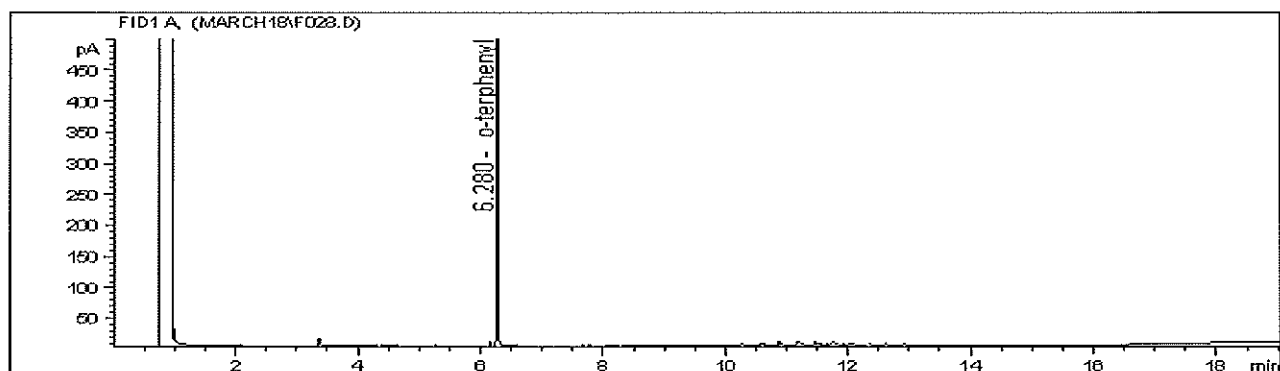
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



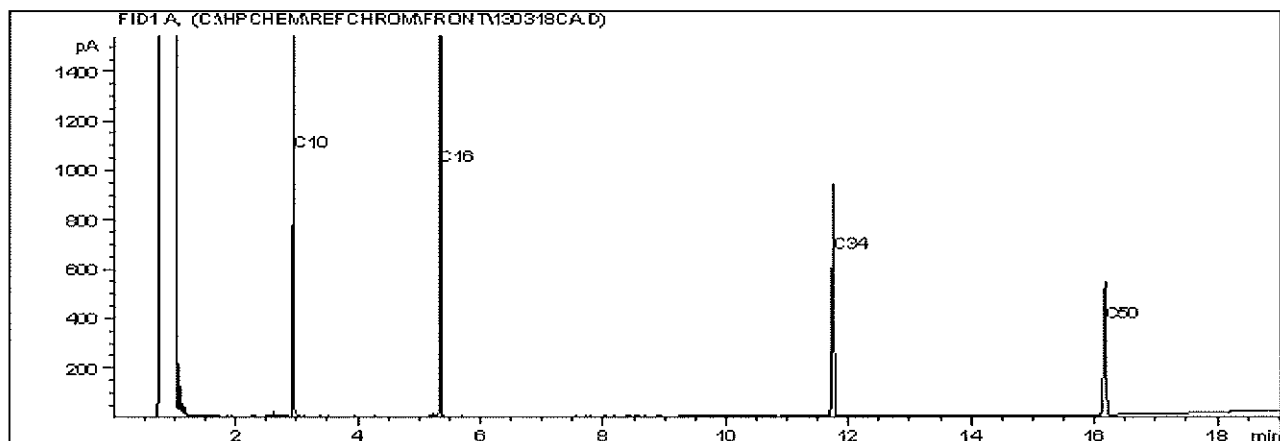
Report Date: 2013/03/25  
Maxxam Job #: B320765  
Maxxam Sample: FW9475

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH-29

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

**Note:** This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



### DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2013/03/14</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory: <u>Maxxam Analytics, Winnipeg</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B320765</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery	X			All lab QC met acceptance criteria.
Extraction Surrogate Recovery	X			
Method Blank Concentration	X			
Matrix Duplicate RPD	X			
Matrix Spike Recovery	X			
Lab Control Sample Recovery			X	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration			X	All field QC have met the acceptable RPD limits.
Trip Blank Concentration			X	
Field Duplicate RPD			X	

Has CoA been signed off (Yes/No)?: Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: Yes

Were all samples analyzed within hold times (Yes/No)?: Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: NA

Is Chain of Custody completed and signed (Yes/No)?: Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?: No

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: No


Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?: Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): <u>Alexia Reske-Naurocki</u> Review Date: <u>2013/03/28</u> Revision Date (if applicable): _____	Data Reviewed by (Signature):  Revised by (Signature): _____
--	--



Your Project #: 10-1177  
 Site#: 63955  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
 Your C.O.C. #: S003371

**Attention: ADAM WICKMAN**  
 PARSONS  
 7 TERRACON PLACE  
 WINNIPEG, MB  
 CANADA R2J 4B3

**Report Date: 2013/03/22**

## CERTIFICATE OF ANALYSIS

**MAXXAM JOB #: B320783**  
**Received: 2013/03/15, 14:30**

Sample Matrix: Water  
 # Samples Received: 6

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS	2	N/A	2013/03/19	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCW
BTEX/F1 in Water by HS GC/MS	2	N/A	2013/03/21	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCW
BTEX/F1 in Water by HS GC/MS	2	N/A	2013/03/22	WINSOP-00054 WINSOP-00055	EPA8260C/CCME PHCCW
CCME Hydrocarbons (F2-F4 in water)	3	2013/03/18	2013/03/18	WINSOP-00056	CCME PHC-CWS
CCME Hydrocarbons (F2-F4 in water)	1	2013/03/18	2013/03/20	WINSOP-00056	CCME PHC-CWS
Elements by CRC ICPMS (dissolved) (1)	4	N/A	2013/03/21	BBY7SOP-00002	EPA 6020A
Filter and HNO3 Preserve for Metals (1)	4	N/A	2013/03/15	BBY6WI-00001	EPA 200.2
VOCs in Water by HS GC/MS (1)	2	2013/03/19	2013/03/20	BBY8-SOP-0009	EPA 8260C
VOCs in Water by HS GC/MS (1)	1	2013/03/19	2013/03/21	BBY8-SOP-0009	EPA 8260C
VOCs in Water by HS GC/MS (1)	1	2013/03/20	2013/03/20	BBY8-SOP-0009	EPA 8260C

\* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) This test was performed by Maxxam Vancouver

Encryption Key

Dijeeet Brar

22 Mar 2013 18:43:17 -07:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Janelle Kochan, B.Sc., Project Manager,  
 Email: JKochan@maxxam.ca  
 Phone# (204) 772-7276 Ext:2209

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1



Maxxam Job #: B320783  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		FW9549	FW9550	FW9551	FW9552	
Sampling Date		2013/03/15 12:00	2013/03/15 12:00	2013/03/15 12:30	2013/03/15 13:00	
COC Number		S003371	S003371	S003371	S003371	
	<b>UNITS</b>	<b>BH7</b>	<b>DUP-2</b>	<b>BH9</b>	<b>BH17</b>	<b>QC Batch</b>

<b>Calculated Parameters</b>						
Filter and HNO3 Preservation	N/A	FIELD	FIELD	FIELD	FIELD	ONSITE



Maxxam Job #: B320783  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		FW9549	FW9550	FW9551		FW9552		
Sampling Date		2013/03/15 12:00	2013/03/15 12:00	2013/03/15 12:30		2013/03/15 13:00		
COC Number		S003371	S003371	S003371		S003371		
	UNITS	BH7	DUP-2	BH9	QC Batch	BH17	RDL	QC Batch

Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/L	2.7	2.9	<0.15	6656864	0.82	0.15	6666899
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	100	96	95	6656864	100	N/A	6666899

N/A = Not Applicable  
RDL = Reportable Detection Limit

Maxxam ID		FW9552		
Sampling Date		2013/03/15 13:00		
COC Number		S003371		
	UNITS	BH17 Lab-Dup	RDL	QC Batch

Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/L	1.2	0.15	6666899
Surrogate Recovery (%)				
O-TERPHENYL (sur.)	%	102	N/A	6666899

N/A = Not Applicable  
RDL = Reportable Detection Limit  
Lab-Dup = Laboratory Initiated Duplicate



Maxxam Job #: B320783  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		FW9549	FW9550	FW9551	FW9552		
Sampling Date		2013/03/15 12:00	2013/03/15 12:00	2013/03/15 12:30	2013/03/15 13:00		
COC Number		S003371	S003371	S003371	S003371		
	UNITS	BH7	DUP-2	BH9	BH17	RDL	QC Batch

Dissolved Metals by ICPMS							
Dissolved Lead (Pb)	ug/L	<0.20	<0.20	<0.20	<0.20	0.20	6670447

RDL = Reportable Detection Limit



Maxxam Job #: B320783  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9549			FW9550		
Sampling Date		2013/03/15 12:00			2013/03/15 12:00		
COC Number		S003371			S003371		
	UNITS	BH7	RDL	QC Batch	DUP-2	RDL	QC Batch

Volatiles							
Benzene	mg/L	3.6 (1)	0.004	6656929	3.4 (1)	0.004	6656929
Toluene	mg/L	0.069	0.0004	6656929	0.072	0.0004	6656929
Ethylbenzene	mg/L	0.56	0.0004	6656929	0.58	0.0004	6656929
o-Xylene	mg/L	0.28	0.0004	6656929	0.29	0.0004	6656929
m & p-Xylene	mg/L	1.7	0.0008	6656929	1.8	0.0008	6656929
Xylenes (Total)	mg/L	2.0	0.0008	6656929	2.1	0.0008	6656929
Methyl-tert-butylether (MTBE)	mg/L	<0.004	0.004	6656929	<0.004	0.004	6656929
F1 (C6-C10) - BTEX	mg/L	3.6	0.3	6656929	3.8	0.3	6656929
(C6-C10)	mg/L	9.8	0.3	6656929	10	0.3	6656929
1,2-dichloroethane	ug/L	<86 (2)	86	6668265	<0.50	0.50	6664031
1,2-dibromoethane	ug/L	<0.20	0.20	6668265	<0.20	0.20	6664031
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	101	N/A	6656929	103	N/A	6656929
D4-1,2-DICHLOROETHANE (sur.)	%	100	N/A	6656929	96	N/A	6656929
D8-TOLUENE (sur.)	%	99	N/A	6656929	105	N/A	6656929
1,4-Difluorobenzene (sur.)	%	97	N/A	6668265	96	N/A	6664031
4-BROMOFLUOROBENZENE (sur.)	%	102	N/A	6668265	90	N/A	6664031
D4-1,2-DICHLOROETHANE (sur.)	%	144 (3)	N/A	6668265	148 (3)	N/A	6664031

N/A = Not Applicable

RDL = Reportable Detection Limit

(1) RDL raised due to sample dilution.

(2) RDL raised due to sample matrix interference.

(3) Surrogate recovery above control limit - Matrix interference



Maxxam Job #: B320783  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9551	FW9552		FW9553		
Sampling Date		2013/03/15 12:30	2013/03/15 13:00		2013/03/15 13:30		
COC Number		S003371	S003371		S003371		
	UNITS	BH9	BH17	QC Batch	FIELD BLANK	RDL	QC Batch

<b>Volatiles</b>							
Benzene	mg/L	<0.0004	0.027	6656929	<0.0004	0.0004	6672040
Toluene	mg/L	<0.0004	0.0008	6656929	<0.0004	0.0004	6672040
Ethylbenzene	mg/L	<0.0004	0.065	6656929	<0.0004	0.0004	6672040
o-Xylene	mg/L	<0.0004	<0.0004	6656929	<0.0004	0.0004	6672040
m & p-Xylene	mg/L	<0.0008	<0.0008	6656929	<0.0008	0.0008	6672040
Xylenes (Total)	mg/L	<0.0008	<0.0008	6656929	<0.0008	0.0008	6672040
Methyl-tert-butylether (MTBE)	mg/L	<0.004	<0.004	6656929	<0.004	0.004	6672040
F1 (C6-C10) - BTEX	mg/L	<0.3	0.4	6656929	<0.3	0.3	6672040
(C6-C10)	mg/L	<0.3	0.5	6656929	<0.3	0.3	6672040
1,2-dichloroethane	ug/L	<0.50	<0.50	6664031	N/A	0.50	N/A
1,2-dibromoethane	ug/L	<0.20	<0.20	6664031	N/A	0.20	N/A
<b>Surrogate Recovery (%)</b>							
4-BROMOFLUOROBENZENE (sur.)	%	106	106	6656929	102	N/A	6672040
D4-1,2-DICHLOROETHANE (sur.)	%	128	127	6656929	99	N/A	6672040
D8-TOLUENE (sur.)	%	96	98	6656929	101	N/A	6672040
1,4-Difluorobenzene (sur.)	%	99	98	6664031	N/A	N/A	N/A
4-BROMOFLUOROBENZENE (sur.)	%	90	93	6664031	N/A	N/A	N/A
D4-1,2-DICHLOROETHANE (sur.)	%	94	97	6664031	N/A	N/A	N/A

N/A = Not Applicable  
RDL = Reportable Detection Limit



Maxxam Job #: B320783  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

### VOLATILE ORGANICS BY GC-MS (WATER)

Maxxam ID		FW9553	FW9554		
Sampling Date		2013/03/15 13:30	2013/03/15 14:00		
COC Number		S003371	S003371		
	UNITS	FIELD BLANK Lab-Dup	TRIP BLANK	RDL	QC Batch
<b>Volatiles</b>					
Benzene	mg/L	<0.0004	<0.0004	0.0004	6672040
Toluene	mg/L	<0.0004	<0.0004	0.0004	6672040
Ethylbenzene	mg/L	<0.0004	<0.0004	0.0004	6672040
o-Xylene	mg/L	<0.0004	<0.0004	0.0004	6672040
m & p-Xylene	mg/L	<0.0008	<0.0008	0.0008	6672040
Xylenes (Total)	mg/L	<0.0008	<0.0008	0.0008	6672040
Methyl-tert-butylether (MTBE)	mg/L	<0.004	<0.004	0.004	6672040
F1 (C6-C10) - BTEX	mg/L	<0.3	<0.3	0.3	6672040
(C6-C10)	mg/L	<0.3	<0.3	0.3	6672040
<b>Surrogate Recovery (%)</b>					
4-BROMOFLUOROBENZENE (sur.)	%	100	102	N/A	6672040
D4-1,2-DICHLOROETHANE (sur.)	%	101	104	N/A	6672040
D8-TOLUENE (sur.)	%	103	101	N/A	6672040
N/A = Not Applicable RDL = Reportable Detection Limit					



Maxxam Job #: B320783  
Report Date: 2013/03/22

PARSONS  
Client Project #: 10-1177  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB  
Sampler Initials: AB

Package 1	11.5°C
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Each temperature is the average of up to three cooler temperatures taken at receipt

### General Comments

Results relate only to the items tested.



PARSONS  
Attention: ADAM WICKMAN  
Client Project #: 10-1177  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

Quality Assurance Report  
Maxxam Job Number: NB320783

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6656864 CD3	Matrix Spike	O-TERPHENYL (sur.)	2013/03/18		116	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18		102	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/18		109	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18		98	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2013/03/18		107	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/18	<0.15		mg/L	
6656929 CD3	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2013/03/18		100	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		88	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		103	%	60 - 140
		Benzene	2013/03/18		NC	%	70 - 130
		Toluene	2013/03/18		93	%	70 - 130
		Ethylbenzene	2013/03/18		102	%	70 - 130
	Spiked Blank	o-Xylene	2013/03/18		105	%	70 - 130
		m & p-Xylene	2013/03/18		107	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/18		100	%	70 - 130
		(C6-C10)	2013/03/18		NC	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/18		106	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		99	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		101	%	60 - 140
		Benzene	2013/03/18		94	%	70 - 130
		Toluene	2013/03/18		96	%	70 - 130
		Ethylbenzene	2013/03/18		103	%	70 - 130
		o-Xylene	2013/03/18		109	%	70 - 130
		m & p-Xylene	2013/03/18		109	%	70 - 130
	Method Blank	Methyl-tert-butylether (MTBE)	2013/03/18		101	%	70 - 130
		(C6-C10)	2013/03/18		116	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/18		102	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/18		101	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/18		101	%	60 - 140
		Benzene	2013/03/18	<0.0004		mg/L	
		Toluene	2013/03/18	<0.0004		mg/L	
		Ethylbenzene	2013/03/18	<0.0004		mg/L	
		o-Xylene	2013/03/18	<0.0004		mg/L	
		m & p-Xylene	2013/03/18	<0.0008		mg/L	
		Xylenes (Total)	2013/03/18	<0.0008		mg/L	
		Methyl-tert-butylether (MTBE)	2013/03/18	<0.004		mg/L	
	RPD	F1 (C6-C10) - BTEX	2013/03/18	<0.3		mg/L	
		(C6-C10)	2013/03/18	<0.3		mg/L	
		Benzene	2013/03/18	5.0		%	40
		Toluene	2013/03/18	4.1		%	40
		Ethylbenzene	2013/03/18	3.5		%	40
		o-Xylene	2013/03/18	3.7		%	40
		m & p-Xylene	2013/03/18	4.8		%	40
		Xylenes (Total)	2013/03/18	4.8		%	40
		Methyl-tert-butylether (MTBE)	2013/03/18	NC		%	40
		F1 (C6-C10) - BTEX	2013/03/18	NC		%	40
		(C6-C10)	2013/03/18	5.6		%	40
		1,4-Difluorobenzene (sur.)	2013/03/20		99	%	70 - 130
6664031 MM5	Matrix Spike	4-BROMOFLUOROBENZENE (sur.)	2013/03/20		107	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/20		88	%	70 - 130
		1,2-dichloroethane	2013/03/20		96	%	70 - 130
		1,2-dibromoethane	2013/03/20		93	%	70 - 130
	Spiked Blank	1,4-Difluorobenzene (sur.)	2013/03/20		99	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/20		104	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/20		81	%	70 - 130



PARSONS  
Attention: ADAM WICKMAN  
Client Project #: 10-1177  
P.O. #:  
Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB320783

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6664031 MM5	Spiked Blank	1,2-dichloroethane	2013/03/20		93	%	70 - 130
		1,2-dibromoethane	2013/03/20		89	%	70 - 130
	Method Blank	1,4-Difluorobenzene (sur.)	2013/03/20		103	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/20		91	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/20		85	%	70 - 130
		1,2-dichloroethane	2013/03/20	<0.50		ug/L	
	RPD	1,2-dibromoethane	2013/03/20	<0.20		ug/L	
		1,2-dichloroethane	2013/03/20	NC		%	30
		1,2-dibromoethane	2013/03/20	NC		%	30
6666899 CD3	Matrix Spike	O-TERPHENYL (sur.)	2013/03/20		101	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/20		88	%	50 - 130
	Spiked Blank	O-TERPHENYL (sur.)	2013/03/20		101	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/20		98	%	70 - 130
	Method Blank	O-TERPHENYL (sur.)	2013/03/20		103	%	50 - 130
		F2 (C10-C16 Hydrocarbons)	2013/03/20	<0.15		mg/L	
	RPD [FW9552-04]	F2 (C10-C16 Hydrocarbons)	2013/03/20	36.0		%	40
6668265 MM5	Matrix Spike [FW9549-01]	1,4-Difluorobenzene (sur.)	2013/03/20		99	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/20		94	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/20		128	%	70 - 130
		1,2-dichloroethane	2013/03/20		NC	%	70 - 130
	Spiked Blank	1,2-dibromoethane	2013/03/20		85	%	70 - 130
		1,4-Difluorobenzene (sur.)	2013/03/20		121	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/20		113	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/20		84	%	70 - 130
		1,2-dichloroethane	2013/03/20		87	%	70 - 130
		1,2-dibromoethane	2013/03/20		95	%	70 - 130
	Method Blank	1,4-Difluorobenzene (sur.)	2013/03/20		103	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/20		83	%	70 - 130
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/20		76	%	70 - 130
		1,2-dichloroethane	2013/03/20	<0.50		ug/L	
		1,2-dibromoethane	2013/03/20	<0.20		ug/L	
		1,2-dichloroethane	2013/03/20	NC		%	30
	RPD						
6670447 GS2	Matrix Spike	Dissolved Lead (Pb)	2013/03/21		104	%	80 - 120
	Spiked Blank	Dissolved Lead (Pb)	2013/03/21		103	%	80 - 120
	Method Blank	Dissolved Lead (Pb)	2013/03/21	<0.20		ug/L	
	RPD	Dissolved Lead (Pb)	2013/03/21	NC		%	20
6672040 CD3	Matrix Spike [FW9554-01]	4-BROMOFLUOROBENZENE (sur.)	2013/03/22		104	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/22		105	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/22		98	%	60 - 140
		Benzene	2013/03/22		86	%	70 - 130
		Toluene	2013/03/22		84	%	70 - 130
		Ethylbenzene	2013/03/22		90	%	70 - 130
		o-Xylene	2013/03/22		92	%	70 - 130
		m & p-Xylene	2013/03/22		89	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/22		95	%	70 - 130
		(C6-C10)	2013/03/22		94	%	70 - 130
		4-BROMOFLUOROBENZENE (sur.)	2013/03/22		103	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/22		102	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/22		100	%	60 - 140
		Benzene	2013/03/22		86	%	70 - 130
	Spiked Blank	Toluene	2013/03/22		87	%	70 - 130
		Ethylbenzene	2013/03/22		92	%	70 - 130
		o-Xylene	2013/03/22		94	%	70 - 130



PARSONS  
 Attention: ADAM WICKMAN  
 Client Project #: 10-1177  
 P.O. #:  
 Site Location: 208 ST. ANNE'S ROAD, WINNIPEG, MB

### Quality Assurance Report (Continued)

Maxxam Job Number: NB320783

QA/QC Batch Num Init	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
6672040 CD3	Spiked Blank	m & p-Xylene	2013/03/22		92	%	70 - 130
		Methyl-tert-butylether (MTBE)	2013/03/22		94	%	70 - 130
		(C6-C10)	2013/03/22		98	%	70 - 130
	Method Blank	4-BROMOFLUOROBENZENE (sur.)	2013/03/22		103	%	60 - 140
		D4-1,2-DICHLOROETHANE (sur.)	2013/03/22		102	%	60 - 140
		D8-TOLUENE (sur.)	2013/03/22		102	%	60 - 140
		Benzene	2013/03/22	<0.0004		mg/L	
		Toluene	2013/03/22	<0.0004		mg/L	
		Ethylbenzene	2013/03/22	<0.0004		mg/L	
	RPD [FW9553-01]	o-Xylene	2013/03/22	<0.0004		mg/L	
		m & p-Xylene	2013/03/22	<0.0008		mg/L	
		Xylenes (Total)	2013/03/22	<0.0008		mg/L	
		Methyl-tert-butylether (MTBE)	2013/03/22	<0.004		mg/L	
		F1 (C6-C10) - BTEX	2013/03/22	<0.3		mg/L	
		(C6-C10)	2013/03/22	<0.3		mg/L	
		Benzene	2013/03/22	NC		%	40
		Toluene	2013/03/22	NC		%	40
		Ethylbenzene	2013/03/22	NC		%	40
		o-Xylene	2013/03/22	NC		%	40
		m & p-Xylene	2013/03/22	NC		%	40
		Xylenes (Total)	2013/03/22	NC		%	40
		Methyl-tert-butylether (MTBE)	2013/03/22	NC		%	40
		F1 (C6-C10) - BTEX	2013/03/22	NC		%	40
		(C6-C10)	2013/03/22	NC		%	40

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.

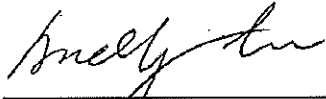
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.



**Validation Signature Page****Maxxam Job #: B320783**

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The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



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Andy Lu, Data Validation Coordinator

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.





Consulting Company:	Parsons
Contact:	Adam Williams
Address	7 Terrace Place, Warrington WA6 4RB
Contact Tel:	01924-4841-2764 or N/A
Project ID:	10-1137
Sampled By:	Adam Parsons

Report Distribution (E-Mail): [adam.will.brown@pulsions.com](mailto:adam.will.brown@pulsions.com)

REGULATORY GUIDELINES:

<input type="checkbox"/>	ART
<input checked="" type="checkbox"/>	OCOME low
<input type="checkbox"/>	Regulated Drinking Water
<input type="checkbox"/>	Other

SERVICE REQUESTED:	<input type="checkbox"/> RUSH (Contact lab to reserve)
	Date Required:
<input type="checkbox"/> 2 DAY <input type="checkbox"/> 1 DAY <input type="checkbox"/> SAME DAY	<input checked="" type="checkbox"/> REGULAR (5 Days)

DOWNSTREAM	<input checked="" type="checkbox"/>
Solo address	208 st Ames Rd
Solo City/Prov	Waukegan, Ill
Cutoff number	63455
Monitoring	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No or Incomplete
Senior Suncor Advisor:	
Brian Holmberg	<input type="checkbox"/> Rick Lamajore <input checked="" type="checkbox"/>
Officer:	

UPSTREAM	<input type="checkbox"/>
LSDA	
SafetyField	
AFSC	
REQ (if applicable)	
<b>Senior Suncor Advisor:</b>	
Mike Morrison	<input type="checkbox"/> Ben Stephens <input type="checkbox"/>
Russell Browne	<input type="checkbox"/> Pam Scallan <input type="checkbox"/>
Other	

[illegible][illegible]

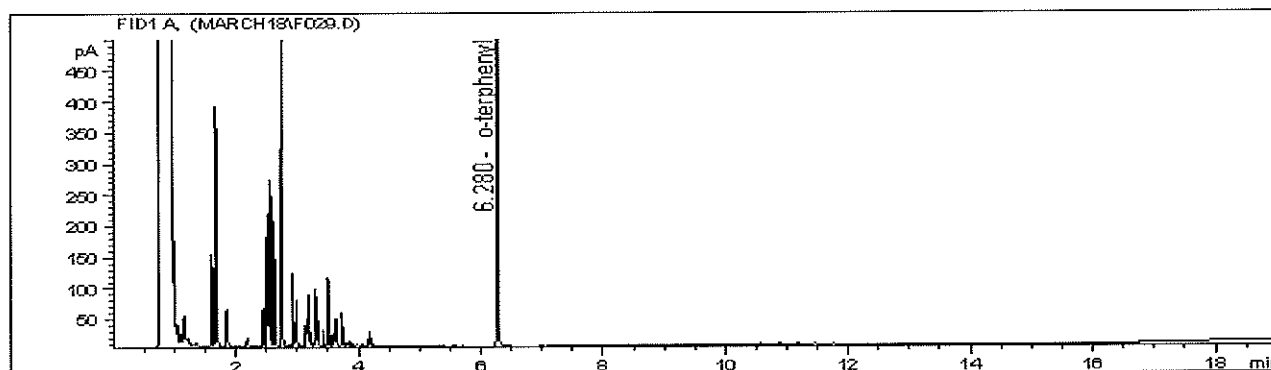
Received By:	Date:	Time:	LAB USE ONLY
Jeff Gracek	Nov 15, 13	14:30	
Lab Comment:			



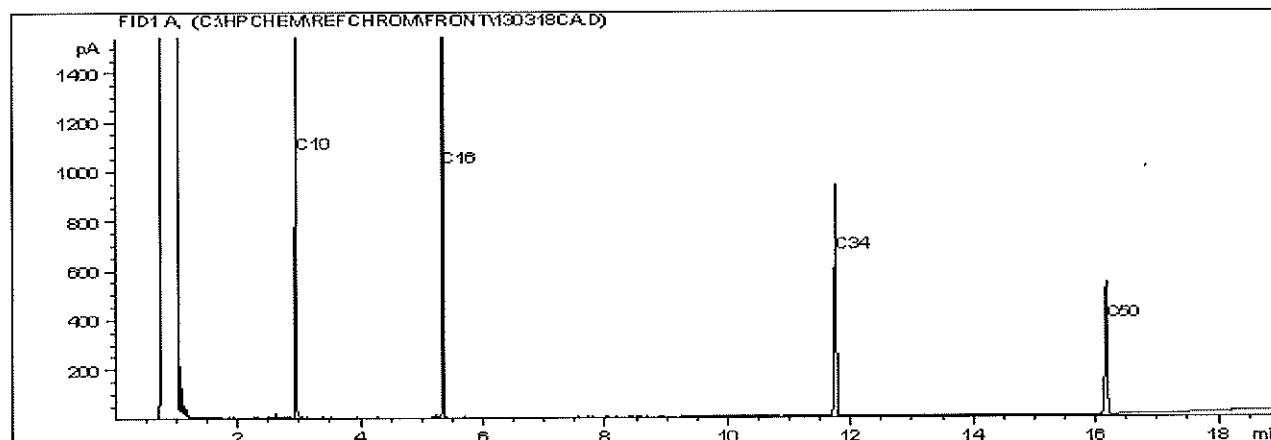
Report Date: 2013/03/22  
Maxxam Job #: B320783  
Maxxam Sample: FW9549

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH7

## CCME Hydrocarbons (F2-F4 In water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

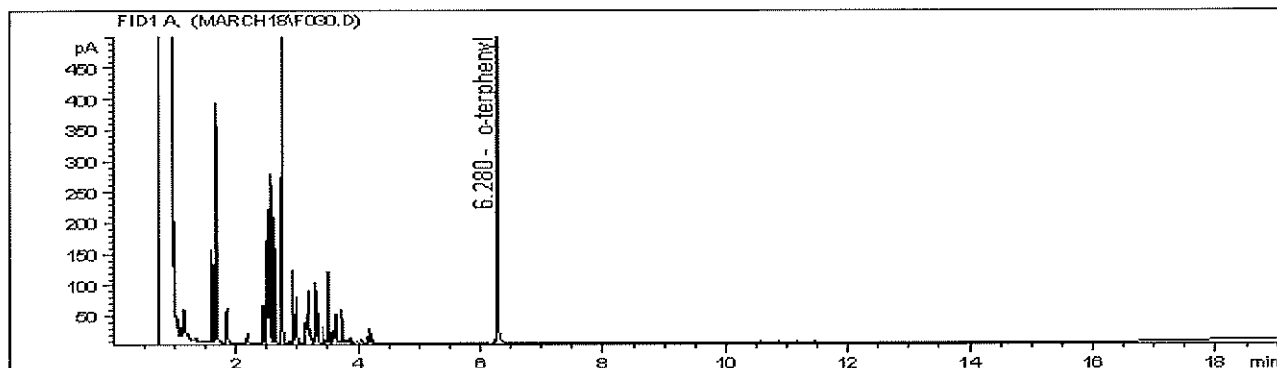
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



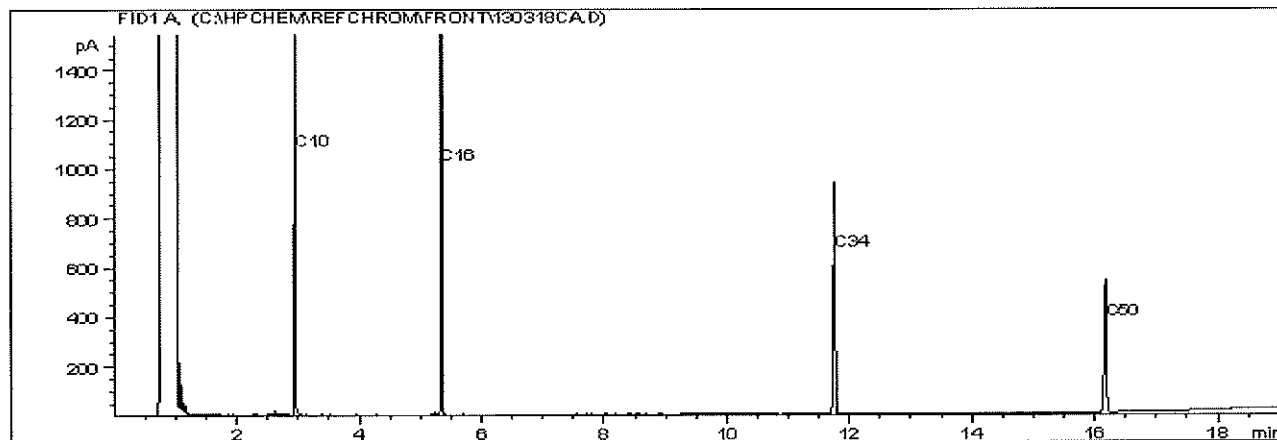
Report Date: 2013/03/22  
Maxxam Job #: B320783  
Maxxam Sample: FW9550

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: DUP-2

CCME Hydrocarbons (F2-F4 in water) Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

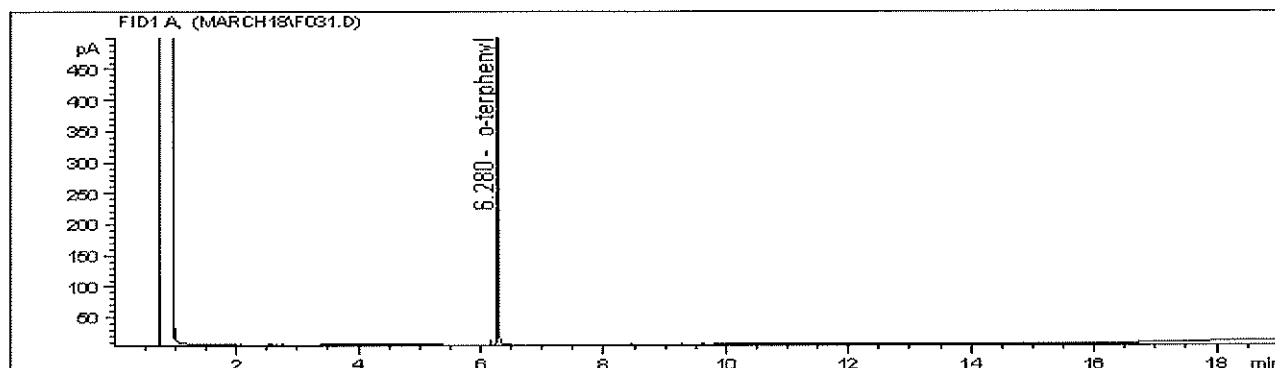
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



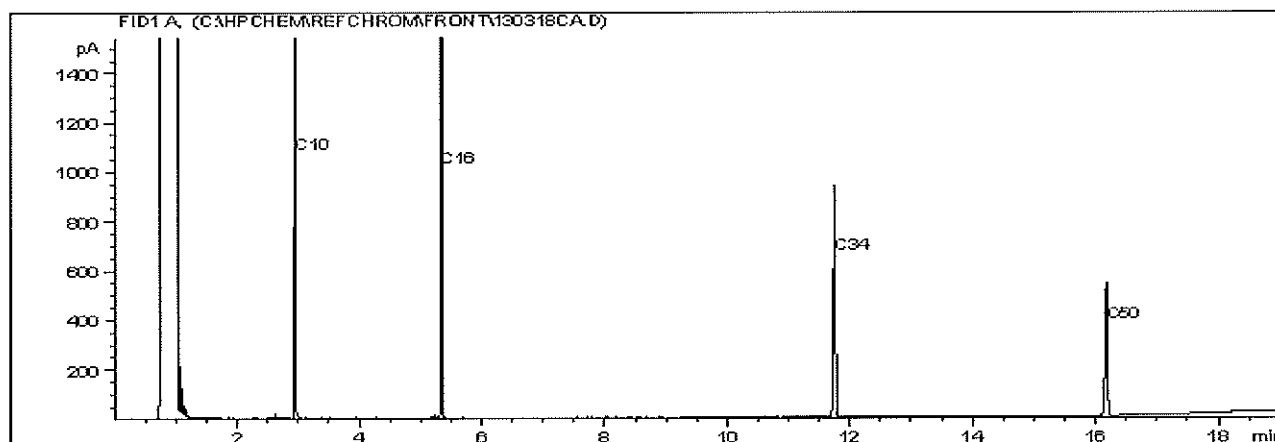
Report Date: 2013/03/22  
Maxxam Job #: B320783  
Maxxam Sample: FW9551

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH9

## CCME Hydrocarbons (F2-F4 In water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline: C4 - C12  
Varsol: C8 - C12  
Kerosene: C7 - C16

Diesel: C8 - C22  
Lubricating Oils: C20 - C40  
Crude Oils: C3 - C60+

Page 1 of 1

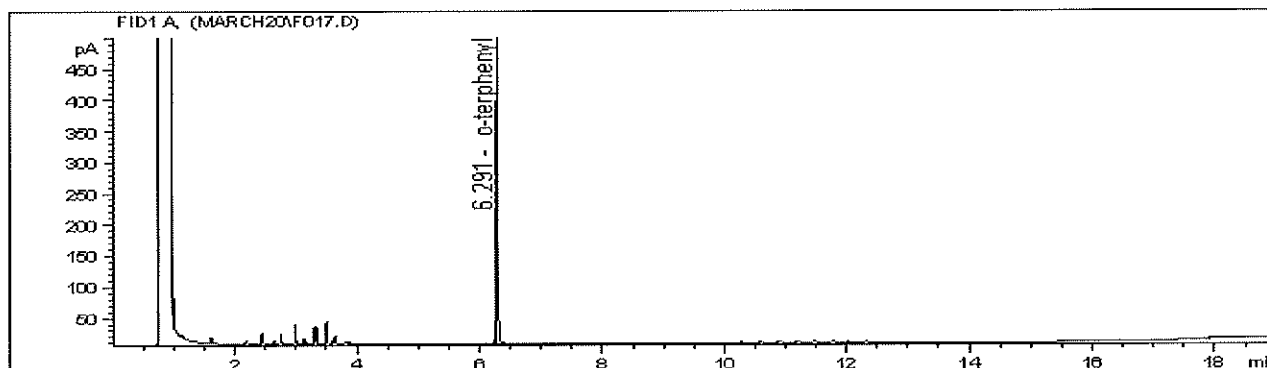
**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



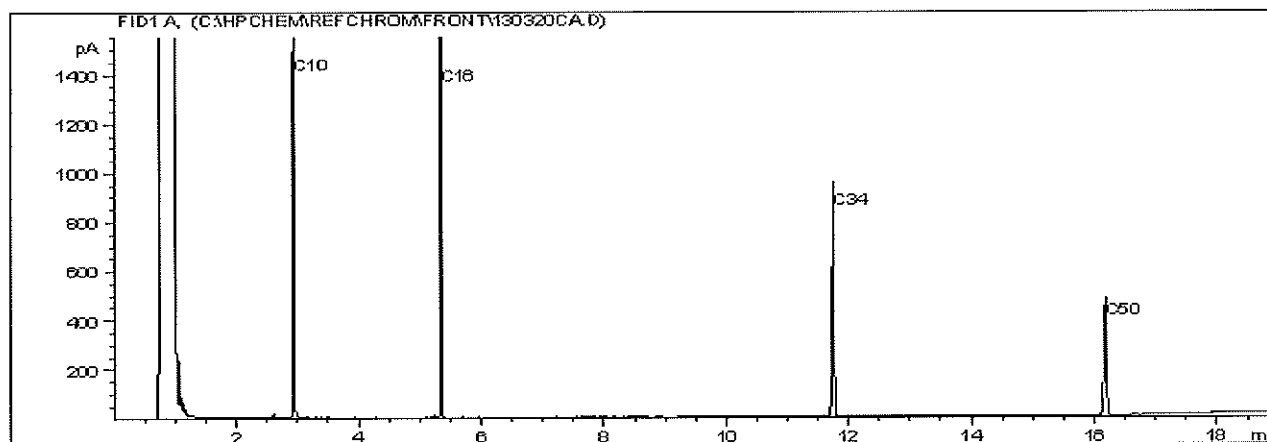
Report Date: 2013/03/22  
Maxxam Job #: B320783  
Maxxam Sample: FW9552

PARSONS  
Client Project #: 10-1177  
Site Reference: 208 ST. ANNE'S ROAD, WINNIPEG,  
Client ID: BH17

## CCME Hydrocarbons (F2-F4 in water) Chromatogram



## Carbon Range Distribution - Reference Chromatogram



## TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

**Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.**



### DATA QUALITY REVIEW CHECKLIST

Consultant: <u>Parsons</u>	Sampling Date: <u>2013/03/15</u>
Location: <u>208 St. Anne's Road, Winnipeg, MB</u>	Laboratory: <u>Maxxam Analytics, Winnipeg</u>
Consultant Project Number: <u>10-1177.100</u>	Sample Submission Number: <u>B320783</u>

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Instrument Surrogate Recovery		X		The instrument surrogate recoveries for D4-1,2-dichloroethane (144% and 148%) are above the acceptance criteria. All other lab QC met acceptance criteria.
Extraction Surrogate Recovery	X			
Method Blank Concentration	X			
Matrix Duplicate RPD	X			
Matrix Spike Recovery	X			
Lab Control Sample Recovery			X	

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Field Blank Concentration	X			All field QC met alert limits.
Trip Blank Concentration	X			
Field Duplicate RPD	X			

Has CoA been signed off (Yes/No)?: \_\_\_\_\_ Yes

Has lab warranted all tests were in statistical control in CoA (Yes/No)?: \_\_\_\_\_ Yes

Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?: \_\_\_\_\_ Yes

Were all samples analyzed within hold times (Yes/No)?: \_\_\_\_\_ Yes

All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?: \_\_\_\_\_ NA

Is Chain of Custody completed and signed (Yes/No)?: \_\_\_\_\_ Yes

Were sample temperatures acceptable when they reached lab (Yes/No)?: \_\_\_\_\_ No

Was a Data Quality Waiver (DQW) issued (Yes, No or N/A)?: \_\_\_\_\_ No


Date Issued: \_\_\_\_\_ Date of Response: \_\_\_\_\_

Is data considered to be reliable (Yes/No)?: \_\_\_\_\_ Yes

If answer is "No", describe and provide rationale:

Data Reviewed by (Print): <u>Alexia Reske-Naurocki</u> Review Date: <u>2013/03/25</u> Revision Date (if applicable): _____	Data Reviewed by (Signature):  Revised by (Signature): _____
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## **APPENDIX C**

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### **QUALITY ASSURANCE AND QUALITY CONTROL**



## QUALITY ASSURANCE AND QUALITY CONTROL DISCUSSION

Lab or field QA/QC issues identified in this report are discussed in Table C-1.

The soil field QA/QC program consisted of nine field duplicate soil samples for BTEX, PHC fractions F1 to F4, 1,2-DBA, 1,2-DCA and lead.

The groundwater field QA/QC program consisted of five field duplicate samples for the analysis of BTEX, PHC fractions F1 and F2, 1,2-DBA, 1,2-DCA and lead; one field duplicate sample for the analysis of selected PAHs; one field duplicate sample for the analysis of selected metals and glycols; two field blank samples for the analysis of BTEX and PHC fraction F1; and, two trip blank samples for the analysis of BTEX and PHC fraction F1.

For the field duplicate samples, evaluations of the QA/QC results were determined by calculating the relative percent difference (RPD) between the field duplicate and original sample results, and comparison of the RPD to designated alert limits.

$$RPD = \left| \frac{(x_1 - x_2)}{\left(\frac{(x_1 + x_2)}{2}\right)} \right| \times 100$$

The designated soil field duplicate RPD alert limits are presented in Table C-2. Consistent with laboratory practices and to permit reliable calculations, an RPD is only calculated when the original and duplicate sample concentrations are at least five times the reportable detection limit. As indicated, all of the RPDs were within alert limits, other than those presented in Table C-1.

The designated groundwater field duplicate RPD alert limits are presented in Tables C-3 to C-5. As indicated, all of the RPDs were within alert limits.

The water field blank and trip blank were compared to the alert limits and are presented in Table C-6. As indicated, all of the results were within the alert limits.

The laboratory QA/QC program consisted of one or more of the following analysis (a) instrument and extraction surrogate recoveries for soil samples that were analyzed, and (b) the analysis of method blank, laboratory duplicate, matrix spike and/or laboratory control samples for the sample analytical batches that were analyzed. The laboratory QA/QC results are presented in the certificates of analysis. As indicated, no laboratory QA/QC issues were identified, other than those presented in Table C-1.

No field or laboratory QA/QC issues were identified that would affect the overall conclusions presented in this report. Overall, the results reported are considered to be reliable.



TABLE C-1

## FIELD AND LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL ISSUES

Maxxam Job #	Lab Sample ID	DQW Number	Sample Name	Matrix	Test Affected	Deviation	Interpretation
B234555	DH0748 DH0752	N/A	BH-29-1.1-1.4 BH-29-2.3-2.6	Soil	PAHs	The matrix spike recovery for D10-Benzo(a)pyrene (46%) was below the acceptance criterion.	There is a potential low bias for this parameter; however, the sample analytical results were significantly below the applicable criteria. Therefore it should not materially affect the findings of the assessment.
	DH0622	N/A	DUP-23	Soil	BTEX/PHC F1 to F4	The matrix spike recovery for ethylbenzene, m&p-xylene and o-xylene were below the acceptance criteria.	There is a potential low bias for these parameters; however, the sample analytical results were significantly below the applicable criteria for BTEX/PHC F1. Therefore it should not materially affect the findings of the assessment.
	DH0621 DH0622 DH0623 DH0722 DH0723 DH0724 DH0725 DH0726 DH0748 DH0752	N/A	BH-23-2.3-2.6 DUP-23 BH-23-2.9-3.2 BH-23-4.7-5.0 BH-27-1.7-2.0 BH-27-2.3-2.6 BH-28-0.5-0.8 BH-28-2.3-2.6 BH-29-1.1-1.4 BH-29-2.3-2.6	Soil	BTEX/PHC F1 to F4	The method blank recovery for D4-1,2-Dichloroethane (147%) was above the acceptance criteria.	There is a potential high bias for this parameter, however, the sample analytical results were significantly below the applicable criteria. Therefore, it should not materially affect the findings of the assessment.
	DH0621	N/A	BH-23-2.3-2.6	Soil	BTEX/PHC F1 to F4	The matrix duplicate RPD for ethylbenzene (57.5%), xylenes (total) (57.8%), m&p-xylene (57.6%), o-xylene (58.3%) and F1 (C6-C10)-BTEX (81.4%) were above the acceptance criteria.	This indicates increased variability in the lab data. The sample analytical results for both the original sample and lab duplicate were significantly below the current applicable criteria. Therefore, it should not materially affect the findings of the assessment.

N/A – Not Applicable



TABLE C-1

## FIELD AND LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL ISSUES

Maxxam Job #	Lab Sample ID	DQW Number	Sample Name	Matrix	Test Affected	Deviation	Interpretation
B234555	DH0621 DH0622	N/A	BH-23-2.3-2.6 DUP-23	Soil	BTEX/PHC F1 to F4	The field duplicate RPD for Ethylbenzene (102%) and Total Xylenes (104%) was above the alert limit.	This indicates increased variability in the field data likely due to sample heterogeneity. The sample analytical results for both the original and field duplicate were significantly below the applicable criteria. In addition, the lab quality controls meet all acceptance criteria. Therefore, it should not materially affect the findings of the assessment.
B234556	DH0733 DH0734 DH0735	N/A	BH-21-2.3-2.6 BH-21-3.5-3.8 BH-22-2.3-2.6	Soil	PAHs	The matrix spike recovery for D12-Benzo(a)pyrene (45%) was below the acceptance criterion.	There is a potential low bias for this parameter; however, the sample analytical results were significantly below the applicable criteria. Therefore, it should not materially affect the findings of the assessment.
B314347	FS0579 to FS0588	N/A	All Samples Analyzed on CoA	Soil	Volatiles	Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime.	The 7 day extraction holdtime was not exceeded. Therefore it should not materially affect the findings of the assessment.
B314367	FS0783 FS0785 FS0787 FS0789 FS0791 to FS0794	N/A	BH-34-0.6-1.2 BH-34-1.8-2.4 BH-34-3.0-3.6 BH-34-4.2-4.8 BH-39-0.6-1.2 BH-39-1.8-2.4 BH-39-3.0-3.6 BH-39-4.8-5.4	Soil	Volatiles	Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime.	The 7 day extraction holdtime was not exceeded. Therefore it should not materially affect the findings of the assessment.

N/A – Not Applicable



## FIELD AND LABORATORY QUALITY ASSURANCE AND QUALITY CONTROL ISSUES

Maxxam Job #	Lab Sample ID	DQW Number	Sample Name	Matrix	Test Affected	Deviation	Interpretation
B314377	FS0841 FS0843 FS0845 FS0847 to FS0850	N/A	BH-35-0.6-1.2 BH-35-2.4-3.0 BH-35-4.2-4.8 BH-37-0.0-0.6 BH-37-1.8-2.4 BH-37-3.0-3.6 BH-37-4.2-4.8	Soil	Volatiles	Sample extracted past 48 hours from receipt of sample but within the 7 day extraction holdtime.	The 7 day extraction holdtime was not exceeded. Therefore it should not materially affect the findings of the assessment.
	FS2968 FS2969	N/A	BH-43-1.8-2.4 DUP-43	Soil	BTEX/ PHC F1 to F4	The field duplicate RPD for PHC F2 (104%) was above the alert limit.	This indicates increased variability in the field data likely due to sample heterogeneity. The sample analytical results for both the original and field duplicate were significantly below the applicable criteria, with the exception of PHC F1, which significantly exceeded criteria in the original. In addition, the lab quality controls meet all acceptance criteria. Therefore, it should not materially affect the findings of the assessment.
B320765	FW9465 to FW9468 FW9474 FW9475	N/A	All Samples Analyzed on Cofa	Water	BTEX/ PHC F1 to F2/ VOCs/ Lead	Samples were above the acceptable temperature when they reached the laboratory.	There is a potential that the increase in temperature affected the results of the submitted samples. However, all parameters were below the applicable criteria in all submissions from this sampling date, with the exception of BH-27, which exceeded PHC F2 criterion. Furthermore, BH-27 exceeded PHC F2 results during a previous sampling event and all results appear to reflect previous sampling events.
B320783	FW9549 FW9550	N/A	BH7 DUP-2	Water	VOCs	The instrument surrogate recovery for d4-1,2-dichloroethane (144% and 148%) are above the acceptance criteria.	There is a potential high bias in the reported results. However, the VOC results were well below the applicable criteria in the sample analyzed; in fact, all VOC results were non-detectable. Therefore, this deviation should not affect the interpretation of the results of these samples.
	FW9549 to FW9554	N/A	All Samples Analyzed on Cofa	Water	BTEX/ PHC F1 to F2/ VOCs/ Lead	Samples were above the acceptable temperature when they reached the laboratory.	There is a potential that the increase in temperature affected the results of the submitted samples. However, all parameters were below the applicable criteria in all submissions from this sampling date. Furthermore, results appear to reflect previous sampling events.

N/A – Not Applicable



TABLE C-2

**FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - SOIL FIELD DUPLICATE SAMPLES  
PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS		BH-22	RDL	DUP-22 FIELD DUPLICATE BH-22	RDL	RPD	BH-23	RDL	DUP-23 FIELD DUPLICATE BH-23	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
Maxxam Sample ID		DH0735		DH0736			DH0621		DH0622			
Depth (mbgs)		2.3-2.6		2.3-2.6			2.3-2.6		2.3-2.6			
Date Sampled (yyyy/mm/dd)		2012/04/26		2012/04/26			2012/04/26		2012/04/26			
<b>PARAMETERS</b>												
Benzene		3.6	0.005	4.0	0.005	11%	0.31	0.005	0.23	0.005	30%	100
Toluene		<0.020	0.02	<0.020	0.02	NC	0.16	0.02	0.084	0.02	NC	100
Ethylbenzene		7.0	0.01	8.2	0.01	16%	7.1	0.01	2.3	0.01	<b>102%</b>	100
Total Xylenes		8.5	0.04	10	0.04	16%	41	0.04	13	0.04	<b>104%</b>	100
Petroleum Hydrocarbons F1 (C6 - C10) <sup>b</sup>		130	12	140	12	7%	230	12	53	12	NC	100
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>c</sup>		40	10	86	10	NC	100	10	60	10	50%	100
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>d</sup>		<10	10	11	10	NC	<10	10	10	10	NC	100
Petroleum Hydrocarbons F4 (>C34-C50)		<10	10	<10	10	NC	13	10	18	10	NC	100
1,2-Dibromoethane		<0.030	0.03	<0.030	0.03	NC	<0.040	0.04	<0.020	0.02	NC	100
1,2-Dichloroethane		0.0977	0.002	0.129	0.002	28%	<0.0020	0.002	<0.0020	0.002	NC	100
Lead		11	1	11	1	0%	4.1	1	5.3	1	NC	100

a - Alert limits used for field duplicate samples

b - BTEX have been subtracted from the fraction

c - Naphthalene has not been subtracted from the fraction

d - PAHs have not been subtracted from the fraction

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilograms (mg/kg) on a dry weight basis

**BOLD** - Exceeds RPD alert limit



FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - SOIL FIELD DUPLICATE SAMPLES  
PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS

SAMPLE LOCATIONS		BH-25	RDL	DUP-25 FIELD DUPLICATE BH-25	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
Maxxam Sample ID		DH0742		DH0743			
Depth (mbgs)		1.7-2.0		1.7-2.0			
Date Sampled (yyyy/mm/dd)		2012/04/26		2012/04/26			
PARAMETERS							
Benzene		0.62	0.005	1.8	0.005	98%	100
Toluene		0.056	0.02	0.091	0.02	NC	100
Ethylbenzene		2.9	0.01	4.2	0.01	37%	100
Total Xylenes		3.9	0.04	5.5	0.04	34%	100
Petroleum Hydrocarbons F1 (C6 - C10) <sup>b</sup>		140	12	170	12	19%	100
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>c</sup>		170	10	89	10	53%	100
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>d</sup>		16	10	13	10	NC	100
Petroleum Hydrocarbons F4 (>C34-C50)		<10	10	<10	10	NC	100
1,2-Dibromoethane		<0.030	0.03	<0.030	0.03	NC	100
1,2-Dichloroethane		<0.0020	0.002	<0.0020	0.002	NC	100
Lead		8.8	1	9.8	1	11%	100

a - Alert limits used for field duplicate samples

b - BTEX have been subtracted from the fraction

c - Naphthalene has not been subtracted from the fraction

d - PAHs have not been subtracted from the fraction

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than SX RDL)

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilograms (mg/kg) on a dry weight basis

**BOLD** - Exceeds RPD alert limit



TABLE C-2

**FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - SOIL FIELD DUPLICATE SAMPLES  
PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS		BH-31	RDL	DUP-31 FIELD DUPLICATE BH-31	RDL	RPD	BH-33	RDL	DUP-33 FIELD DUPLICATE BH-23 ET5072 1.2-1.8 2012/10/16	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
<b>Maxxam Sample ID</b>		ET5015		ET5016			ET5071					
<b>Depth (mbgs)</b>		4.3-4.9		4.3-4.9			1.2-1.8					
<b>Date Sampled (yyyy/mm/dd)</b>		2012/10/16		2012/10/16			2012/10/16					
<b>PARAMETERS</b>												
Benzene		<0.0050	0.005	<0.0050	0.005	NC	0.17	0.005	0.29	0.005	52%	100
Toluene		<0.020	0.02	<0.020	0.02	NC	<0.020	0.02	<0.020	0.02	NC	100
Ethylbenzene		<0.010	0.01	<0.010	0.01	NC	0.18	0.01	0.26	0.01	36%	100
Total Xylenes		<0.040	0.04	<0.040	0.04	NC	0.30	0.04	0.49	0.04	48%	100
Petroleum Hydrocarbons F1 (C6 - C10) <sup>b</sup>		<10	10	25	10	NC	11	10	<10	10	NC	100
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>c</sup>		72	20	160	20	NC	<20	20	<20	20	NC	100
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>d</sup>		<20	20	37	20	NC	24	20	<20	20	NC	100
Petroleum Hydrocarbons F4 (>C34-C50)		<20	20	<20	20	NC	<20	20	<20	20	NC	100
1,2-Dibromoethane		<0.025	0.025	<0.025	0.025	NC	<0.025	0.025	<0.025	0.025	NC	100
1,2-Dichloroethane		<0.025	0.025	<0.025	0.025	NC	<0.025	0.025	<0.025	0.025	NC	100
Lead		12.7	0.1	11.5	0.1	10%	7.01	0.1	6.40	0.1	9%	100

a - Alert limits used for field duplicate samples

b - BTEX have been subtracted from the fraction

c - Naphthalene has not been subtracted from the fraction

d - PAHs have not been subtracted from the fraction

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilograms (mg/kg) on a dry weight basis

**BOLD** - Exceeds RPD alert limit



TABLE C-2

**FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - SOIL FIELD DUPLICATE SAMPLES  
PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS		BH-36	RDL	DUP-36 FIELD DUPLICATE BH-36	RDL	RPD	BH-38	RDL	DUP-38 FIELD DUPLICATE BH-38	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
Maxxam Sample ID		FS0579		FS0583			FS0584		FS0587			
Depth (mbgs)		0.6-1.2		5.4-6.0			0.6-1.2		3.0-3.8			
Date Sampled (yyyy/mm/dd)		2013/02/21		2013/02/21			2013/02/21		2013/02/21			
<b>PARAMETERS</b>												
Benzene		<0.0050	0.005	<0.0050	0.005	NC	0.0093	0.005	<0.0050	0.005	NC	100
Toluene		<0.020	0.02	<0.020	0.02	NC	<0.020	0.02	<0.020	0.02	NC	100
Ethylbenzene		<0.010	0.01	<0.010	0.01	NC	0.030	0.01	<0.010	0.01	NC	100
Total Xylenes		<0.040	0.04	<0.040	0.04	NC	<0.040	0.04	<0.040	0.04	NC	100
Petroleum Hydrocarbons F1 (C6 - C10) <sup>b</sup>		<10	10	<10	10	NC	15	10	<10	10	NC	100
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>c</sup>		<10	10	<10	10	NC	<10	10	<10	10	NC	100
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>d</sup>		<10	10	<10	10	NC	<10	10	23	10	NC	100
Petroleum Hydrocarbons F4 (>C34-C50)		<10	10	<10	10	NC	<10	10	<10	10	NC	100
1,2-Dibromoethane		<0.025	0.025	<0.025	0.025	NC	<0.025	0.025	<0.025	0.025	NC	100
1,2-Dichloroethane		<0.025	0.025	<0.025	0.025	NC	<0.025	0.025	<0.025	0.025	NC	100
Lead		15.1	0.1	13.8	0.1	9%	14.4	0.1	14.5	0.1	1%	100

a - Alert limits used for field duplicate samples

b - BTEX have been subtracted from the fraction

c - Naphthalene has not been subtracted from the fraction

d - PAHs have not been subtracted from the fraction

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilograms (mg/kg) on a dry weight basis

**BOLD** - Exceeds RPD alert limit



TABLE C-2

**FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - SOIL FIELD DUPLICATE SAMPLES**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVENGERS**

SAMPLE LOCATIONS		BH-43	RDL	DUP-43 FIELD DUPLICATE BH-43	RDL	RPD	BH-44	RDL	DUP-44 FIELD DUPLICATE BH-44	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
Maxxam Sample ID		FS2968		FS2969			FS2974		FS2975			
Depth (mbgs)		1.8-2.4		1.8-2.4			1.8-2.4		1.8-2.4			
Date Sampled (yyyy/mm/dd)		2013/02/22		2013/02/22			2013/02/22		2013/02/22			
<b>PARAMETERS</b>												
Benzene		0.97	0.005	2.5	0.005	88%	6.5	0.005	5.3	0.005	20%	100
Toluene		2.2	0.02	4.9	0.02	76%	28	0.02	20	0.02	33%	100
Ethylbenzene		20	0.01	22	0.01	10%	19	0.01	15	0.01	24%	100
Total Xylenes		77	0.04	100	0.04	26%	110	0.04	81	0.04	30%	100
Petroleum Hydrocarbons F1 (C6 - C10) <sup>b</sup>		840	10	550	10	42%	550	10	460	10	18%	100
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>c</sup>		260	10	82	10	<b>104%</b>	130	10	170	10	27%	100
Petroleum Hydrocarbons F3 (>C16 - C34) <sup>d</sup>		17	10	24	10	NC	<10	10	<10	10	NC	100
Petroleum Hydrocarbons F4 (>C34-C50)		<10	10	<10	10	NC	<10	10	<10	10	NC	100
1,2-Dibromoethane		<0.025	0.025	<0.025	0.025	NC	<0.025	0.025	<0.025	0.025	NC	100
1,2-Dichloroethane		<0.025	0.025	<0.025	0.025	NC	<0.025	0.025	<0.025	0.025	NC	100
Lead		15.5	0.1	13.7	0.1	12%	6.87	0.1	6.75	0.1	2%	100

a - Alert limits used for field duplicate samples

b - BTEX have been subtracted from the fraction

c - Naphthalene has not been subtracted from the fraction

d - PAHs have not been subtracted from the fraction

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

mbgs - metres below ground surface

Results for all parameters are reported in milligrams per kilograms (mg/kg) on a dry weight basis

**BOLD** - Exceeds RPD alert limit



TABLE C-3

**FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES**  
**PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS**

SAMPLE LOCATIONS		BH5	RDL	DUP-2 FIELD DUPLICATE BH5	RDL	RPD	BH5	RDL	DUP-1 FIELD DUPLICATE BH5	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
Maxxam Sample ID												
Date Sampled (yyyy/mm/dd)												
PARAMETERS												
Benzene		0.440	0.0004	0.360	0.0004	20%	0.76	0.0004	0.71	0.0004	7%	80
Toluene		0.100	0.0004	0.081	0.0004	21%	0.12	0.0004	0.12	0.0004	0%	80
Ethylbenzene		2.000	0.004	1.800	0.004	11%	2.1	0.004	2.1	0.004	0%	80
Total Xylenes		11.000	0.008	9.800	0.008	12%	11	0.008	12	0.008	9%	80
Petroleum Hydrocarbons F1 (C6 - C10) <sup>b</sup>		8.800	1	13.000	1	39%	5.3	0.3	2.5	0.3	72%	80
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>c</sup>		2.1	0.1	2.1	0.1	0%	2.9	0.15	2.9	0.15	0%	80
1,2-Dibromoethane		<0.00050	0.0005	<0.00050	0.0005	NC	<0.00020	0.0002	<0.00020	0.0002	NC	80
1,2-Dichloroethane		0.0019	0.0005	0.0015	0.0005	NC	<0.031	0.031	<0.027	0.027	NC	80
Dissolved Lead (Pb)		0.00059	0.0002	0.00049	0.0002	NC	0.00061	0.0002	0.00061	0.0002	NC	50

a - Alert limits used for field duplicate samples

b - BTEX have been subtracted from the fraction

c - Naphthalene has not been subtracted from the fraction

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

Results for all parameters are reported in milligrams per litre (mg/L)

**BOLD** - Exceeds RPD alert limit



TABLE C-3

**FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES  
PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS**

SAMPLE LOCATIONS		BH7	RDL	DUP-1 FIELD DUPLICATE BH7	RDL	RPD	BH7	RDL	DUP-2 FIELD DUPLICATE BH7	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
Maxxam Sample ID		DR8264		DR8265			FW9549		FW9550			
Date Sampled (yyyy/mm/dd)		2012/06/13		2012/06/13			2013/03/15		2013/03/15			
<b>PARAMETERS</b>												
Benzene		4.800	0.004	4.900	0.004	2%	3.6	0.004	3.4	0.004	6%	80
Toluene		0.200	0.0004	0.230	0.0004	14%	0.069	0.0004	0.072	0.0004	4%	80
Ethylbenzene		0.290	0.0004	0.290	0.0004	0%	0.56	0.0004	0.58	0.0004	4%	80
Total Xylenes		2.300	0.0008	2.400	0.0008	4%	2.0	0.0008	2.1	0.0008	5%	80
Petroleum Hydrocarbons F1 (C6 - C10) <sup>b</sup>		4.000	1	6.100	1	NC	3.6	0.3	3.8	0.3	5%	80
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>c</sup>		4.3	0.1	3.1	0.1	32%	2.7	0.15	2.9	0.15	7%	80
1,2-Dibromomethane		<0.00050	0.0005	<0.00050	0.0005	NC	<0.00020	0.0002	<0.00020	0.0002	NC	80
1,2-Dichloroethane		0.024	0.0005	0.027	0.0005	12%	<0.086	0.086	<0.00050	0.0005	NC	80
Dissolved Lead (Pb)		<0.00020	0.0002	<0.00020	0.0002	NC	<0.00020	0.0002	<0.00020	0.0002	NC	50

a - Alert limits used for field duplicate samples

b - BTEX have been subtracted from the fraction

c - Naphthalene has not been subtracted from the fraction

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

Results for all parameters are reported in milligrams per litre (mg/L)

**BOLD** - Exceeds RPD alert limit



TABLE C-3

FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES  
PETROLEUM HYDROCARBON PARAMETERS, LEAD AND LEAD SCAVANGERS

SAMPLE LOCATIONS		BH-21	RDL	DUP-1 FIELD DUPLICATE BH-21	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
Maxxam Sample ID		DZ4280		DZ4281			
Date Sampled (yyyy/mm/dd)		2012/07/19		2012/07/19			
PARAMETERS							
Benzene		0.0008	0.0004	0.0015	0.0004	NC	80
Toluene		<0.0004	0.0004	0.0006	0.0004	NC	80
Ethylbenzene		0.0013	0.0004	0.0044	0.0004	NC	80
Total Xylenes		<0.0008	0.0008	<0.0008	0.0008	NC	80
Petroleum Hydrocarbons F1 (C6 - C10) <sup>b</sup>		<0.3	0.3	<0.3	0.3	NC	80
Petroleum Hydrocarbons F2 (>C10 - C16) <sup>c</sup>		0.25	0.15	<0.15	0.15	NC	80
1,2-Dibromoethane		<0.00020	0.0002	<0.00020	0.0002	NC	80
1,2-Dichloroethane		<0.0018	0.0018	<0.0028	0.0028	NC	80
Dissolved Lead (Pb)		<0.00020	0.0002	<0.00020	0.0002	NC	50

a - Alert limits used for field duplicate samples

b - BTEX have been subtracted from the fraction

c - Naphthalene has not been subtracted from the fraction

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

Results for all parameters are reported in milligrams per litre (mg/L)

**BOLD** - Exceeds RPD alert limit



TABLE C-4

**FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES  
SELECTED POLYCYCLIC AROMATIC HYDROCARBONS**

SAMPLE LOCATIONS		BH-21	RDL	DUP-1 FIELD DUPLICATE	RDL	RPD	RPD ALERT LIMITS (%) <sup>a</sup>
Maxxam Sample ID		DZ4280		BH-21			
Date Sampled (yyyy/mm/dd)		2012/07/19		DZ4281			
<b>PARAMETERS</b>							
Acenaphthene		<0.000080	0.00008	<0.00016	0.00016	NC	80
Anthracene		<0.000010	0.00001	<0.000010	0.00001	NC	80
Benzo(a)anthracene		<0.000010	0.00001	<0.000010	0.00001	NC	80
Benzo(a)Pyrene		<0.00000090	0.000009	<0.0000090	0.000009	NC	80
Fluoranthene		<0.000020	0.00002	<0.000020	0.00002	NC	80
Fluorene		<0.000050	0.00005	<0.000078	0.000078	NC	80
Naphthalene		<0.000030	0.00003	<0.000046	0.000046	NC	80
Phenanthrene		<0.000050	0.00005	<0.000050	0.00005	NC	80
Pyrene		<0.000020	0.00002	<0.000020	0.00002	NC	80

a - Alert limits used for field duplicate samples

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

Results for all parameters are reported in milligrams per litre (mg/L)

**BOLD - Exceeds RPD alert limit**



TABLE C-5

**FIELD RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES  
SELECTED METALS AND SELECTED GLYCOLS**

<b>SAMPLE LOCATIONS</b>		<b>BH-21</b>	<b>RDL</b>	<b>DUP-1 FIELD DUPLICATE</b>	<b>RDL</b>	<b>RPD</b>	<b>RPD ALERT LIMITS (%)<sup>a</sup></b>
<b>Maxxam Sample ID</b>		<b>DZ4280</b>		<b>BH-21</b>			
<b>Date Sampled (yyyy/mm/dd)</b>		<b>2012/07/19</b>		<b>DZ4281</b>			
<b>PARAMETERS</b>				<b>2012/07/19</b>			
Dissolved Arsenic (As)		0.00204	0.0001	0.00250	0.0001	20%	50
Dissolved Barium (Ba)		0.155	0.001	0.214	0.001	32%	50
Dissolved Chromium (Cr)		<0.0010	0.001	<0.0010	0.001	NC	50
Dissolved Copper (Cu)		0.00353	0.0002	0.00267	0.0002	28%	50
Dissolved Zinc (Zn)		0.0079	0.005	0.0062	0.005	NC	50
Ethylene Glycol		<10	10	<10	10	NC	80
Propylene Glycol		<10	10	<10	10	NC	80

a - Alert limits used for field duplicate samples

NC - Not calculated

RDL - Reportable Detection Limit

RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)

Results for all parameters are reported in milligrams per litre (mg/L)

**BOLD** - Exceeds RPD alert limit



TABLE C-6

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA  
PETROLEUM HYDROCARBON PARAMETERS

SAMPLE LOCATIONS		RDL	FIELD BLANK-1	EXCEEDS ALERT LIMIT (yes/no)	FIELD BLANK-1	EXCEEDS ALERT LIMIT (yes/no)
Maxxam Sample ID						
Date Sampled (yyyy/mm/dd)						
PARAMETERS						
Benzene		0.0004	<0.00040	No	<0.0004	No
Toluene		0.0004	<0.00040	No	<0.0004	No
Ethylbenzene		0.0004	<0.00040	No	<0.0004	No
Total Xylenes		0.0008	<0.00080	No	<0.0008	No
Petroleum Hydrocarbons F1 (C6 - C10) <sup>a</sup>		0.1	<0.100	No	<0.3	No

a - BTEX have been subtracted from the fraction

RDL - Reportable detection limit

Results for all parameters are reported in milligrams per litre (mg/L)

**BOLD** - Exceeds alert limit

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX;

2x RDL for petroleum hydrocarbons fractions F1



GROUNDWATER FIELD BLANK AND TRIP BLANK DATA  
PETROLEUM HYDROCARBON PARAMETERS

SAMPLE LOCATIONS	RDL	TRIP BLANK-1	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK-1	EXCEEDS ALERT LIMIT (yes/no)
Maxxam Sample ID		DR8269		FW9554	
Date Sampled (yyyy/mm/dd)		2012/06/13		2013/03/15	
PARAMETERS					
Benzene	0.0004	<0.00040	No	<0.0004	No
Toluene	0.0004	<0.00040	No	<0.0004	No
Ethylbenzene	0.0004	<0.00040	No	<0.0004	No
Total Xylenes	0.0008	<0.00080	No	<0.0008	No
Petroleum Hydrocarbons F1 (C6 - C10) <sup>a</sup>	0.1	<0.100	No	<0.3	No

a - BTEX have been subtracted from the fraction

RDL - Reportable detection limit

Results for all parameters are reported in milligrams per litre (mg/L)

**BOLD** - Exceeds alert limit

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX;

2x RDL for petroleum hydrocarbons fractions F1