SUPPLEMENTARY PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
AREA TO BE EXPROPRIATED
1545 WOODROFFE AVENUE
OTTAWA, ONTARIO

Prepared for:

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April 9, 2015

SUMMARY

SITE	**1545 Woodroffe, Ottawa, Ontario**
Type of Facility	Esso retail fuel outlet area to be expropriated
Municipal Zoning	Main Parcel: GM15H(9.5) – General Mixed – Use Zone, subzone 15, height restriction of 9.5 m
Adjacent Land Use	Residential
Aquifer Usage in 250 m radius	None
Reference Standards	MOECC (2011) Table 3 (non-potable) site condition standards (medium and fine textured soils, industrial/commercial/community property use)
Type of Organic Vapour Meter Used	RKI EAGLE
Date(s) of Soil Sampling	December 9 to 13, 2014
Date(s) of Groundwater Monitoring	December 15, 2014
Date(s) of Groundwater Sampling	December 15, 2014
Number of Test Pits Advanced	0
Number of Boreholes Drilled	4
Number of Wells Installed in Boreholes	3

Summary of Boreholes Drilled:

Description	BH-301	BH-302	BH-309	BH-311
Well Installed	Yes	Yes	Yes	No
Depth (mbgs)	6.5	6.5	6.2	6.7
Dominant Soil Type	Silt overlying sand	Silt and sand layers	Gravel overlying clay and sand	Silt overlying clay and sand
Depth to Groundwater (mbgs)	4.95	4.91	4.96	Not Applicable
Screened Interval (mbgs)	3.4-6.4	3.4-6.4	3.0-6.1	Not Applicable
Free Product Thickness (mm)	Not Detected	Not Detected	Not Detected	Not Applicable
Exceeded Soil Standards	No	No	No	No
Exceeded Groundwater Standards	No	No	No	Not Applicable
Vertical Soil Impact Delineation Achieved	Not Applicable	Not Applicable	Not Applicable	Not Applicable

Notes:
mbgs – metres below ground surface
mm – millimetres
MOECC – Ontario Ministry of the Environment and Climate Change

TABLE OF CONTENTS

LIST OF DRAWINGS

LIST OF TABLES

LIST OF APPENDICES

1.0 INTRODUCTION

Parsons Canada Ltd. (Parsons) was retained by Imperial Oil to conduct a Supplementary Phase Two Environmental Site Assessment (ESA) at the area planned for expropriation at the current operating Esso retail fuel outlet located at 1545 Woodroffe Avenue, in Ottawa, Ontario (the Site).

The purpose of this assessment was to assess areas of potential contaminants of concern in the soil and groundwater on-site. The fieldwork was conducted in December 2014.

1.1 BACKGROUND

The Site location is shown on Drawing No. 1 and a drawing of the borehole and monitoring well locations are presented on Drawing No. 2.

According to the City of Ottawa, the main parcel of the Site is zoned as general mixed use (GM15H(9.5)).

1.2 SCOPE OF WORK

The scope of work was to perform the following activities:

- Advance four boreholes (BH-301, BH-302, BH-309 and BH-311) and install monitoring wells in three of the boreholes, specifically, BH-301, BH-302 and BH-309.

- Collect soil samples from each borehole for laboratory analysis of some or all of the following parameters: benzene, toluene, ethylbenzene, xylenes (BTEX); petroleum hydrocarbon (PHC) fractions F1 to F4; hexane; lead; polycyclic aromatic hydrocarbons (PAHs); and selected metals (specifically arsenic, barium, copper, chromium, and zinc).

- Monitor all of the new wells for subsurface vapour concentrations, water levels and the presence or absence of light non-aqueous phase liquid hydrocarbons (free product).

- Collect groundwater samples from all of the new monitoring wells for laboratory analysis of some or all of the following parameters: BTEX; PHC fractions F1 to F4; hexane; lead; selected VOCs, (specifically 1,2-dichloroethane, ethylene dibromide, and methyl t-butyl ether), and selected metals, as noted above.

- Prepare a report that describes the field activities and the results of the Site assessment.

2.0 FIELD ACTIVITIES

Prior to proceeding with the Supplementary Phase Two ESA, various utility representatives and a private utility locating contractor identified underground utility locations.

All field procedures were conducted in accordance with the Ontario Ministry of the Environment and Climate Change (MOECC) *Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04* (as amended), the MOECC *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act* (as amended), and standard industry practice.

2.1 BOREHOLE DAYLIGHTING AND DRILLING

Veolia Environmental Services Industrial Services Inc. was retained by Parsons to advance all of the boreholes by daylighting between December 9 and 12, 2014 to a depth of 2.4 m below ground surface (mbgs) using a water lance vacuum excavator. The slurry was subsequently transported off-site for disposal to Veolia Environmental Industrial Services Inc. in Ottawa, Ontario, an MOECC approved waste receiver.

George Downing Estate Drilling Ltd. was retained by Parsons to further advance boreholes BH-301, BH-302, BH-309 and BH-311 using either a CME 75 truck-mounted drill rig or a geoprobe drill rig that was equipped with hollow stem augers, between December 9 and 13, 2014.

The borehole locations are shown on Drawing No. 2. The boreholes were advanced to a maximum depth of 6.7 mbgs.

2.2 MONITORING WELL INSTALLATION

A monitoring well, consisting of a 51 mm diameter polyvinyl chloride (PVC) 10 slot screen, measuring approximately 3.0 m in length, and an un-slotted riser, was installed in three of the advanced boreholes (BH-301, BH-302 and BH-309). 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, then with hydrated bentonite pellets to approximately 0.23 mbgs, and filled with #2 silica sand to approximately 0.15 mbgs. The monitoring well was finished with a flush-mount casing set in concrete grout to protect the well from damage.

Following installation of the monitoring wells, the wells were developed by purging the water until it was observed to be reasonably free of turbidity or until the wells became dry. Purge water was subsequently transported off-site by Tomlinson Environmental Services Ltd., a MOECC approved of waste receiver, in Ottawa Ontario.

Monitoring well installation details are presented on the borehole logs in Appendix A and in Table 1. The MOECC well record is presented in Appendix B.

2.3 SOIL SAMPLING

Soil sampling was conducted at regular depth intervals in the boreholes using a stainless steel spoon sampling device and a split-spoon sampler or continuous sampler. The samples were collected from each device using a clean stainless steel trowel and nitrile gloves and placed in laboratory supplied jars. The sampling devices were washed prior to collection of each soil sample. Specifically, any excess soil was brushed off prior to scrubbing the sampling device with soapy water, rinsing with distilled water, and allowing it to air dry. Each soil sample was immediately split and one portion of the sample was sealed in a clean plastic bag for screening, which included determining textural description, visual physical evidence of impact (e.g., staining or free product), and measurement of the sample combustible headspace vapour concentration (soil vapour concentration). The remainder of the sample was promptly placed in containers supplied by the laboratory and stored in coolers with ice for possible analysis.

The soil samples submitted for analysis of BTEX, PHC fraction F1 and hexane were each collected in two septum topped 40 mL vials pre-charged with 10 mL of methanol. Approximately 5 g of soil was collected using a clean disposable syringe and nitrile gloves and placed in each methanol filled sampling vial. Samples for the remaining parameters were collected in either 60 mL or 120 mL glass jars with Teflon lined lids.

The soil vapour concentrations were measured 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.

The calibration of the gas detector was checked daily in the field. The procedure involved checking the instrument response against a nominal 43% lower explosive limit (% LEL) concentration standard of n-hexane, delivered at the operational flow rate of the instrument. If the instrument reading was within ±10% of the gas standard value, then the instrument was deemed to be calibrated. However, if the reading was greater than ±10% of the gas standard value, then the instrument calibration was adjusted in the field until the instrument reading was within ±10% of the gas standard.

Soil sampling details are presented on the borehole logs in Appendix A.

Two samples from each borehole were selected for laboratory analyses, based on sample location relative to the apparent water table, visual observations and/or field screening results. In general, one worst case soil sample, based on field screening results, and one deeper sample from the first apparent non-impacted zone, were submitted for laboratory analysis. The samples were stored in coolers with ice.

2.4 GROUNDWATER MONITORING

On December 15, 2014, all of the newly installed monitoring wells were monitored for subsurface vapour concentrations, water levels, and the presence or absence of free product.

The wells were generally monitored in order of least impacted to most impacted (based on soil field screening and soil analytical results).

Immediately after removing the well cap, the maximum subsurface vapour concentrations in the wells were measured using the combustible gas detector that was operated in methane elimination mode. This was done by inserting the collection tube of the gas detector into the un-slotted riser pipes and recording the peak instrument readings.

The depth to the water table and presence or absence of free product in the wells were determined with a Heron H.OIL electronic interface probe that was cleaned with soapy water, then rinsed with distilled water, between monitoring wells.

If a measurable thickness of free product is observed in any well, a groundwater sample is not collected from that well. However, a groundwater sample is collected from a well if a petroleum sheen is observed.

2.5 GROUNDWATER SAMPLING

Groundwater samples were collected from all accessible monitoring wells on December 15, 2014.

The wells were generally sampled in order of least impacted to most impacted (based on soil screening results).

The wells were sampled using a low-flow purging methodology to reduce sample turbidity. Low-flow purging was completed using a variable-flow peristaltic pump to remove groundwater from the mid-point of the monitoring well screened zone.

The pump was connected to a flow-through cell equipped with a multimeter (Horiba U-22) that measured pH, temperature, electrical conductivity, dissolved oxygen (DO), reduction oxidation potential (REDOX), and turbidity. During low-flow purging the water level in each well was continually monitored, and the purging rate was adjusted such that the overall drawdown from the static groundwater level did not exceed approximately 10 cm. The purging rates ranged from approximately 100 mL/minute to 120 mL/minute.

The groundwater sample was collected when the pH, temperature, electrical conductivity, DO, REDOX, and turbidity measurements generally stabilized as noted below, over three consecutive readings, taken at a minimum rate of at least one per every flow-through cell volume.

Temperature - ± 3%
pH - ± 0.1 pH Units
Electrical Conductivity - ± 3%
DO - ± 10%
REDOX - ± 10 mV
Turbidity - ± 10%

The pump and flow-through cell were connected to the wells with polyethylene and silicone tubing that were individually dedicated to each monitoring well. All groundwater samples were collected using the dedicated tubing.

Samples for analysis of BTEX, PHC fraction F1, hexane, and selected VOCs were collected in septum topped 40 mL clear glass vials (with zero headspace), pre-charged with sodium bisulphate preservative. Samples for analysis of PHC fractions F2 to F4 were collected in 500 mL amber glass bottles pre-charged with sodium bisulphate. Samples for analysis of PHC fraction F4 gravimetric were collected in 1 L amber glass bottles pre-charged with hydrochloric acid preservative. Samples for analysis of metals were field filtered using 0.45 µm groundwater filters and collected in 250 mL HDPE plastic bottles pre-charged with nitric acid preservative. All sample bottles were supplied by the laboratory. The groundwater samples were placed in coolers with ice immediately after they were collected.

2.6 SURVEYING

On December 16, 2014 all of the newly installed monitoring wells were surveyed vertically relative to a local benchmark. The assigned elevation was 100.00 m. The benchmark location is shown on Drawing No. 2 and described in Table 1.

2.7 QUALITY ASSURANCE AND QUALITY CONTROL

A quality assurance and quality control (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.

Field soil QA/QC samples consisted of one field duplicate sample for analysis of BTEX, PHC fractions F1 to F4, hexane, lead, PAHs, and selected metals. Additional field soil QA/QC samples consisted of one trip blank methanol sample for analysis of BTEX PHC fraction F1, full suite of VOCs, and one field blank silica sand sample for PAHs.

Field groundwater QA/QC samples consisted of one field duplicate sample for analysis of BTEX, PHC fractions F1 to F4, hexane, lead, selected VOCs, and selected metals. Additional field groundwater QA/QC consisted of one field blank and one trip blank for analysis of BTEX, PHC

fractions F1 to F4, hexane, lead, selected VOCs (specifically, dichlorodifluoromethane, 1,1-dichloroethane, 1,2-dichloroethane, 1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, ethylene dibromide, methyl t-butyl ether, tetrachloroethylene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, trichloroethylene, trichlorofluoromethane, and vinyl chloride), and selected metals.

2.8 LABORATORY ANALYSES

The soil and groundwater samples collected from the boreholes were submitted for laboratory analyses of some or all of the following parameters: BTEX; PHC fractions F1 to F4; hexane; lead; selected VOCs; full suites of PAHs; and selected metals. A total of eight soil samples and four groundwater samples, excluding QA/QC samples, were submitted for analysis.

The samples were submitted to the Maxxam Analytics Inc. laboratory in Mississauga, Ontario. Maxxam's Mississauga laboratory is accredited by the Standards Council of Canada. Analytical methods used by the laboratory are referenced in the certificates of analysis presented in Appendix C. Analytical procedures were conducted in accordance with the MOECC *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act* (as amended).

3.0 FINDINGS

3.1 FIELD OBSERVATIONS

3.1.1 STRATIGRAPHY

The stratigraphic profile encountered with increasing depth in the boreholes generally consisted of gravel and/or silt to depths of approximately 3.0 mbgs; and silt, sand and/or clay layers to the maximum depth of assessment of 6.7 mbgs. Detailed stratigraphic descriptions are presented on the borehole logs in Appendix A.

3.1.2 VAPOUR CONCENTRATIONS

Soil vapour concentrations measured in the samples recovered from the boreholes are presented on the logs in Appendix A. The soil vapour concentrations ranged from not detected (<5 ppmv) to 25 ppm.

Subsurface vapour concentrations measured in the monitoring wells on December 15, 2014 are presented in Table 1. As indicated, the subsurface vapour concentrations ranged from 140ppmv to 220 ppmv.

3.1.3 GROUNDWATER

On December 15, 2014, the depth to groundwater ranged from 4.91 mbgs to 4.96 mbgs. Due to the spatial distribution of the monitoring wells, the groundwater potentiometric surface elevations were not contoured.

The groundwater depths, calculated potentiometric elevations, and the measured product thicknesses are presented in Table 1. As indicated, measurable free product or a petroleum sheen (i.e. <1 mm) was not detected in any monitoring well.

3.2 SELECTED SITE CONDITION STANDARDS

For this Site, the approach to use the amended (2011) Ontario Regulation 153/04 generic site condition standards was selected. The rationale for selection of the applicable MOECC 2011 standards is described below.

3.2.1 SITE SENSITIVITY

The Site would not be considered environmentally sensitive, based on the following:

- No part of the Site is on or within 30 m of an area of natural significance;
- pH values for surface soil samples from previous assessments were not less than 5 or greater than 9; and,
- pH values for subsurface soil samples from previous assessments were not less than 5 or greater than 11.

3.2.2 GROUNDWATER CONDITION

The groundwater condition is non-potable based on the following:

- The Site and all properties within 250 m of the Site boundaries are supplied by a municipal water supply system.
- The Site is not in a municipally designated groundwater protection area.

3.2.3 SHALLOW SOIL PROPERTY

The Site would not be considered a shallow soil property, based on the following:

- The available borehole logs and geologic records indicate that less than one-third of the area of the Site consists of soil less than 2 m in depth beneath the soil surface, excluding any non-soil surface treatment greater than 0.5 m thick.

3.2.4 NEARBY WATER BODY

A water body, in whole or in part, is not on the Site or within 30 m of the Site boundaries.

3.2.5 SOIL TEXTURE

The applicable soil texture for the Site is based on the following:

- Medium to fine textured soils, as determined by the borehole logs, geological maps and the historical grain size analyses, which collectively indicated that more than two-thirds of the soil at the property, measured by volume, consisted of 50 percent or more of particles that are smaller than 75 µm in diameter.

3.2.6 PROPERTY USE

The applicable property use is as follows:

- Industrial/commercial/community property use, as the Site is currently used for commercial purposes and the current zoning of the Site is general mixed use.

3.2.7 FULL DEPTH OR STRATIFIED SITE CONDITION STANDARDS

The full depth rather than the stratified generic site condition standards were selected.

3.2.8 SELECTED SITE CONDITION STANDARDS

Based on the above discussion, the following site condition standards were selected for application at the Site:

- Full depth generic site condition standards in a non-potable groundwater condition (MOECC 2011 Table 3) for industrial/commercial/community property use and medium and fine textured soils.

3.3 SOIL ANALYTICAL RESULTS

The soil analytical results for BTEX, PHC fractions F1 to F4, hexane, lead, PAHs and selected metals are presented and compared to the applicable MOECC Table 3 standards in Tables 2 to 4. The BTEX, PHC fractions F1 to F4, hexane and lead results are also shown on Drawing No. 3. All of the results satisfied the applicable standards.

3.4 GROUNDWATER ANALYTICAL RESULTS

The groundwater analytical results for BTEX, PHC fractions F1 to F4, hexane, lead, selected VOCs, and selected metals are presented and compared to the applicable MOECC Table 3

standards in Tables 5 to 7. The BTEX, PHC fractions F1 to F4, hexane and lead results are also shown on Drawing No. 4. All of the results satisfied the applicable standards.

3.5 QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

The results of the laboratory QA/QC analyses are presented in the laboratory certificates of analysis in Appendix D. The analyses included instrument and extraction surrogate recoveries, method blanks, matrix duplicates, matrix spikes, and laboratory control samples. No laboratory QA/QC issues were identified that call into question the reliability of the laboratory data reported.

The results of the field QA/QC sample analyses are presented in the tables in Appendix D and included trip blank, field blank, and field duplicate samples. No field QA/QC issues were identified that call into question the reliability of the laboratory data reported.

The laboratory and field QA/QC discussions are presented in Appendix D. No QA/QC issues were identified that would materially affect the overall conclusions for the results presented in this report.

4.0 SUMMARY AND CONCLUSIONS

During this Supplementary Phase Two ESA, four boreholes were advanced and a monitoring well was installed in three of the boreholes. Soil and groundwater samples were submitted for laboratory analysis of some or all of the following parameters: BTEX, PHC fractions F1 to F4, hexane, lead, selected VOCs, PAHs, and selected metals.

The results of the assessment are summarized as follows:

1. The stratigraphic profile encountered with increasing depth in the boreholes generally consisted of gravel and/or silt to depths of approximately 3.0 mbgs; and silt, sand and/or clay layers to the maximum depth of assessment of 6.7 mbgs.

2. On December 15, 2014, the depth to groundwater ranged from 4.91 mbgs to 4.96 mbgs.

3. Free product or a petroleum sheen was not detected during monitoring or sampling of the wells.

4. The MOECC (2011) Table 3 (non-potable) site condition standards for medium and fine textured soils and industrial/commercial/community property use were selected for comparison with the soil and groundwater analytical results.

5. All soil sample analytical results satisfied the applicable Table 3 standards for BTEX, PHC fractions F1 to F4, hexane, lead, PAHs and selected metals.

6. All groundwater sample analytical results satisfied the applicable Table 3 standards for BTEX, PHC fractions F1 to F4, hexane, lead, selected VOCs, and selected metals.

5.0 LIMITATION OF LIABILITY, SCOPE OF REPORT AND THIRD PARTY RELIANCE

This report has been prepared and the work referred to in this report has been undertaken by Parsons Canada Ltd. (Parsons) for Imperial Oil. It is intended for the sole and exclusive use of Imperial Oil, its affiliated companies and partners and their respective insurers, agents, employees and advisors (collectively, "Imperial Oil"). Any use, reliance on or decision made by any person other than Imperial Oil based on this report is the sole responsibility of such other person. Imperial Oil and Parsons 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 Parsons with respect to this report and any conclusions or recommendations made in this report reflect Parsons' judgment based on the Site conditions observed at the time of the Site inspection on the date(s) set out 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 the 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 Imperial Oil, 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 Parsons. Nothing in this report is intended to constitute or provide a legal opinion.

We trust the foregoing information is satisfactory for your requirements.

PARSONS CANADA LTD.

Holly Losignore, B.Sc.

John Halstead, M.Sc., P.Geo.

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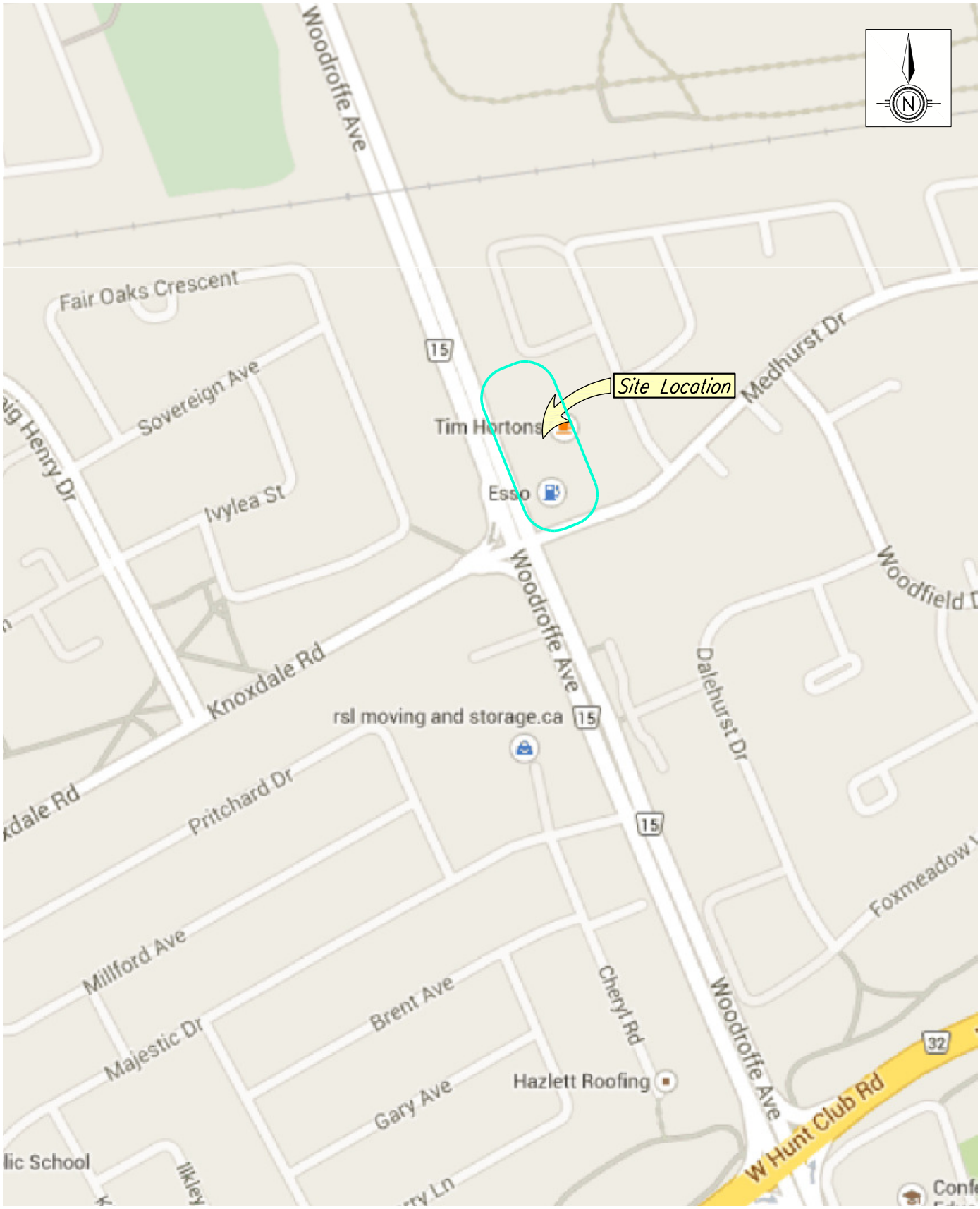

REFERENCE: Google Maps, 2014

0 50 100 150 200 250m

Scale 1:5000

Site Location Map

Imperial Oil
1545 Woodroffe Ave, Ottawa, Ontario

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PARSONS		Drawing No.: 1

Undeveloped

Residential

Woodroffe Avenue

Concrete Sidewalk

BH-311

BH-309

BH-301

BH-302

Residential

Medhurst Drive

Residential

0 5 10 15 20 25m

Original Scale 1:500

LEGEND

- Property Line, Surveyed 2006
- Property Boundary Pin
- Fence
- Transformer (Pad Mounted)
- Monitoring Well
- Borehole
- 2010/12/31 Date Format: yyyy/mm/dd
- Expropriation Area

NOTE: All features are approximate.

REFERENCE: Clark Wilkinson Alton survey dated 2006/07/21.

Borehole and Monitoring Well Location Plan

Imperial Oil
1545 Woodroffe Avenue, Ottawa, Ontario

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PARSONS		Drawing No.: 2

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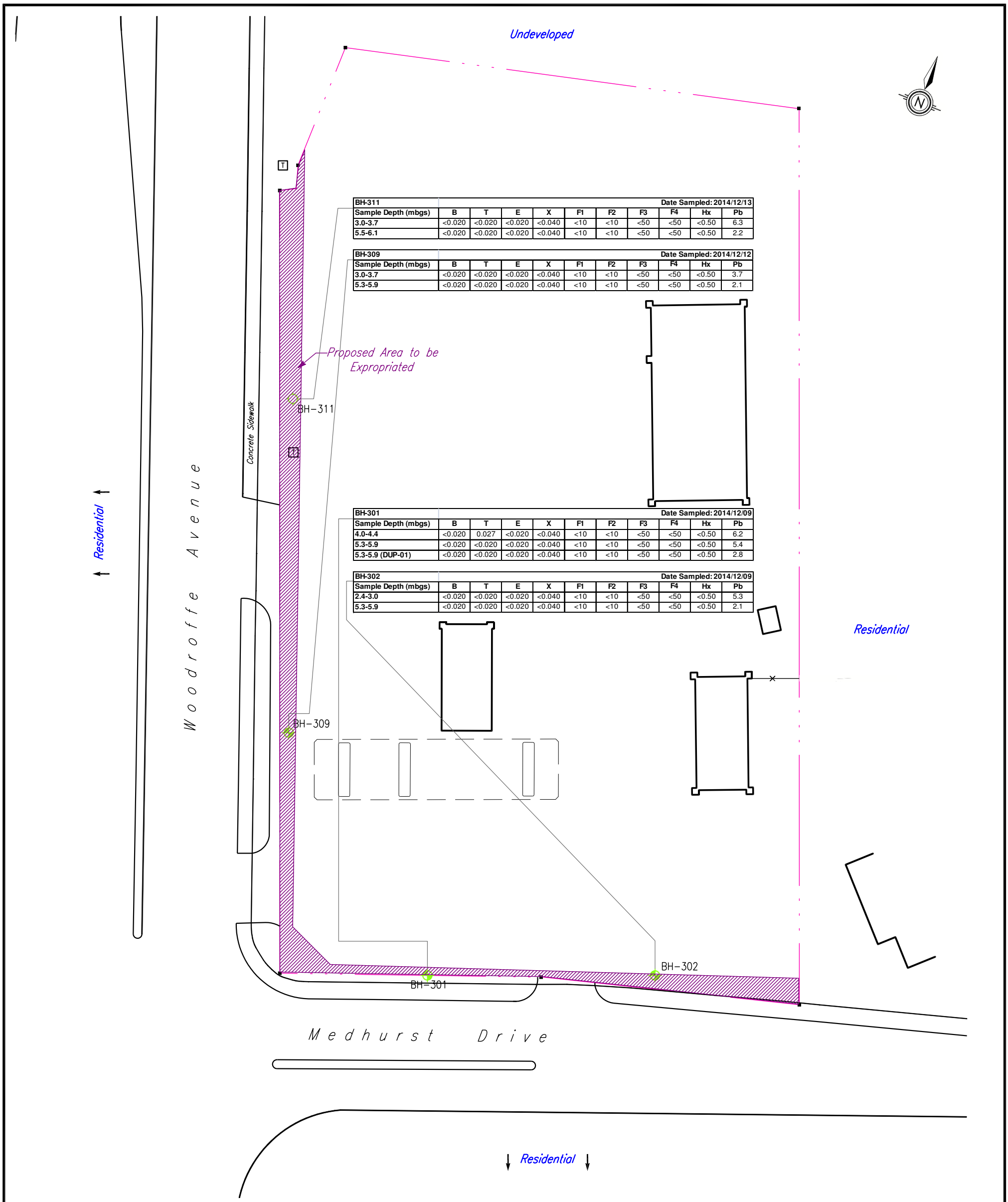

BH-311										Date Sampled: 2014/12/13
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	Hx	Pb
3.0-3.7	<0.020	<0.020	<0.020	<0.040	<10	<10	<50	<50	<0.50	6.3
5.5-6.1	<0.020	<0.020	<0.020	<0.040	<10	<10	<50	<50	<0.50	2.2

BH-309										Date Sampled: 2014/12/12
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	Hx	Pb
3.0-3.7	<0.020	<0.020	<0.020	<0.040	<10	<10	<50	<50	<0.50	3.7
5.3-5.9	<0.020	<0.020	<0.020	<0.040	<10	<10	<50	<50	<0.50	2.1

BH-301										Date Sampled: 2014/12/09
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	Hx	Pb
4.0-4.4	<0.020	0.027	<0.020	<0.040	<10	<10	<50	<50	<0.50	6.2
5.3-5.9	<0.020	<0.020	<0.020	<0.040	<10	<10	<50	<50	<0.50	5.4
5.3-5.9 (DUP-01)	<0.020	<0.020	<0.020	<0.040	<10	<10	<50	<50	<0.50	2.8

BH-302										Date Sampled: 2014/12/09
Sample Depth (mbgs)	B	T	E	X	F1	F2	F3	F4	Hx	Pb
2.4-3.0	<0.020	<0.020	<0.020	<0.040	<10	<10	<50	<50	<0.50	5.3
5.3-5.9	<0.020	<0.020	<0.020	<0.040	<10	<10	<50	<50	<0.50	2.1

Standards

Parameters	B	T	E	X	F1	F2	F3	F4	Hx	Pb
Standard* µg/g	0.4	78	19	30	65	250	2500	6600	88	120

B-Benzene **T**-Toluene **E**-Ethylbenzene **X**-Total Xylenes **F1-F4**-CCME CWS Petroleum Hydrocarbon Fractions **Hx**-Hexane **Pb**-Lead

* **MOECC Table 3 (2011)** Industrial/commercial/community, medium and fine textured soils

NV No Value

NOTE: All features are approximate.

REFERENCE: Clark Wilkinson Alton survey dated 2006/07/21.

0 5 10 15 20 25m

Original Scale 1:500

LEGEND

- Property Line, Surveyed 2006
- Property Boundary Pin
- Fence
- Transformer (Pad Mounted)
- Monitoring Well
- Borehole
- 2010/12/31 Date Format: yyyy/mm/dd
- mbgs Metres Below Ground Surface
- µg/g Micrograms Per Gram, dry weight basis

Analytical Results

- All Results Reported in µg/g
- Location Where All Soil Samples Met Standards for All Parameters that Were Analyzed, Shown in Green
- Location Where At Least One Soil Sample Exceeded Standards for At Least One Parameter that Was Analyzed, Shown in Red
- 1234 Exceedances of Standards, Shown in Red and Bold
- DUP Field Duplicate Sample
- – Not Analyzed
- < Result Less Than Reportable Detection Limit

Soil Analytical Results
Petroleum Hydrocarbon Parameters, Hexane, and Lead

Imperial Oil

1545 Woodroffe Avenue, Ottawa, Ontario

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PARSONS		Drawing No.: 3

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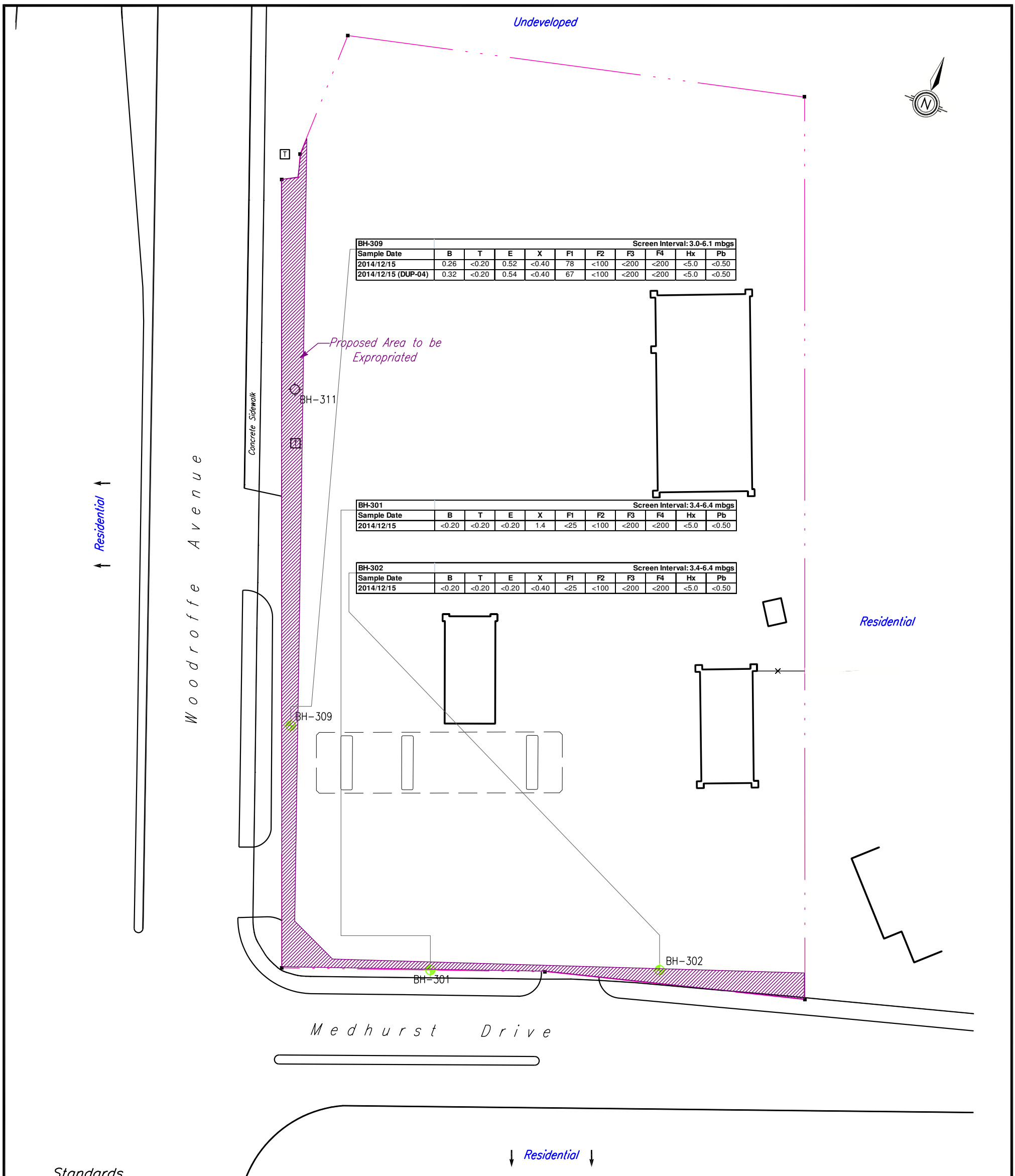


BH-309									Screen Interval: 3.0-6.1 mbgs	
Sample Date	B	T	E	X	F1	F2	F3	F4	Hx	Pb
2014/12/15	0.26	<0.20	0.52	<0.40	78	<100	<200	<200	<5.0	<0.50
2014/12/15 (DUP-04)	0.32	<0.20	0.54	<0.40	67	<100	<200	<200	<5.0	<0.50

BH-301									Screen Interval: 3.4-6.4 mbgs	
Sample Date	B	T	E	X	F1	F2	F3	F4	Hx	Pb
2014/12/15	<0.20	<0.20	<0.20	1.4	<25	<100	<200	<200	<5.0	<0.50

BH-302									Screen Interval: 3.4-6.4 mbgs	
Sample Date	B	T	E	X	F1	F2	F3	F4	Hx	Pb
2014/12/15	<0.20	<0.20	<0.20	<0.40	<25	<100	<200	<200	<5.0	<0.50

Standards

Parameters	B	T	E	X	F1	F2	F3	F4	Hx	Pb
Standard* µg/L	430	18 000	2300	4200	750	150	500	500	520	25

B-Benzene **T**-Toluene **E**-Ethylbenzene **X**-Total Xylenes **F1-F4**-CCME CWS Petroleum Hydrocarbon Fractions **Hx**-Hexane **Pb**-Lead

* **MOECC Table 3 (2011)** All types of property use, medium and fine textured soils

LEGEND

- Property Line, Surveyed 2006
- Property Boundary Pin
- Fence
- Transformer (Pad Mounted)
- Monitoring Well
- Borehole
- 2010/12/31 — Date Format: yyyy/mm/dd
- mbgs — Metres Below Ground Surface
- µg/L — Micrograms Per Litre

Analytical Results

- All Results Reported in µg/L
- Location Where Most Recent Groundwater Sample Met Standards for All Parameters that Were Analyzed, Shown in Green
- Location Where Most Recent Groundwater Sample Exceeded Standards 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
- 1234 — Exceedances of Standards, Shown in Red and Bold
- DUP — Field Duplicate Sample
- – — Not Analyzed
- < — Result Less Than Reportable Detection Limit

NOTE: All features are approximate.

REFERENCE: Clark Wilkinson Alton survey dated 2006/07/21.

0 5 10 15 20 25m

Original Scale 1:500

Groundwater Analytical Results
Petroleum Hydrocarbon Parameters, Hexane, and Lead

Imperial Oil

1545 Woodroffe Avenue, Ottawa, Ontario

Drawn: BAI	Page Size: 11 x 17 in	Ref. No.: 10-8518.3
Reviewed: HNL	File No.: 8518G168	Date: 2015/01/30
PARSONS		Drawing No.: 4

Ref.: S-34-P

TABLE 1
GROUNDWATER MONITORING RESULTS

ASSESSMENT LOCATION	TOP OF PIPE ELEVATION[1] (m)	GROUND SURFACE ELEVATION[1] (m)	SCREEN INTERVAL (mbgs)	DATE (yyyy/mm/dd)	SUBSURFACE VAPOUR CONCENTRATIONS[2]	FREE PRODUCT THICKNESSES (mm)	POTENTIOMETRIC DEPTH[3] (mbgs)	POTENTIOMETRIC ELEVATION[1, 3] (m)
BH-301	99.50	99.61	3.4 -6.4	2014/12/15	200	ND	4.95	94.65
BH-302	99.38	99.56	3.4 -6.4	2014/12/15	220	ND	4.91	94.66
BH-309	99.46	99.58	3.0 -6.1	2014/12/15	140	ND	4.96	94.62

1 - Relative to local benchmark (BH5 top of riser pipe) having an elevation of 88.79 m
BH-300 series - Relative to local benchmark (cut into concrete at base of the diesel pumps) having an 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
m - metres
mbgs - metres below ground surface
mm - millimetres
ND - Not detected
( ) - After bailing/purging
* - Water level above top of screen

TABLE 2

SOIL ANALYTICAL RESULTS
PETROLEUM HYDROCARBON PARAMETERS, HEXANE AND LEAD

SAMPLE LOCATIONS	BH-301-4.0-4.4	BH-301-5.3-5.9	DUP-01 FIELD DUPLICATE BH-301-5.3-5.9	BH-302-2.4-3.0	BH-302-5.3-5.9	BH-309-3.0-3.7	BH-309-5.3-5.9	BH-311-3.0-3.7	BH-311-5.5-6.1	TABLE 3 STANDARDS[a]
MAXXAM Certificate of Analysis No.	B4N6049V1	B4N6049V1	B4N6049V1	B4N6049V1	B4N6049V1	B4N7305V1	B4N7305V1	B4N9434V1	B4N9434V1	
MAXXAM Sample ID	YV6417	YV6418	YV6419	YV6420	YV6421	YW3248	YW3249	YX3054	YX3055	
Sample Depth (mbgs)	4.0-4.4	5.3-5.9	5.3-5.9	2.4-3.0	5.3-5.9	3.0-3.7	5.3-5.9	3.0-3.7	5.5-6.1	
Date Sampled (yyyy/mm/dd)	2014/12/09	2014/12/09	2014/12/09	2014/12/09	2014/12/09	2014/12/12	2014/12/12	2014/12/13	2014/12/13	
PARAMETERS										
Benzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.4
Toluene	0.027	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	78
Ethylbenzene	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	19
Total Xylenes	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	30
Petroleum Hydrocarbons F1 (C6 - C10)[b]	<10	<10	<10	<10	<10	<10	<10	<10	<10	65
Petroleum Hydrocarbons F2 (>C10 - C16)[c]	<10	<10	<10	<10	<10	<10	<10	<10	<10	250
Petroleum Hydrocarbons F3 (>C16 - C34)[d]	<50	<50	<50	<50	<50	<50	<50	<50	<50	2500
Petroleum Hydrocarbons F4 (>C34 - C50)	<50	<50	<50	<50	<50	<50	<50	<50	<50	6600
Hexane	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	88
Lead	6.2	5.4	2.8	5.3	2.1	3.7	2.1	6.3	2.2	120

a - Ontario Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011), non-potable, industrial/commercial/community property use, medium and fine textured soils
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
"-" - Not analyzed
* - Result from F4 gravimetric analysis
mbgs - metres below ground surface
BOLD - Exceeds applicable standard
Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE 3

SOIL ANALYTICAL RESULTS
POLYCYCLIC AROMATIC HYDROCARBONS

SAMPLE LOCATIONS	BH-301-4.0-4.4	BH-301-5.3-5.9	DUP-01 FIELD DUPLICATE BH-301-5.3-5.9	BH-302-2.4-3.0	BH-302-5.3-5.9	BH-309-3.0-3.7	BH-309-5.3-5.9	BH-311-3.0-3.7	BH-311-5.5-6.1	TABLE 3 STANDARDS[a]
MAXXAM Certificate of Analysis No.	B4N6049V1	B4N6049V1	B4N6049V1	B4N6049V1	B4N6049V1	B4N7305V1	B4N7305V1	B4N9434V1	B4N9434V1	
MAXXAM Sample ID	YV6417	YV6418	YV6419	YV6420	YV6421	YW3248	YW3249	YX3054	YX3055	
Sample Depth (mbgs)	4.0-4.4	5.3-5.9	5.3-5.9	2.4-3.0	5.3-5.9	3.0-3.7	5.3-5.9	3.0-3.7	5.5-6.1	
Date Sampled (yyyy/mm/dd)	2014/12/09	2014/12/09	2014/12/09	2014/12/09	2014/12/09	2014/12/12	2014/12/12	2014/12/13	2014/12/13	
PARAMETERS										
Acenaphthene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	96
Acenaphthylene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.17
Anthracene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.74
Benzo(a)anthracene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.96
Benzo(a)pyrene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.3
Benzo(b/j)fluoranthene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.96
Benzo(g,h,i)perylene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	9.6
Benzo(k)fluoranthene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.96
Chrysene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	9.6
Dibenz(a,h)anthracene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.1
Fluoranthene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	9.6
Fluorene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0050	69
Indeno(1,2,3-cd)pyrene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.95
1-Methylnaphthalene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	85
2-Methylnaphthalene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	85
Total Methylnaphthalenes	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	85
Naphthalene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.020	<0.0050	<0.0050	<0.0050	28
Phenanthrene	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	16
Pyrene	0.0061	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	96

a - Ontario Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011), non-potable, industrial/commercial/community property use, medium and fine textured soils

"-" - Not analyzed

mbgs - metres below ground surface

BOLD - Exceeds applicable standard

Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis

The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE 4

SOIL ANALYTICAL RESULTS
SELECTED METALS

SAMPLE LOCATIONS	BH-301-4.0-4.4	BH-301-5.3-5.9	DUP-01 FIELD DUPLICATE BH-301-5.3-5.9	BH-302-2.4-3.0	BH-302-5.3-5.9	BH-309-3.0-3.7	BH-309-5.3-5.9	BH-311-3.0-3.7	BH-311-5.5-6.1	TABLE 3 STANDARDS[a]
MAXXAM Certificate of Analysis No.	B4N6049V1	B4N6049V1	B4N6049V1	B4N6049V1	B4N6049V1	B4N7305V1	B4N7305V1	B4N9434V1	B4N9434V1	
MAXXAM Sample ID	YV6417	YV6418	YV6419	YV6420	YV6421	YW3248	YW3249	YX3054	YX3055	
Sample Depth (mbgs)	4.0-4.4	5.3-5.9	5.3-5.9	2.4-3.0	5.3-5.9	3.0-3.7	5.3-5.9	3.0-3.7	5.5-6.1	
Date Sampled (yyyy/mm/dd)	2014/12/09	2014/12/09	2014/12/09	2014/12/09	2014/12/09	2014/12/12	2014/12/12	2014/12/13	2014/12/13	
PARAMETERS										
Arsenic	<1.0	<1.0	<1.0	1.1	<1.0	<1.0	<1.0	<1.0	<1.0	18
Barium	32	23	28	220	42	120	30	270	37	670
Chromium (Total)	8.0	9.0	5.2	44	6.4	35	7.5	72	6.1	160
Copper	6.3	9.7	25	21	9.6	19	8.3	32	12	300
Zinc	11	11	30	51	13	41	12	89	18	340

a - Ontario Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011), non-potable, industrial/commercial/community property use, medium and fine textured soils

"-" - Not analyzed

* - Result from F4 gravimetric analysis

mbgs - metres below ground surface

BOLD - Exceeds applicable standard

Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis

The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE 5

GROUNDWATER ANALYTICAL RESULTS
PETROLEUM HYDROCARBON PARAMETERS, HEXANE AND LEAD

SAMPLE LOCATIONS	BH-301	BH-302	BH-309	DUP-04 FIELD DUPLICATE BH-309	TABLE 3 STANDARDS[a]
MAXXAM Certificate of Analysis No.	B4N9500V1	B4N9500V1	B4N9466V1	B4N9466V1	
MAXXAM Sample ID	YX3350	YX3349	YX3184	YX3185	
Date Sampled (yyyy/mm/dd)	2014/12/15	2014/12/15	2014/12/15	2014/12/15	
PARAMETERS					
Benzene	<0.20	<0.20	0.26	0.32	430
Toluene	<0.20	<0.20	<0.20	<0.20	18 000
Ethylbenzene	<0.20	<0.20	0.52	0.54	2300
Total Xylenes	1.4	<0.40	<0.40	<0.40	4200
Petroleum Hydrocarbons F1 (C6 - C10)[b]	<25	<25	78	67	750
Petroleum Hydrocarbons F2 (>C10 - C16)[c]	<100	<100	<100	<100	150
Petroleum Hydrocarbons F3 (>C16 - C34)[d]	<200	<200	<200	<200	500
Petroleum Hydrocarbons F4 (>C34 - C50)	<200	<200	<200	<200	500
Hexane	<5.0	<5.0	<5.0	<5.0	520
Lead	<0.50	<0.50	<0.50	<0.50	25

a - Ontario Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011), non-potable, all types of property use, medium and fine textured soils

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

"-" - Not analyzed

* - Result from F4 gravimetric analysis

BOLD - Exceeds applicable standard

Results for all parameters are reported in micrograms per litre (µg/L)

The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE 6

GROUNDWATER ANALYTICAL RESULTS
SELECTED VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATIONS	BH-301	BH-302	BH-309	DUP-04 FIELD DUPLICATE BH-309	TABLE 3 STANDARDS[a]
MAXXAM Certificate of Analysis	B4N9500V1	B4N9500V1	B4N9466V1	B4N9466V1	
MAXXAM Sample ID	YX3350	YX3349	YX3184	YX3185	
Date Sampled (yyyy/mm/dd)	2014/12/15	2014/12/15	2014/12/15	2014/12/15	
PARAMETERS					
1,2-Dichloroethane	<0.20	<0.20	<0.20	<0.20	12
Ethylene Dibromide	<0.20	<0.20	<0.20	<0.20	0.83
Methyl t-butyl ether	<0.20	<0.20	1.0	0.98	1400

a - Ontario Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011), non-potable, all types of property use, medium and fine textured soils

"-" - Not analyzed

BOLD - Exceeds applicable standard

Results for all parameters are reported in micrograms per litre (µg/L)

The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE 7

GROUNDWATER ANALYTICAL RESULTS
SELECTED METALS

SAMPLE LOCATIONS	BH-301	BH-302	BH-309	DUP-04 FIELD DUPLICATE BH-309	TABLE 3 STANDARDS[a]
MAXXAM Certificate of Analysis	B4N9500V1	B4N9500V1	B4N9466V1	B4N9466V1	
MAXXAM Sample ID	YX3350	YX3349	YX3184	YX3185	
Date Sampled (yyyy/mm/dd)	2014/12/15	2014/12/15	2014/12/15	2014/12/15	
PARAMETERS					
Arsenic	<1.0	<1.0	<1.0	<1.0	1900
Barium	150	120	360	350	29 000
Chromium	<5.0	<5.0	<5.0	<5.0	810
Copper	<2.0	<2.0	<2.0	<2.0	87
Zinc	<5.0	<5.0	<5.0	<5.0	1100

a - Ontario Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011), non-potable, all types of property use, medium and fine textured soils

"-" - Not analyzed

BOLD - Exceeds applicable standard

Results for all parameters are reported in micrograms per litre (µg/L)

The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

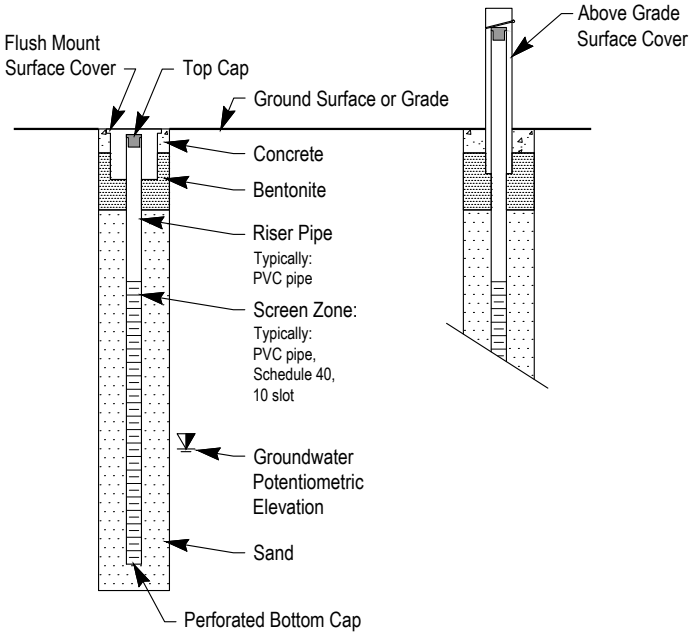
APPENDIX A

BOREHOLE LOGS

BOREHOLE LOG LEGEND

Overburden

Monitoring Well Details [a]



Backfill Legend

- Asphalt
- Concrete
- Bentonite
- Gravel
- Sand [b]
- Slough
- Drill Cuttings
- Grout
- Topsoil

- Open Hole - Overburden

Notes

a A generalized representation to show the well construction depicted on logs. Refer to log text for specific well construction and backfill details.

b #2 well pack silica sand

Stratigraphy Legend

The most common soil types and combinations are shown here.

- Asphalt
- Boulders
- Cobbles
- Gravel
- Sand
- Silt
- Clay
- Topsoil
- Concrete
- Sandy Gravel
- Gravelly Sand
- Sandy Silt
- Sandy Clay
- Peat
- Other Constructed Layer
- Sand and Gravel
- Silty Sand
- Clayey Silt
- Silty Clay
- Organic Soil

Sample Type

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

Soil Descriptions

Soil descriptions are based on the Unified Soils Classification System using standard soil classification techniques that are employed in the field.

BOREHOLE LOG

BOREHOLE LOCATION: 1545 Woodroffe Avenue, Ottawa, Ontario	REF. NO: 10-8518.3	BOREHOLE No: **BH-301**
CLIENT: Imperial Oil		START DATE: 2014/12/09
		COMPLETION DATE: 2014/12/09
		PAGE 1 of 1

Depth (m)	STRATIGRAPHY	SYMBOL	SAMPLE TYPE	'N' VALUE	RECOVERY %	ZONE TESTED	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv) 100 200 300 400	COMMENTS AND MONITORING WELL NOTES ▼ Groundwater Potentiometric Surface on date noted	MONITORING WELL	Depth (ft)
0	GROUND SURFACE								Surface Cover: Flush Mount, 203 mm		0
	ORGANIC MATERIAL.		G	-	-						
	SILT - olive brown, sandy, some gravel, damp.										
	SAND - olive, medium to fine grained, some gravel, damp.		G	-	-						
1			G	-	-						5
2											
3			SS	-	-						10
4			SS	-	-		BH-301-4.0-4.4 / BTEX, PHC F1-F4, Hexane, PAH, Sel-Metals				
	SAND - dark grayish brown, coarse to medium grained, trace gravel, moist.		SS	7	66				2014/12/15 ▼		15
5											
	SAND - dark gray, coarse to medium grained, gravelly, wet.		SS	14	75		BH-301-5.3-5.9 (DUP-01) / BTEX, PHC F1-F4, Hexane, PAH, Sel-Metals				
6											20
	END OF BOREHOLE at 6.5 m								Monitoring Well Installed Well Depth 6.4 m Well Diameter 51 mm Well Material PVC Screen Type 10 Slot Screened From 3.4 m Screened To 6.4 m		
	Borehole Daylighted to 2.4 m										
7											25
8											
9											

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2014/12/09	0.0 m	203 mm	Vacuum Excavator; Water Lance	Veolia ES Canada Services Inc.	LOGGED: TEM / REVIEW: HNL / DRAFTED: LLB
2014/12/09	2.4 m	203 mm	CME-75; Hollow Stem Auger	Downing George Estate Drilling Ltd	

PARSONS

BOREHOLE LOG

BOREHOLE LOCATION: 1545 Woodroffe Avenue, Ottawa, Ontario	REF. NO: 10-8518.3	BOREHOLE No: **BH-302**
CLIENT: Imperial Oil		START DATE: 2014/12/09
		COMPLETION DATE: 2014/12/09
		PAGE 1 of 1

Depth (m)	DESCRIPTION: STRATIGRAPHY	SYMBOL	SAMPLING: SAMPLE TYPE	'N' VALUE	RECOVERY %	ZONE TESTED	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv) 100 200 300 400	COMMENTS AND MONITORING WELL NOTES / ▼ Groundwater Potentiometric Surface on date noted	MONITORING WELL	Depth (ft)
0	GROUND SURFACE								Surface Cover: Flush Mount, 203 mm		0
	ORGANIC MATERIAL.										
	SILT - olive brown, sandy, some gravel, trace cobbles, damp.		G	-	-						
1	SAND - olive gray, coarse to medium grained, gravelly, some silt, trace cobbles, damp.		G	-	-						5
2			G	-	-						
	SAND - olive gray, medium to fine grained, silty, some gravel, moist.		SS	4	67		BH-302-2.4-3.0 / BTEX, PHC F1-F4, Hexane, PAH, Sel-Metals				
3	SILT - clayey, moist.		SS	1	71						10
4	SAND - dark gray, coarse to medium grained, gravelly, trace cobbles, moist.		SS	4	54						
			SS	12	71				2014/12/15 ▼		15
5	- wet below 5.5 m.		SS	4	58		BH-302-5.3-5.9 / BTEX, PHC F1-F4, Hexane, PAH, Sel-Metals				
6	END OF BOREHOLE at 6.5 m								Monitoring Well Installed Well Depth 6.4 m Well Diameter mm Well Material PVC Screen Type 10 Slot Screened From 3.4 m Screened To 6.4 m		20
	Borehole Daylighted to 2.4 m										
7											25
8											
9											

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2014/12/09	0.0 m	203 mm	Vacuum Excavator; Water Lance	Veolia ES Canada Services Inc.	LOGGED: TEM / REVIEW: HNL / DRAFTED: LLB
2014/12/09	2.4 m	203 mm	CME-75; Hollow Stem Auger	Downing George Estate Drilling Ltd	

PARSONS

BOREHOLE LOG

BOREHOLE LOCATION: 1545 Woodroffe Avenue, Ottawa, Ontario	REF. NO: 10-8518.3	BOREHOLE No: **BH-309**
CLIENT: Imperial Oil		START DATE: 2014/12/11
		COMPLETION DATE: 2014/12/12
		PAGE 1 of 1

Depth (m)	STRATIGRAPHY	SYMBOL	SAMPLE TYPE	'N' VALUE	RECOVERY %	ZONE TESTED	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv) 100 200 300 400	COMMENTS AND MONITORING WELL NOTES ▼ Groundwater Potentiometric Surface on date noted	MONITORING WELL	Depth (ft)
0	GROUND SURFACE								Surface Cover: Flush Mount, 203 mm		0
	ASPHALT.										
	GRAVEL - gray, sandy, trace silt, damp.		G	-	-						
1			G	-	-						5
2											
	CLAY - olive gray, silty, moist.		G	-	-						
3	CLAY - some silt, petroleum odour.		SS	-	83		BH-309-3.0-3.7 / BTEX, PHC F1-F4, Hexane, PAH, Sel-Metals				10
4	- mottled olive gray and dark olive brown below 4.3 m.		SS	10	79						
5			SS	19	83				2014/12/15 ▼		15
	SAND - olive gray, medium to fine grained, some gravel, trace cobbles, petroleum odour.		SS	12	75		BH-309-5.3-5.9 / BTEX, PHC F1-F4, Hexane, PAH, Sel-Metals				
6	- trace odour below 5.8 m.										20
	END OF BOREHOLE at 6.2 m								Monitoring Well Installed Well Depth 6.1 m Well Diameter 51 mm Well Material PVC Screen Type 10 Slot Screened From 3.0 m Screened To 6.1 m		
	Borehole Daylighted to 2.4 m										
7											25
8											
9											

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2014/12/11	0.0 m	203 mm	Vacuum Excavator; Water Lance	Veolia ES Canada Services Inc.	LOGGED: TEM / REVIEW: HNL / DRAFTED: LLB
2014/12/12	2.4 m	203 mm	CME-75; Hollow Stem Auger	Downing George Estate Drilling Ltd	

PARSONS

BOREHOLE LOG

BOREHOLE LOCATION: 1545 Woodroffe Avenue, Ottawa, Ontario	REF. NO: 10-8518.3	BOREHOLE No: **BH-311**
CLIENT: Imperial Oil		START DATE: 2014/12/12
		COMPLETION DATE: 2014/12/13
		PAGE 1 of 1

Depth (m)	DESCRIPTION: STRATIGRAPHY	SYMBOL	SAMPLING: SAMPLE TYPE	SAMPLE RUN	RECOVERY %	ZONE TESTED	LAB SAMPLE NAME/ LAB ANALYSES	▲ SOIL VAPOUR CONCENTRATION (ppmv) 100 200 300 400	COMMENTS	BACKFILL	Depth (ft)
0	GROUND SURFACE										0
	ORGANIC MATERIAL.										
	SILT - olive brown, sandy, some gravel, trace clay, moist.		G		-						
1	SILT - olive brown, clayey, some gravel, trace boulders, trace cobbles, trace sand, moist.		G		-						5
2			G		-						
	SILT - olive gray, some clay, moist.										
3	CLAY - olive gray, silty, wet.		SL		-		BH-311-3.0-3.7 / BTEX, PHC F1-F4, Hexane, PAH, Sel-Metals				10
4			SL		-						
			SL		-						15
5			SL		-						
	SAND - olive gray, medium to fine grained, some gravel, trace cobbles, wet.		SL		-		BH-311-5.5-6.1 / BTEX, PHC F1-F4, Hexane, PAH, Sel-Metals				
6			SL		-						20
	END OF BOREHOLE at 6.7 m								No Monitoring Well Installed		
7	Borehole Daylighted to 2.4 m										
											25
8											
9											

START DATE	START DEPTH	HOLE SIZE	EQUIPMENT	CONTRACTOR	GAS METER TYPE: RKI Eagle
2014/12/12	0.0 m	203 mm	Vacuum Excavator; Water Lance	Veolia ES Canada Services Inc.	LOGGED: TEM / REVIEW: HNL / DRAFTED: LLB
2014/12/13	2.4 m	203 mm	Geoprobe; Continuous Sampler	Downing George Estate Drilling Ltd	

PARSONS

APPENDIX B

MOECC WELL RECORD

Ontario | Ministry of the Environment

Well Record for Well Cluster - Part 1 of 3

(Only for Multiple Test Holes or Dewatering Wells)

Regulation 903 Ontario Water Resources Act

Well Tag No. of Deepest Well: *(Print Well Tag No.)* A148000

Well # on Drawing of Deepest Well: 308

All measurements recorded in: ☒ Metric ☐ Imperial

Follow instructions on the front and back of this form. Print or Type

Well Cluster Location Information

Address of Well Location (Street Number(s)/Name(s), RR, if available)	Lot(s)	Concession(s)	Geographic Township	County/District/Upper Tier Municipality
1545 Woodroffe Avenue				

City, Town, Village or Hamlet	Province	GPS Unit Make	Model	Unit Mode of Operation
Ottawa	Ontario	Garmin	Etrex	☐ Undifferentiated ☒ Averaged ☐ Differentiated, specify:

Mandatory Attachments/Additional Information

☒ Land Owner Consent Form must be attached.

☒ Detailed Drawing of All Well Locations must be attached.

I, the person constructing the well, will promptly submit to the Director, on request, any additional information in my custody or control related to any well in the well cluster that I have constructed.

Signature of Technician/Contractor: [signature] Date (yyyy/mm/dd): 2015/03/13

Well Details

Well # on Drawing	Zone	Easting	Northing	Hole Depth (m/ft)	Hole Diameter (cm/in)	Method of Construction	Casing Material; Diameter (cm/in)	Casing From	Casing To	Screen Interval From	Screen Interval To	Annular Space From	Annular Space To	Material	Overburden/Bedrock or Abandonment Filing Material Intervals (m/ft)	Static Water Level (m/ft)	Date of Completion (yyyy/mm/dd)
301	18	441104	5020347	6.5	20.3	HSA	5.08	0.15	3.4	3.4	6.4	0.31	3.05	Bentonite	Organic Material, Silt, Sand ([illegible])	4.95	2014/12/09
302	18	441133	5020358	6.5	20.3	HSA	5.08	0.15	3.4	3.1	6.4	0.31	3.05	Bentonite	Organic Material, Silt, Sand + silt ([illegible])	4.95	2014/12/09
309	18	441078	5020370	6.2	20.3	HSA	5.08	0.15	3.06	3.0	6.1	0.31	2.71	Bentonite	Asphalt, Gravel Clay, Sand	4.95	2014/12/12
~~311~~	~~18~~			~~6.7~~	~~20.3~~	~~HSA~~	~~5.08~~	~~0.15~~						~~Bentonite~~	No Well Installed		~~2014/12/09~~
303	18	441124	5020390	13.9	20.3	HSA	5.08	0.15	3.4	3.4	6.1	0.3	3.05	Bentonite	-1.45 -3.9 -3.5 -3.8 -5.3 -13.9 Silt, Clay, Sand, Clay, Silt, Sand	3.6	2014/12/10
305	18	441[illegible]	50204[illegible]	12.5	20.3	HSA	5.08	0.15	3.4	3.4	6.4	0.3	3.05	Bentonite	-2.45 -12.5 Silt, Clay	4.1	2014/12/10
306	18	441099	5020401	6.7	20.3	HSA	5.08	0.15	3.4	3.1	6.4	0.3	2.75	Bentonite	0-0.6 -2.4 -5.0 -6.7 Asphalt/Gravel, Sand, Clay, Sand	5.3	2014/12/12
308	18	441068	5020440	6.7	20.3	HSA	5.08	0.15	3.0	3.0	6.1	0.3	2.75	Bentonite	0.05 -4.6 -6.7 Organic Topsoil, Silt, Clay	4.1	2014/12/12

Well Contractor and Well Technician Information

Business Name of Well Contractor	Business Address (Street Number/Name, RR)	Municipality	Province
George Downing Estate Drilling	410 Rue Principale	Grenville-sur-la-Rouge	QC

Postal Code	Bus. Telephone No.	Well Contractor's Licence No.	Business E-mail Address
J0V1B0	(819)242 6469	1844	downing@hawk.igs.net

Name of Well Technician (First Name, Last Name)	Well Technician's Licence No.	Signature of Well Technician	Date Submitted (yyyy/mm/dd)
Bruce Downing	2173	[signature]	2015/03/13

Date First Well in Cluster Constructed or Abandoned (yyyy/mm/dd)	Date Last Well in Cluster Completed (yyyy/mm/dd)
2014/12/09	2014/12/12

Well Abandonment

Person Abandoning the Wells:

Name: N/A

(Print or Type) - See instruction 11 on the back of this form

Ministry Use Only

Date Received (yyyy/mm/dd):

Audit No. C 23847

Comments:

Well Owner's Copy

Ontario Ministry of the Environment

Well Record for Well Cluster - Part 2 of 3
Land Owner Consent

This form is to be completed by the person who constructs or abandons test holes or dewatering wells that form all or part of a well cluster. If this form is being used to report any well abandonment, these wells must have been previously reported as part of a single well cluster.

Note: For well cluster records, only the owners of the land on which the wells are situated are to give written consent. If the well purchaser (e.g. a consultant who hires the driller) is not the owner of the land, then the well purchaser cannot sign the consent form.

By signing this form, land owners are providing consent to use one well record to report a well cluster of test holes or dewatering wells in accordance with section 16.4 of Regulation 903 made under the *Ontario Water Resources Act.*

This completed **Well Record for Well Cluster Part 2 - Land Owner Consent** must be attached to Parts 1 and 3.

* Please PRINT if completing by hand.

Well Tag Number: # A148000

"Well Record for Well Cluster" Audit Number: # C23847

Well # on Detailed Drawing	Property Location Description	Land Owner's Name	Signature of Land Owner	Date Signed *(yyyy/mm/dd)*
301, 302 303, 305 306, 308 309	1545 WOODROFFE AVENUE OTTAWA, ON	IMPERIAL OIL LTD. 1 DUNCAN MILL ROAD TORONTO, ON M3B 1Z3		2015/03/24

Well Owner's Copy

  Disponible en français

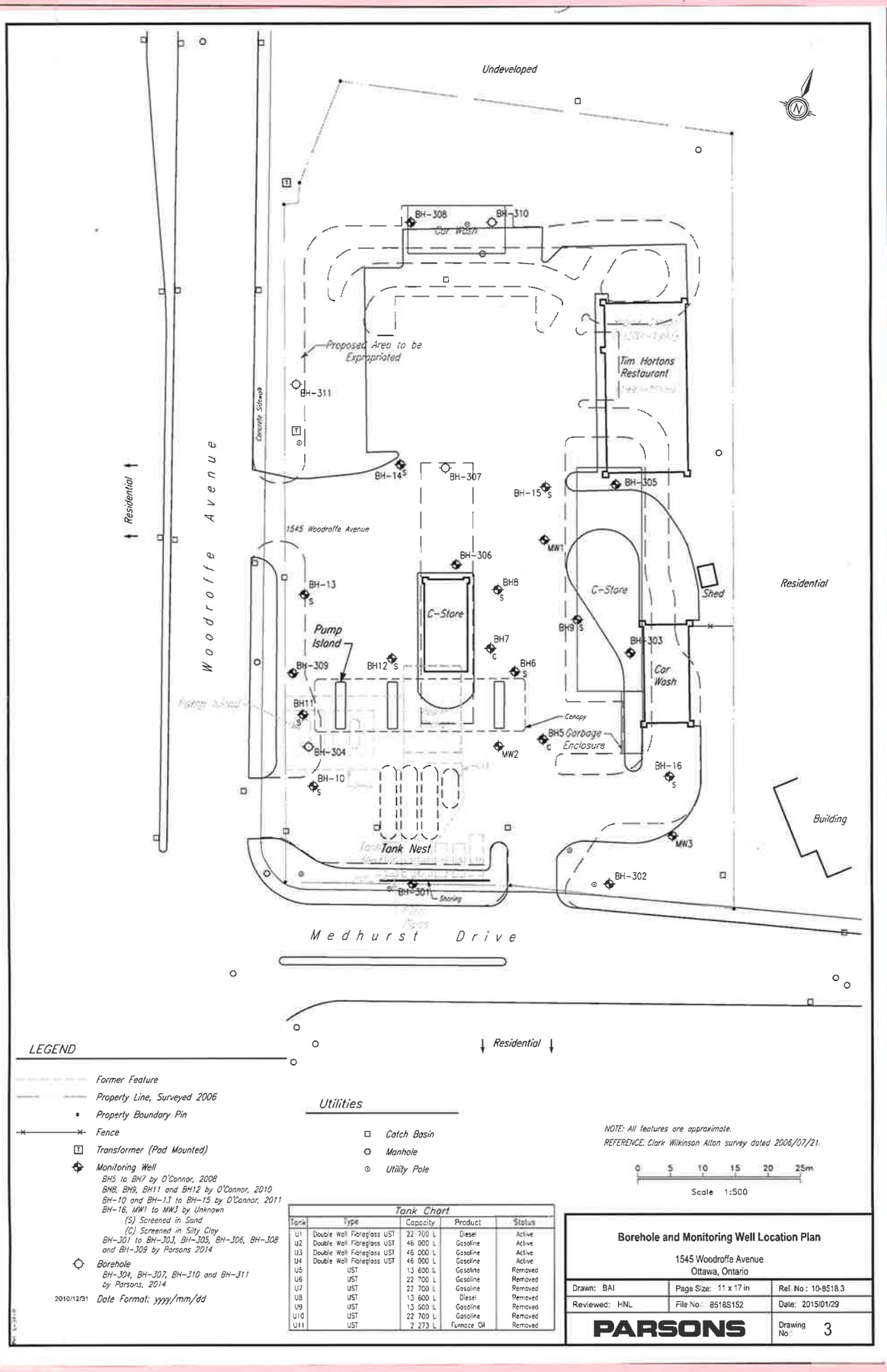
Ontario Ministry of the Environment

Well Record for Well Cluster - Part 3 of 3
Detailed Drawing of All Well Locations

Note: This **Well Record for Well Cluster Part 3 - Detailed Drawing of all Well Locations,** must be attached to Parts 1 and 2. The drawing must include all property boundaries, an arrow indicating the North direction, all named roads and sufficient measurements to locate all wells in the cluster in relation to fixed points. The drawing must show the location of each well and each well must be numbered on the drawing to match number used for that well on the **Well Record for Well Cluster Parts 1 and 2.** The well with the well tag must be clearly identified on the Drawing.
UTM coordinates should appear beside each well, if space permits. Additional comments on wells can be included on the drawing

Well Tag Number: # A148000

"Well Record for Well Cluster" Form Audit Number: # 238417



Tank Chart

Tank	Type	Capacity	Product	Status
U1	Double Wall Fibreglass UST	22 700 L	Diesel	Active
U2	Double Wall Fibreglass UST	46 000 L	Gasoline	Active
U3	Double Wall Fibreglass UST	46 000 L	Gasoline	Active
U4	Double Wall Fibreglass UST	46 000 L	Gasoline	Active
U5	UST	13 600 L	Gasoline	Removed
U6	UST	22 700 L	Gasoline	Removed
U7	UST	22 700 L	Gasoline	Removed
U8	UST	13 600 L	Diesel	Removed
U9	UST	13 600 L	Gasoline	Removed
U10	UST	22 700 L	Gasoline	Removed
U11	UST	2 273 L	Furnace Oil	Removed

Borehole and Monitoring Well Location Plan
1545 Woodroffe Avenue
Ottawa, Ontario

Drawn: BAI	Page Size: 11 x 17 in	Ref. No.: 10-8518.3
Reviewed: HNL	File No.: 8518S152	Date: 2015/01/29
PARSONS		Drawing No.: 3

Well Owner's Copy
Disponible en français

APPENDIX C

LABORATORY CERTIFICATES OF ANALYSIS – SOIL AND GROUNDWATER

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496344-02-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2014/12/22
Report #: R3267771
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4N6049
Received: 2014/12/12, 14:55

Sample Matrix: Soil
Samples Received: 5

Analyses	Quantity	Laboratory Method	Primary Reference
Methylnaphthalene Sum	5	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil	5	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	5	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	5	CAM SOP-00447	EPA 6020A m
Moisture	5	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	5	CAM SOP-00318	EPA 8270D m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by GUCSO and O.Reg 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

All data is in statistical control and has met all QC and method performance criteria unless otherwise flagged. All samples were analysed within hold time unless otherwise flagged. All soil samples for BTEX analysis were methanol extracted within 24 hours unless otherwise flagged.

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

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496344-02-01

Attention:Holly Losignore

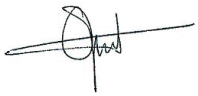
Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2014/12/22
Report #: R3267771
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4N6049
Received: 2014/12/12, 14:55

Encryption Key



Patricia Legette
22 Dec 2014 11:41:42 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kudrat Bajwa, B.Sc., Project Manager
Email: KBajwa@maxxam.ca
Phone# (905)817-5822

==========

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 Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

HBTEX/F1-F4 PET. HYDROCARBONS IN SOIL (SOIL)

Maxxam ID		YV6417	YV6417	YV6418	YV6419	YV6420	YV6421		
Sampling Date		2014/12/09 12:45	2014/12/09 12:45	2014/12/09 13:30	2014/12/09 13:30	2014/12/09 14:20	2014/12/09 15:10		
COC Number		496344-02-01	496344-02-01	496344-02-01	496344-02-01	496344-02-01	496344-02-01		
	Units	**BH-301-4.0-4.4**	**BH-301-4.0-4.4 Lab-Dup**	**BH-301-5.3-5.9**	**DUP-01**	**BH-302-2.4-3.0**	**BH-302-5.3-5.9**	**RDL**	**QC Batch**
Benzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	3864469
Toluene	ug/g	0.027	0.026	<0.020	<0.020	<0.020	<0.020	0.020	3864469
Ethylbenzene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	3864469
o-Xylene	ug/g	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.020	3864469
p+m-Xylene	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	3864469
Total Xylenes	ug/g	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	0.040	3864469
Hexane	ug/g	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	3864469
F1 (C6-C10)	ug/g	<10	<10	<10	<10	<10	<10	10	3864469
F1 (C6-C10) - BTEX	ug/g	<10	<10	<10	<10	<10	<10	10	3864469
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	<10	<10	<10	<10	10	3864687
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	<50	50	3864687
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	<50	<50	<50	<50	50	3864687
Reached Baseline at C50	ug/g	Yes	Yes	Yes	Yes	Yes	Yes		3864687
Extraction Surrogate Recovery (%)									
D10-Ethylbenzene	%	89	88	90	92	94	94		3864469
o-Terphenyl	%	84	87	86	96	88	84		3864687
Instrument Surrogate Recovery (%)									
1,4-Difluorobenzene	%	100	101	100	100	101	100		3864469
4-Bromofluorobenzene	%	99	94	97	100	98	95		3864469
D4-1,2-Dichloroethane	%	102	103	103	103	103	103		3864469

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

O.REG 153 PAHS (SOIL)

Maxxam ID		YV6417	YV6417	YV6418	YV6419	YV6420		
Sampling Date		2014/12/09 12:45	2014/12/09 12:45	2014/12/09 13:30	2014/12/09 13:30	2014/12/09 14:20		
COC Number		496344-02-01	496344-02-01	496344-02-01	496344-02-01	496344-02-01		
	Units	**BH-301-4.0-4.4**	**BH-301-4.0-4.4 Lab-Dup**	**BH-301-5.3-5.9**	**DUP-01**	**BH-302-2.4-3.0**	**RDL**	**QC Batch**
Moisture	%	9.2		15	16	31	1.0	3862366
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	<0.0071	<0.0071	<0.0071	0.0071	3857765
Acenaphthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Acenaphthylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Chrysene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Fluoranthene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Fluorene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Naphthalene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Phenanthrene	ug/g	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	3863326
Pyrene	ug/g	0.0061	0.0092	<0.0050	<0.0050	<0.0050	0.0050	3863326
Extraction Surrogate Recovery (%)								
D10-Anthracene	%	94	93	94	95	93		3863326
D14-Terphenyl (FS)	%	85	82	85	84	84		3863326
D8-Acenaphthylene	%	80	80	83	78	81		3863326

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

O.REG 153 PAHS (SOIL)

Maxxam ID		YV6421		
Sampling Date		2014/12/09 15:10		
COC Number		496344-02-01		
	Units	**BH-302-5.3-5.9**	**RDL**	**QC Batch**
Moisture	%	6.8	1.0	3862366
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	3857765
Acenaphthene	ug/g	<0.0050	0.0050	3863326
Acenaphthylene	ug/g	<0.0050	0.0050	3863326
Anthracene	ug/g	<0.0050	0.0050	3863326
Benzo(a)anthracene	ug/g	<0.0050	0.0050	3863326
Benzo(a)pyrene	ug/g	<0.0050	0.0050	3863326
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	3863326
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	3863326
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	3863326
Chrysene	ug/g	<0.0050	0.0050	3863326
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	3863326
Fluoranthene	ug/g	<0.0050	0.0050	3863326
Fluorene	ug/g	<0.0050	0.0050	3863326
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	3863326
1-Methylnaphthalene	ug/g	<0.0050	0.0050	3863326
2-Methylnaphthalene	ug/g	<0.0050	0.0050	3863326
Naphthalene	ug/g	<0.0050	0.0050	3863326
Phenanthrene	ug/g	<0.0050	0.0050	3863326
Pyrene	ug/g	<0.0050	0.0050	3863326
Extraction Surrogate Recovery (%)				
D10-Anthracene	%	93		3863326
D14-Terphenyl (FS)	%	82		3863326
D8-Acenaphthylene	%	96		3863326

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		YV6417	YV6417	YV6418	YV6419	YV6420		
Sampling Date		2014/12/09 12:45	2014/12/09 12:45	2014/12/09 13:30	2014/12/09 13:30	2014/12/09 14:20		
COC Number		496344-02-01	496344-02-01	496344-02-01	496344-02-01	496344-02-01		
	Units	**BH-301-4.0-4.4**	**BH-301-4.0-4.4 Lab-Dup**	**BH-301-5.3-5.9**	**DUP-01**	**BH-302-2.4-3.0**	**RDL**	**QC Batch**
Acid Extractable Arsenic (As)	ug/g	<1.0	<1.0	<1.0	<1.0	1.1	1.0	3866057
Acid Extractable Barium (Ba)	ug/g	32	25	23	28	220	0.50	3866057
Acid Extractable Chromium (Cr)	ug/g	8.0	7.2	9.0	5.2	44	1.0	3866057
Acid Extractable Copper (Cu)	ug/g	6.3	5.9	9.7	25	21	0.50	3866057
Acid Extractable Lead (Pb)	ug/g	6.2	5.9	5.4	2.8	5.3	1.0	3866057
Acid Extractable Zinc (Zn)	ug/g	11	16	11	30	51	5.0	3866057

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Maxxam ID		YV6421		
Sampling Date		2014/12/09 15:10		
COC Number		496344-02-01		
	Units	**BH-302-5.3-5.9**	**RDL**	**QC Batch**
Acid Extractable Arsenic (As)	ug/g	<1.0	1.0	3866057
Acid Extractable Barium (Ba)	ug/g	42	0.50	3866057
Acid Extractable Chromium (Cr)	ug/g	6.4	1.0	3866057
Acid Extractable Copper (Cu)	ug/g	9.6	0.50	3866057
Acid Extractable Lead (Pb)	ug/g	2.1	1.0	3866057
Acid Extractable Zinc (Zn)	ug/g	13	5.0	3866057

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YV6417
Sample ID: BH-301-4.0-4.4
Matrix: Soil

Collected: 2014/12/09
Relinquished: 2014/12/11
Received: 2014/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3857765	N/A	2014/12/18	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3864469	2014/12/13	2014/12/18	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3864687	2014/12/18	2014/12/18	Jolanta Kawzowicz
Strong Acid Leachable Metals by ICPMS	ICP/MS	3866057	2014/12/19	2014/12/19	Grace Bu
Moisture	BAL	3862366	N/A	2014/12/16	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3863326	2014/12/17	2014/12/18	Yuan Zhou

Maxxam ID: YV6417 Dup
Sample ID: BH-301-4.0-4.4
Matrix: Soil

Collected: 2014/12/09
Relinquished: 2014/12/11
Received: 2014/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3857765	N/A	2014/12/19	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3864469	2014/12/13	2014/12/18	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3864687	2014/12/18	2014/12/18	Jolanta Kawzowicz
Strong Acid Leachable Metals by ICPMS	ICP/MS	3866057	2014/12/19	2014/12/19	Grace Bu
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3863326	2014/12/17	2014/12/18	Yuan Zhou

Maxxam ID: YV6418
Sample ID: BH-301-5.3-5.9
Matrix: Soil

Collected: 2014/12/09
Relinquished: 2014/12/11
Received: 2014/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3857765	N/A	2014/12/18	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3864469	2014/12/13	2014/12/18	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3864687	2014/12/18	2014/12/18	Jolanta Kawzowicz
Strong Acid Leachable Metals by ICPMS	ICP/MS	3866057	2014/12/19	2014/12/19	Grace Bu
Moisture	BAL	3862366	N/A	2014/12/16	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3863326	2014/12/17	2014/12/18	Yuan Zhou

Maxxam ID: YV6419
Sample ID: DUP-01
Matrix: Soil

Collected: 2014/12/09
Relinquished: 2014/12/11
Received: 2014/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3857765	N/A	2014/12/18	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3864469	2014/12/13	2014/12/18	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3864687	2014/12/18	2014/12/18	Jolanta Kawzowicz
Strong Acid Leachable Metals by ICPMS	ICP/MS	3866057	2014/12/19	2014/12/19	Grace Bu
Moisture	BAL	3862366	N/A	2014/12/16	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3863326	2014/12/17	2014/12/18	Yuan Zhou

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Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YV6420
Sample ID: BH-302-2.4-3.0
Matrix: Soil

Collected: 2014/12/09
Relinquished: 2014/12/11
Received: 2014/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3857765	N/A	2014/12/18	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3864469	2014/12/13	2014/12/18	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3864687	2014/12/18	2014/12/18	Jolanta Kawzowicz
Strong Acid Leachable Metals by ICPMS	ICP/MS	3866057	2014/12/19	2014/12/19	Grace Bu
Moisture	BAL	3862366	N/A	2014/12/16	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3863326	2014/12/17	2014/12/18	Yuan Zhou

Maxxam ID: YV6421
Sample ID: BH-302-5.3-5.9
Matrix: Soil

Collected: 2014/12/09
Relinquished: 2014/12/11
Received: 2014/12/12

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3857765	N/A	2014/12/19	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3864469	2014/12/13	2014/12/18	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3864687	2014/12/18	2014/12/18	Jolanta Kawzowicz
Strong Acid Leachable Metals by ICPMS	ICP/MS	3866057	2014/12/19	2014/12/19	Grace Bu
Moisture	BAL	3862366	N/A	2014/12/16	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3863326	2014/12/17	2014/12/18	Yuan Zhou

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Parsons
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Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C

Results relate only to the items tested.

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Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3863326	YZ	Method Blank	D10-Anthracene	2014/12/17		93	%	50 - 130
			D14-Terphenyl (FS)	2014/12/17		85	%	50 - 130
			D8-Acenaphthylene	2014/12/17		81	%	50 - 130
			Acenaphthene	2014/12/17	<0.0050		ug/g	
			Acenaphthylene	2014/12/17	<0.0050		ug/g	
			Anthracene	2014/12/17	<0.0050		ug/g	
			Benzo(a)anthracene	2014/12/17	<0.0050		ug/g	
			Benzo(a)pyrene	2014/12/17	<0.0050		ug/g	
			Benzo(b/j)fluoranthene	2014/12/17	<0.0050		ug/g	
			Benzo(g,h,i)perylene	2014/12/17	<0.0050		ug/g	
			Benzo(k)fluoranthene	2014/12/17	<0.0050		ug/g	
			Chrysene	2014/12/17	<0.0050		ug/g	
			Dibenz(a,h)anthracene	2014/12/17	<0.0050		ug/g	
			Fluoranthene	2014/12/17	<0.0050		ug/g	
			Fluorene	2014/12/17	<0.0050		ug/g	
			Indeno(1,2,3-cd)pyrene	2014/12/17	<0.0050		ug/g	
			1-Methylnaphthalene	2014/12/17	<0.0050		ug/g	
			2-Methylnaphthalene	2014/12/17	<0.0050		ug/g	
			Naphthalene	2014/12/17	<0.0050		ug/g	
			Phenanthrene	2014/12/17	<0.0050		ug/g	
			Pyrene	2014/12/17	<0.0050		ug/g	
3864469	JXI	Method Blank	1,4-Difluorobenzene	2014/12/18		96	%	60 - 140
			4-Bromofluorobenzene	2014/12/18		102	%	60 - 140
			D10-Ethylbenzene	2014/12/18		82	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/18		97	%	60 - 140
			Benzene	2014/12/18	<0.020		ug/g	
			Toluene	2014/12/18	<0.020		ug/g	
			Ethylbenzene	2014/12/18	<0.020		ug/g	
			o-Xylene	2014/12/18	<0.020		ug/g	
			p+m-Xylene	2014/12/18	<0.040		ug/g	
			Total Xylenes	2014/12/18	<0.040		ug/g	
			Hexane	2014/12/18	<0.50		ug/g	
			F1 (C6-C10)	2014/12/18	<10		ug/g	
			F1 (C6-C10) - BTEX	2014/12/18	<10		ug/g	
3864687	JKA	Method Blank	o-Terphenyl	2014/12/18		84	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/18	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2014/12/18	<50		ug/g	
			F4 (C34-C50 Hydrocarbons)	2014/12/18	<50		ug/g	
3866057	GBU	Method Blank	Acid Extractable Arsenic (As)	2014/12/19	<1.0		ug/g	
			Acid Extractable Barium (Ba)	2014/12/19	<0.50		ug/g	
			Acid Extractable Chromium (Cr)	2014/12/19	<1.0		ug/g	
			Acid Extractable Copper (Cu)	2014/12/19	<0.50		ug/g	
			Acid Extractable Lead (Pb)	2014/12/19	<1.0		ug/g	
			Acid Extractable Zinc (Zn)	2014/12/19	<5.0		ug/g	
3863326	YZ	RPD [YV6417-02]	Acenaphthene	2014/12/18	NC		%	40
			Acenaphthylene	2014/12/18	NC		%	40
			Anthracene	2014/12/18	NC		%	40
			Benzo(a)anthracene	2014/12/18	NC		%	40
			Benzo(a)pyrene	2014/12/18	NC		%	40
			Benzo(b/j)fluoranthene	2014/12/18	NC		%	40
			Benzo(g,h,i)perylene	2014/12/18	NC		%	40

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Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			Benzo(k)fluoranthene	2014/12/18	NC		%	40
			Chrysene	2014/12/18	NC		%	40
			Dibenz(a,h)anthracene	2014/12/18	NC		%	40
			Fluoranthene	2014/12/18	NC		%	40
			Fluorene	2014/12/18	NC		%	40
			Indeno(1,2,3-cd)pyrene	2014/12/18	NC		%	40
			1-Methylnaphthalene	2014/12/18	NC		%	40
			2-Methylnaphthalene	2014/12/18	NC		%	40
			Naphthalene	2014/12/18	NC		%	40
			Phenanthrene	2014/12/18	NC		%	40
			Pyrene	2014/12/18	NC		%	40
3864469	JXI	RPD [YV6417-05]	Benzene	2014/12/18	NC		%	50
			Toluene	2014/12/18	NC		%	50
			Ethylbenzene	2014/12/18	NC		%	50
			o-Xylene	2014/12/18	NC		%	50
			p+m-Xylene	2014/12/18	NC		%	50
			Total Xylenes	2014/12/18	NC		%	50
			Hexane	2014/12/18	NC		%	50
			F1 (C6-C10)	2014/12/18	NC		%	30
			F1 (C6-C10) - BTEX	2014/12/18	NC		%	30
3864687	JKA	RPD [YV6417-04]	F2 (C10-C16 Hydrocarbons)	2014/12/18	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2014/12/18	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2014/12/18	NC		%	30
3866057	GBU	RPD [YV6417-01]	Acid Extractable Arsenic (As)	2014/12/19	NC		%	30
			Acid Extractable Barium (Ba)	2014/12/19	22		%	30
			Acid Extractable Chromium (Cr)	2014/12/19	9.5		%	30
			Acid Extractable Copper (Cu)	2014/12/19	5.8		%	30
			Acid Extractable Lead (Pb)	2014/12/19	4.8		%	30
			Acid Extractable Zinc (Zn)	2014/12/19	NC		%	30
3863326	YZ	Matrix Spike [YV6417-02]	D10-Anthracene	2014/12/18		83	%	50 - 130
			D14-Terphenyl (FS)	2014/12/18		78	%	50 - 130
			D8-Acenaphthylene	2014/12/18		81	%	50 - 130
			Acenaphthene	2014/12/18		86	%	50 - 130
			Acenaphthylene	2014/12/18		85	%	50 - 130
			Anthracene	2014/12/18		84	%	50 - 130
			Benzo(a)anthracene	2014/12/18		87	%	50 - 130
			Benzo(a)pyrene	2014/12/18		87	%	50 - 130
			Benzo(b/j)fluoranthene	2014/12/18		90	%	50 - 130
			Benzo(g,h,i)perylene	2014/12/18		87	%	50 - 130
			Benzo(k)fluoranthene	2014/12/18		84	%	50 - 130
			Chrysene	2014/12/18		87	%	50 - 130
			Dibenz(a,h)anthracene	2014/12/18		86	%	50 - 130
			Fluoranthene	2014/12/18		88	%	50 - 130
			Fluorene	2014/12/18		80	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2014/12/18		88	%	50 - 130
			1-Methylnaphthalene	2014/12/18		88	%	50 - 130
			2-Methylnaphthalene	2014/12/18		85	%	50 - 130
			Naphthalene	2014/12/18		83	%	50 - 130
			Phenanthrene	2014/12/18		81	%	50 - 130
			Pyrene	2014/12/18		87	%	50 - 130
3864469	JXI	Matrix Spike [YV6417-05]	1,4-Difluorobenzene	2014/12/18		100	%	60 - 140

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Maxxam Job #: B4N6049
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Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			4-Bromofluorobenzene	2014/12/18		104	%	60 - 140
			D10-Ethylbenzene	2014/12/18		99	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/18		102	%	60 - 140
			Benzene	2014/12/18		94	%	60 - 140
			Toluene	2014/12/18		90	%	60 - 140
			Ethylbenzene	2014/12/18		100	%	60 - 140
			o-Xylene	2014/12/18		106	%	60 - 140
			p+m-Xylene	2014/12/18		96	%	60 - 140
			Hexane	2014/12/18		84	%	60 - 140
			F1 (C6-C10)	2014/12/18		95	%	60 - 140
3864687	JKA	Matrix Spike [YV6417-04]	o-Terphenyl	2014/12/18		86	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/18		100	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2014/12/18		99	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2014/12/18		99	%	50 - 130
3866057	GBU	Matrix Spike [YV6417-01]	Acid Extractable Arsenic (As)	2014/12/19		101	%	75 - 125
			Acid Extractable Barium (Ba)	2014/12/19		NC	%	75 - 125
			Acid Extractable Chromium (Cr)	2014/12/19		102	%	75 - 125
			Acid Extractable Copper (Cu)	2014/12/19		109	%	75 - 125
			Acid Extractable Lead (Pb)	2014/12/19		103	%	75 - 125
			Acid Extractable Zinc (Zn)	2014/12/19		110	%	75 - 125
3863326	YZ	LCS	D10-Anthracene	2014/12/17		87	%	50 - 130
			D14-Terphenyl (FS)	2014/12/17		79	%	50 - 130
			D8-Acenaphthylene	2014/12/17		82	%	50 - 130
			Acenaphthene	2014/12/17		86	%	50 - 130
			Acenaphthylene	2014/12/17		85	%	50 - 130
			Anthracene	2014/12/17		85	%	50 - 130
			Benzo(a)anthracene	2014/12/17		86	%	50 - 130
			Benzo(a)pyrene	2014/12/17		89	%	50 - 130
			Benzo(b/j)fluoranthene	2014/12/17		101	%	50 - 130
			Benzo(g,h,i)perylene	2014/12/17		86	%	50 - 130
			Benzo(k)fluoranthene	2014/12/17		86	%	50 - 130
			Chrysene	2014/12/17		88	%	50 - 130
			Dibenz(a,h)anthracene	2014/12/17		82	%	50 - 130
			Fluoranthene	2014/12/17		90	%	50 - 130
			Fluorene	2014/12/17		86	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2014/12/17		92	%	50 - 130
			1-Methylnaphthalene	2014/12/17		91	%	50 - 130
			2-Methylnaphthalene	2014/12/17		86	%	50 - 130
			Naphthalene	2014/12/17		87	%	50 - 130
			Phenanthrene	2014/12/17		84	%	50 - 130
			Pyrene	2014/12/17		89	%	50 - 130
3864469	JXI	LCS	1,4-Difluorobenzene	2014/12/18		98	%	60 - 140
			4-Bromofluorobenzene	2014/12/18		107	%	60 - 140
			D10-Ethylbenzene	2014/12/18		98	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/18		102	%	60 - 140
			Benzene	2014/12/18		108	%	60 - 140
			Toluene	2014/12/18		100	%	60 - 140
			Ethylbenzene	2014/12/18		107	%	60 - 140
			o-Xylene	2014/12/18		111	%	60 - 140
			p+m-Xylene	2014/12/18		104	%	60 - 140
			Hexane	2014/12/18		107	%	60 - 140

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Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			F1 (C6-C10)	2014/12/18		102	%	80 - 120
3864687	JKA	LCS	o-Terphenyl	2014/12/18		87	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/18		100	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2014/12/18		96	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2014/12/18		98	%	80 - 120
3866057	GBU	LCS	Acid Extractable Arsenic (As)	2014/12/19		101	%	80 - 120
			Acid Extractable Barium (Ba)	2014/12/19		107	%	80 - 120
			Acid Extractable Chromium (Cr)	2014/12/19		100	%	80 - 120
			Acid Extractable Copper (Cu)	2014/12/19		101	%	80 - 120
			Acid Extractable Lead (Pb)	2014/12/19		102	%	80 - 120
			Acid Extractable Zinc (Zn)	2014/12/19		99	%	80 - 120

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.

LCS: 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 too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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Maxxam Job #: B4N6049
Report Date: 2014/12/22

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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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Maxxam

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Toll Free: 800-563-6266

EXXONMOBIL/IMPERIAL OIL - MAXXAM
CHAIN-OF-CUSTODY RECORD
ANALYSIS REQUESTED

C of C # 496344-02-01

496344

INVOICE INFORMATION	REPORT INFORMATION
Company Name: Imperial Oil, a partnership of Imperial Oil Limited and McColl Frontenac Petrole	Company Name: Parsons
Contact Name: Daniel Grenzowski	Contact Name: Holly Losignore
Address: 1 Duncan Mill Road North York ON M3B 1Z2	Address: 3715 Laird Road Suite 100 Mississauga ON L5L 0A3
Email: daniel.grenzowski@esso.ca	Email: Holly.Losignore@parsons.com; labreport@
Phone: (416) 442-5012 x	Phone: (905) 569-4111 x
Sampler Name (Print): Edward Parker	Consultant Project #: 10-8518.3

	FIELD SAMPLE ID	MATRIX: GROUNDWATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE (YYYY/MM/DD)	SAMPLING: TIME (24 HR)	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	F1 / BTEX	F2 - F4	PAHs	VOCs	Lead	ICPMS Metals	TCLP VOC	TCLP Inorganics	TCLP SVOCS	TCLP PCBs	TCLP B(a)P	PCBs	Hexane	Metals(6) - Arsenic, barium, chromium, copper, lead, zinc						
1	BH-301-4.0-4.4			✓		6	2014/12/09	12:45			✓	✓	✓										✓	✓						
2	BH-301-5.3-5.9			✓		6	2014/12/09	13:30			✓	✓	✓										✓	✓						
3	Dup-01			✓		6	2014/12/09	13:30			✓	✓	✓										✓	✓						
4	BH-302-2.4-3.0			✓		6	2014/12/09	14:20			✓	✓	✓										✓	✓						
5	BH-302-5.3-5.9			✓		6	2014/12/09	15:10			✓	✓	✓										✓	✓						
6							YYYY/MM/DD	HH:MM																						
7							YYYY/MM/DD	HH:MM																						
8							YYYY/MM/DD	HH:MM																						
9							YYYY/MM/DD	HH:MM																						
10							YYYY/MM/DD	HH:MM																						

IOL SITE LOCATION: 1545 WOODROFFE AVENUE, OTTAWA, ON

IOL SITE # (if applicable): N/A

IOL PROJECT # (if applicable): ME.00214

MAXXAM TASK ORDER # OR SERVICE ORDER # + LINE ITEM: 4410259930-10

REGULATORY CRITERIA / DETECTION LIMITS:
☒ REG 153 Table 3 ☐ 2004 ☒ 2011 ☐ RSC
(Please indicate which Reg. version and if RSC required)
☐ ODWS ☐ PWQO
☐ Other _____ 1/C/C Med/Fine

SPECIAL INSTRUCTIONS: Test Samples as per TDG
ICE - YES

JARS USED AND NOT SUBMITTED Enter N/A for Water: 0

TURNAROUND TIME
Standard (5 days) ☒
Rush (3 days) ☐
(2 days) ☐
(1 day) ☐
(same day) ☐
Date Required

COOLER ID: 1					COOLER ID:						COOLER ID:						LAB USE ONLY
CUSTODY SEAL	YES	NO	TEMP	2	CUSTODY SEAL	YES	NO	TEMP			CUSTODY SEAL	YES	NO	TEMP			MAXXAM JOB #
PRESENT	✓			1	PRESENT				1	2	3	PRESENT			1	2	3	B4N6049
INTACT	✓			2 3	INTACT							INTACT						

RELINQUISHED BY:		DATE:	TIME (24 HR)	RECEIVED BY:		DATE:	TIME (24 HR)	SAMPLES
1. signature	Edward Parker printed name	2014/12/11 YYYY/MM/DD	17:30 HH:MM	1. signature	EMAD ALAKOZ printed name	2014/12/12 YYYY/MM/DD	14:55 HH:MM	LABELED BY: MA
2. signature	printed name	YYYY/MM/DD	HH:MM	2. signature	printed name	YYYY/MM/DD	HH:MM	VERIFIED BY: CG2
3. signature	printed name	YYYY/MM/DD	HH:MM	3. signature	printed name	YYYY/MM/DD	HH:MM	

COC – 1012 (2013) IOL – ON White: Maxxam Yellow: Client

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Canada Ltd.*
1545 Woodroffe Avenue
Location: *Ottawa, Ontario*

Sampling Date: 2014/12/09
Laboratory: *Maxxam Analytics Inc.*

Consultant Project Number: *10-8518.3*
Laboratory Job Number: *B4N6049*

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/Spiked Blank	*X*			

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

	Yes	No	NA	Comments
Field Blank Concentration			*X*	*All field QC samples met the alert limits.*
Trip Blank Concentration			*X*	
Field Duplicate RPD	*X*			

Has CofA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CofA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CofA (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 or N/A)?:	*Yes*

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

Date Issued: *N/A* Date of Response: *N/A*

Is data considered to be reliable (Yes/No)?: *Yes*
If answer is "No", describe and provide rationale:

Data Reviewed by (Print): *Beverley Noel* Data Reviewed by (Signature):
Review Date: *2015/01/07*
Revision Date (if applicable): Revised by (Signature):

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496344-16-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2015/01/26
Report #: R3312649
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4N7305
Received: 2014/12/15, 14:52

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Laboratory Method	Primary Reference
Methylnaphthalene Sum	2	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil	2	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	2	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	2	CAM SOP-00447	EPA 6020A m
Moisture	2	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	2	CAM SOP-00318	EPA 8270D m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by GUCSO and O.Reg 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

All data is in statistical control and has met all QC and method performance criteria unless otherwise flagged. All samples were analysed within hold time unless otherwise flagged. All soil samples for BTEX analysis were methanol extracted within 24 hours unless otherwise flagged.

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

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496344-16-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2015/01/26
Report #: R3312649
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4N7305
Received: 2014/12/15, 14:52

Encryption Key Kudrat Bajwa
Kudrat Bajwa
26 Jan 2015 09:29:21 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kudrat Bajwa, B.Sc., Project Manager
Email: KBajwa@maxxam.ca
Phone# (905)817-5822

==========

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Maxxam Job #: B4N7305
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

HBTEX/F1-F4 PET. HYDROCARBONS IN SOIL (SOIL)

Maxxam ID		YW3248	YW3249		
Sampling Date		2014/12/12 13:40	2014/12/12 14:25		
COC Number		496344-16-01	496344-16-01		
	Units	**BH-309-3.0-3.7**	**BH-309-5.3-5.9**	**RDL**	**QC Batch**
Moisture	%	29	14	1.0	3865259
Benzene	ug/g	<0.020	<0.020	0.020	3866178
Toluene	ug/g	<0.020	<0.020	0.020	3866178
Ethylbenzene	ug/g	<0.020	<0.020	0.020	3866178
o-Xylene	ug/g	<0.020	<0.020	0.020	3866178
p+m-Xylene	ug/g	<0.040	<0.040	0.040	3866178
Total Xylenes	ug/g	<0.040	<0.040	0.040	3866178
Hexane	ug/g	<0.50	<0.50	0.50	3866178
F1 (C6-C10)	ug/g	<10	<10	10	3866178
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	3866178
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	3866849
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	3866849
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	3866849
Reached Baseline at C50	ug/g	Yes	Yes		3866849
Extraction Surrogate Recovery (%)					
D10-Ethylbenzene	%	80	90		3866178
o-Terphenyl	%	87	90		3866849
Instrument Surrogate Recovery (%)					
1,4-Difluorobenzene	%	102	104		3866178
4-Bromofluorobenzene	%	97	89		3866178
D4-1,2-Dichloroethane	%	99	100		3866178

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N7305
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

O.REG 153 PAHS (SOIL)

Maxxam ID		YW3248		YW3249		
Sampling Date		2014/12/12 13:40		2014/12/12 14:25		
COC Number		496344-16-01		496344-16-01		
	Units	**BH-309-3.0-3.7**	**RDL**	**BH-309-5.3-5.9**	**RDL**	**QC Batch**
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	<0.0071	0.0071	3862760
Acenaphthene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Acenaphthylene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Anthracene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Benzo(a)anthracene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Benzo(a)pyrene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Chrysene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Fluoranthene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Fluorene	ug/g	<0.010 (1)	0.010	<0.0050	0.0050	3865019
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
1-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
2-Methylnaphthalene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Naphthalene	ug/g	<0.020 (1)	0.020	<0.0050	0.0050	3865019
Phenanthrene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Pyrene	ug/g	<0.0050	0.0050	<0.0050	0.0050	3865019
Extraction Surrogate Recovery (%)						
D10-Anthracene	%	89		92		3865019
D14-Terphenyl (FS)	%	96		94		3865019
D8-Acenaphthylene	%	84		84		3865019

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
(1) DL was raised due to matrix interference.

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Maxxam Job #: B4N7305
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		YW3248	YW3249		
Sampling Date		2014/12/12 13:40	2014/12/12 14:25		
COC Number		496344-16-01	496344-16-01		
	Units	**BH-309-3.0-3.7**	**BH-309-5.3-5.9**	**RDL**	**QC Batch**
Acid Extractable Arsenic (As)	ug/g	<1.0	<1.0	1.0	3866241
Acid Extractable Barium (Ba)	ug/g	120	30	0.50	3866241
Acid Extractable Chromium (Cr)	ug/g	35	7.5	1.0	3866241
Acid Extractable Copper (Cu)	ug/g	19	8.3	0.50	3866241
Acid Extractable Lead (Pb)	ug/g	3.7	2.1	1.0	3866241
Acid Extractable Zinc (Zn)	ug/g	41	12	5.0	3866241

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N7305
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YW3248
Sample ID: BH-309-3.0-3.7
Matrix: Soil

Collected: 2014/12/12
Relinquished: 2014/12/12
Received: 2014/12/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3862760	N/A	2014/12/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3866178	2014/12/16	2014/12/19	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3866849	2014/12/19	2014/12/20	Jolanta Kawzowicz
Strong Acid Leachable Metals by ICPMS	ICP/MS	3866241	2014/12/19	2014/12/19	Grace Bu
Moisture	BAL	3865259	N/A	2014/12/18	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3865019	2014/12/18	2014/12/19	Yuan Zhou

Maxxam ID: YW3249
Sample ID: BH-309-5.3-5.9
Matrix: Soil

Collected: 2014/12/12
Relinquished: 2014/12/12
Received: 2014/12/15

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3862760	N/A	2014/12/22	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3866178	2014/12/16	2014/12/19	Simon Xi
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3866849	2014/12/19	2014/12/19	Jolanta Kawzowicz
Strong Acid Leachable Metals by ICPMS	ICP/MS	3866241	2014/12/19	2014/12/19	Grace Bu
Moisture	BAL	3865259	N/A	2014/12/18	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3865019	2014/12/18	2014/12/19	Yuan Zhou

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Maxxam Job #: B4N7305
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	1.0°C

Revised Report: Report re-issued to include only sample IDs BH-309-3.0-3.7 and BH-309-5.3-5.9, as per request by D. Bettencourt.

Results relate only to the items tested.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4N7305
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3865019	YZ	Method Blank	D10-Anthracene	2014/12/19		89	%	50 - 130
			D14-Terphenyl (FS)	2014/12/19		92	%	50 - 130
			D8-Acenaphthylene	2014/12/19		86	%	50 - 130
			Acenaphthene	2014/12/19	<0.0050		ug/g	
			Acenaphthylene	2014/12/19	<0.0050		ug/g	
			Anthracene	2014/12/19	<0.0050		ug/g	
			Benzo(a)anthracene	2014/12/19	<0.0050		ug/g	
			Benzo(a)pyrene	2014/12/19	<0.0050		ug/g	
			Benzo(b/j)fluoranthene	2014/12/19	<0.0050		ug/g	
			Benzo(g,h,i)perylene	2014/12/19	<0.0050		ug/g	
			Benzo(k)fluoranthene	2014/12/19	<0.0050		ug/g	
			Chrysene	2014/12/19	<0.0050		ug/g	
			Dibenz(a,h)anthracene	2014/12/19	<0.0050		ug/g	
			Fluoranthene	2014/12/19	<0.0050		ug/g	
			Fluorene	2014/12/19	<0.0050		ug/g	
			Indeno(1,2,3-cd)pyrene	2014/12/19	<0.0050		ug/g	
			1-Methylnaphthalene	2014/12/19	<0.0050		ug/g	
			2-Methylnaphthalene	2014/12/19	<0.0050		ug/g	
			Naphthalene	2014/12/19	<0.0050		ug/g	
			Phenanthrene	2014/12/19	<0.0050		ug/g	
			Pyrene	2014/12/19	<0.0050		ug/g	
3866178	JXI	Method Blank	1,4-Difluorobenzene	2014/12/19		101	%	60 - 140
			4-Bromofluorobenzene	2014/12/19		100	%	60 - 140
			D10-Ethylbenzene	2014/12/19		90	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/19		97	%	60 - 140
			Benzene	2014/12/19	<0.020		ug/g	
			Toluene	2014/12/19	<0.020		ug/g	
			Ethylbenzene	2014/12/19	<0.020		ug/g	
			o-Xylene	2014/12/19	<0.020		ug/g	
			p+m-Xylene	2014/12/19	<0.040		ug/g	
			Total Xylenes	2014/12/19	<0.040		ug/g	
			Hexane	2014/12/19	<0.50		ug/g	
			F1 (C6-C10)	2014/12/19	<10		ug/g	
			F1 (C6-C10) - BTEX	2014/12/19	<10		ug/g	
3866241	GBU	Method Blank	Acid Extractable Arsenic (As)	2014/12/19	<1.0		ug/g	
			Acid Extractable Barium (Ba)	2014/12/19	<0.50		ug/g	
			Acid Extractable Chromium (Cr)	2014/12/19	<1.0		ug/g	
			Acid Extractable Copper (Cu)	2014/12/19	<0.50		ug/g	
			Acid Extractable Lead (Pb)	2014/12/19	<1.0		ug/g	
			Acid Extractable Zinc (Zn)	2014/12/19	<5.0		ug/g	
3866849	JKA	Method Blank	o-Terphenyl	2014/12/19		94	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/19	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2014/12/19	<50		ug/g	
			F4 (C34-C50 Hydrocarbons)	2014/12/19	<50		ug/g	
3866849	JKA	RPD [YW3246-03]	F2 (C10-C16 Hydrocarbons)	2014/12/20	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2014/12/20	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2014/12/20	NC		%	30
3866849	JKA	Matrix Spike [YW3246-03]	o-Terphenyl	2014/12/19		100	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/19		96	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2014/12/19		108	%	50 - 130

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Maxxam Job #: B4N7305
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			F4 (C34-C50 Hydrocarbons)	2014/12/19		105	%	50 - 130
3865019	YZ	LCS	D10-Anthracene	2014/12/19		87	%	50 - 130
			D14-Terphenyl (FS)	2014/12/19		93	%	50 - 130
			D8-Acenaphthylene	2014/12/19		84	%	50 - 130
			Acenaphthene	2014/12/19		89	%	50 - 130
			Acenaphthylene	2014/12/19		85	%	50 - 130
			Anthracene	2014/12/19		88	%	50 - 130
			Benzo(a)anthracene	2014/12/19		82	%	50 - 130
			Benzo(a)pyrene	2014/12/19		89	%	50 - 130
			Benzo(b/j)fluoranthene	2014/12/19		88	%	50 - 130
			Benzo(g,h,i)perylene	2014/12/19		88	%	50 - 130
			Benzo(k)fluoranthene	2014/12/19		90	%	50 - 130
			Chrysene	2014/12/19		88	%	50 - 130
			Dibenz(a,h)anthracene	2014/12/19		89	%	50 - 130
			Fluoranthene	2014/12/19		91	%	50 - 130
			Fluorene	2014/12/19		89	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2014/12/19		96	%	50 - 130
			1-Methylnaphthalene	2014/12/19		93	%	50 - 130
			2-Methylnaphthalene	2014/12/19		91	%	50 - 130
			Naphthalene	2014/12/19		82	%	50 - 130
			Phenanthrene	2014/12/19		84	%	50 - 130
			Pyrene	2014/12/19		91	%	50 - 130
3866178	JXI	LCS	1,4-Difluorobenzene	2014/12/19		100	%	60 - 140
			4-Bromofluorobenzene	2014/12/19		107	%	60 - 140
			D10-Ethylbenzene	2014/12/19		102	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/19		99	%	60 - 140
			Benzene	2014/12/19		113	%	60 - 140
			Toluene	2014/12/19		106	%	60 - 140
			Ethylbenzene	2014/12/19		115	%	60 - 140
			o-Xylene	2014/12/19		119	%	60 - 140
			p+m-Xylene	2014/12/19		112	%	60 - 140
			Hexane	2014/12/19		111	%	60 - 140
			F1 (C6-C10)	2014/12/19		98	%	80 - 120
3866241	GBU	LCS	Acid Extractable Arsenic (As)	2014/12/19		103	%	80 - 120
			Acid Extractable Barium (Ba)	2014/12/19		103	%	80 - 120
			Acid Extractable Chromium (Cr)	2014/12/19		102	%	80 - 120
			Acid Extractable Copper (Cu)	2014/12/19		103	%	80 - 120
			Acid Extractable Lead (Pb)	2014/12/19		101	%	80 - 120
			Acid Extractable Zinc (Zn)	2014/12/19		104	%	80 - 120
3866849	JKA	LCS	o-Terphenyl	2014/12/19		95	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/19		85	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2014/12/19		99	%	80 - 120

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Maxxam Job #: B4N7305
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			F4 (C34-C50 Hydrocarbons)	2014/12/19		96	%	80 - 120

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.

LCS: 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 (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

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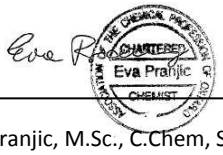
Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VALIDATION SIGNATURE PAGE

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

Cristina Carriere, Scientific Services



Ewa Pranjic, M.Sc., C.Chem, Scientific Specialist

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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Maxxam

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Toll Free: 800-563-6266

EXXONMOBIL/IMPERIAL OIL - MAXXAM
CHAIN-OF-CUSTODY RECORD
ANALYSIS REQUESTED

Page 1 of 1
C of C # 496344-16-01
496344

INVOICE INFORMATION	REPORT INFORMATION
Company Name: Imperial Oil, a partnership of Imperial Oil Limited and McColl Frontenac Petrole	Company Name: Parsons
Contact Name: Daniel Grenzowski	Contact Name: Holly Losignore
Address: 1 Duncan Mill Road North York ON M3B 1Z2	Address: 3715 Laird Road Suite 100 Mississauga ON L5L 0A3
Email: daniel.grenzowski@esso.ca	Email: Holly.Losignore@parsons.com; labreport@
Phone: (416) 442-5012 x	Phone: (905) 569-4111 x
Sampler Name (Print): Edward Parker	Consultant Project #: 10-8518.3

	FIELD SAMPLE ID	GROUNDWATER	SURFACE WATER	SOIL	OTHER	# CONTAINERS	DATE (YYYY/MM/DD)	TIME (24 HR)	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	F1 / BTEX	F2 - F4	PAHs	VOCs	Lead	ICPMS Metals	TCLP VOC	TCLP Inorganics	TCLP SVOCS	TCLP PCBs	TCLP B(a)P	PCBs	VOC (3): ethylene dibromide, 1,2-dichloroethane, MTBE	Hexane	Metals(6) - arsenic, barium, chromium, copper, lead, zinc				
1	BH-308-3.0-3.7			✓		8	2014/12/12	11:45			✓	✓	✓										✓	✓	✓				
2	BH-308-6.1-6.7			✓		8	2014/12/12	12:50			✓	✓	✓										✓	✓	✓				
3	BH-309-3.0-3.7			✓		6	2014/12/12	13:40			✓	✓	✓											✓	✓				
4	BH-309-5.3-5.9			✓		6	2014/12/12	14:25			✓	✓	✓											✓	✓				
5							YYYY/MM/DD	HH:MM																					
6							YYYY/MM/DD	HH:MM																					
7							YYYY/MM/DD	HH:MM																					
8							YYYY/MM/DD	HH:MM																					
9							YYYY/MM/DD	HH:MM																					
10							YYYY/MM/DD	HH:MM																					

IOL SITE LOCATION:
1545 WOODROFFE AVENUE, OTTAWA, ON
IOL SITE # (if applicable):
N/A
IOL PROJECT # (if applicable):
ME.00214
MAXXAM TASK ORDER # OR SERVICE ORDER # + LINE ITEM:
4410259930-10

REGULATORY CRITERIA / DETECTION LIMITS:
☒ REG 153 Table 3 ☐ 2004 ☒ 2011 ☐ RSC
(Please indicate which Reg. version and if RSC required)
☐ ODWS ☐ PWQO
☐ Other
1/C/C med/Fine

SPECIAL INSTRUCTIONS:
Test samples as per TDG
ICE-YES

JARS USED AND NOT SUBMITTED Enter N/A for Water: Ø

TURNAROUND TIME
Standard (5 days) ☒
Rush (3 days) ☐
(2 days) ☐
(1 day) ☐
(same day) ☐
Date Required

COOLER ID:	YES	NO	TEMP			
CUSTODY SEAL				2	0	1
PRESENT	✓					
INTACT	✓					

COOLER ID: CUSTODY SEAL YES NO PRESENT INTACT TEMP 1 2 3

COOLER ID: CUSTODY SEAL YES NO PRESENT INTACT TEMP 1 2 3

RELINQUISHED BY:		DATE:	TIME (24 HR)	RECEIVED BY:		DATE:	TIME (24 HR)
1. [signature]	Edward Parker	2014/12/12	17:30	1. [signature]	MARIE FERRER	2014/12/15	14:52
2. signature	printed name	YYYY/MM/DD	HH:MM	2. signature	printed name	YYYY/MM/DD	HH:MM
3. signature	printed name	YYYY/MM/DD	HH:MM	3. signature	printed name	YYYY/MM/DD	HH:MM

LAB USE ONLY
MAXXAM JOB #
B4N7305
SAMPLES
LABELED BY: FW
VERIFIED BY: MAF

COC – 1012 (2013) IOL – ON   White: Maxxam   Yellow: Client

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Canada Ltd.*
1545 Woodroffe Avenue
Location: *Ottawa, Ontario*

Sampling Date: 2014/12/12

Laboratory: *Maxxam Analytics Inc.*

Consultant Project Number: *10-8518.3*

Laboratory Job Number: *B4N7305*

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/Spiked Blank	*X*			

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

	Yes	No	NA	Comments
Field Blank Concentration			*X*	*No field QC samples were submitted.*
Trip Blank Concentration			*X*	
Field Duplicate RPD			*X*	

Has CofA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CofA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CofA (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 or N/A)?:	*Yes*

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

Date Issued: *N/A* Date of Response: *N/A*

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

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

Data Reviewed by (Print): *Beverley Noel*

Data Reviewed by (Signature): 

Review Date: *2015/01/07*

Revision Date (if applicable):

Revised by (Signature):

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496344-17-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2014/12/29
Report #: R3273066
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4N9434
Received: 2014/12/17, 17:55

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Laboratory Method	Primary Reference
Methylnaphthalene Sum	2	CAM SOP-00301	EPA 8270D m
Petroleum Hydro. CCME F1 & BTEX in Soil	2	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil	2	CAM SOP-00316	CCME CWS m
Strong Acid Leachable Metals by ICPMS	2	CAM SOP-00447	EPA 6020A m
Moisture	2	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	2	CAM SOP-00318	EPA 8270D m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by GUCSO and O.Reg 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

All data is in statistical control and has met all QC and method performance criteria unless otherwise flagged. All samples were analysed within hold time unless otherwise flagged. All soil samples for BTEX analysis were methanol extracted within 24 hours unless otherwise flagged.

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

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496344-17-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2014/12/29
Report #: R3273066
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4N9434
Received: 2014/12/17, 17:55

Encryption Key Kudrat Bajwa
Kudrat Bajwa
29 Dec 2014 09:25:51 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kudrat Bajwa, B.Sc., Project Manager
Email: KBajwa@maxxam.ca
Phone# (905)817-5822

==========

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Maxxam Job #: B4N9434
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

HBTEX/F1-F4 PET. HYDROCARBONS IN SOIL (SOIL)

Maxxam ID		YX3054	YX3055		
Sampling Date		2014/12/13 10:50	2014/12/13 11:40		
COC Number		496344-17-01	496344-17-01		
	Units	**BH-311-3.0-3.7**	**BH-311-5.5-6.1**	**RDL**	**QC Batch**
Benzene	ug/g	<0.020	<0.020	0.020	3869158
Toluene	ug/g	<0.020	<0.020	0.020	3869158
Ethylbenzene	ug/g	<0.020	<0.020	0.020	3869158
o-Xylene	ug/g	<0.020	<0.020	0.020	3869158
p+m-Xylene	ug/g	<0.040	<0.040	0.040	3869158
Total Xylenes	ug/g	<0.040	<0.040	0.040	3869158
Hexane	ug/g	<0.50	<0.50	0.50	3869158
F1 (C6-C10)	ug/g	<10	<10	10	3869158
F1 (C6-C10) - BTEX	ug/g	<10	<10	10	3869158
F2 (C10-C16 Hydrocarbons)	ug/g	<10	<10	10	3869151
F3 (C16-C34 Hydrocarbons)	ug/g	<50	<50	50	3869151
F4 (C34-C50 Hydrocarbons)	ug/g	<50	<50	50	3869151
Reached Baseline at C50	ug/g	Yes	Yes		3869151
Extraction Surrogate Recovery (%)					
D10-Ethylbenzene	%	81	89		3869158
o-Terphenyl	%	101	98		3869151
Instrument Surrogate Recovery (%)					
1,4-Difluorobenzene	%	104	104		3869158
4-Bromofluorobenzene	%	99	97		3869158
D4-1,2-Dichloroethane	%	96	94		3869158

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9434
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

O.REG 153 PAHS (SOIL)

Maxxam ID		YX3054	YX3055		
Sampling Date		2014/12/13 10:50	2014/12/13 11:40		
COC Number		496344-17-01	496344-17-01		
	Units	**BH-311-3.0-3.7**	**BH-311-5.5-6.1**	**RDL**	**QC Batch**
Moisture	%	30	17	1.0	3868602
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	<0.0071	0.0071	3863849
Acenaphthene	ug/g	<0.0050	<0.0050	0.0050	3867006
Acenaphthylene	ug/g	<0.0050	<0.0050	0.0050	3867006
Anthracene	ug/g	<0.0050	<0.0050	0.0050	3867006
Benzo(a)anthracene	ug/g	<0.0050	<0.0050	0.0050	3867006
Benzo(a)pyrene	ug/g	<0.0050	<0.0050	0.0050	3867006
Benzo(b/j)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	3867006
Benzo(g,h,i)perylene	ug/g	<0.0050	<0.0050	0.0050	3867006
Benzo(k)fluoranthene	ug/g	<0.0050	<0.0050	0.0050	3867006
Chrysene	ug/g	<0.0050	<0.0050	0.0050	3867006
Dibenz(a,h)anthracene	ug/g	<0.0050	<0.0050	0.0050	3867006
Fluoranthene	ug/g	<0.0050	<0.0050	0.0050	3867006
Fluorene	ug/g	<0.0050	<0.0050	0.0050	3867006
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	<0.0050	0.0050	3867006
1-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	3867006
2-Methylnaphthalene	ug/g	<0.0050	<0.0050	0.0050	3867006
Naphthalene	ug/g	<0.0050	<0.0050	0.0050	3867006
Phenanthrene	ug/g	<0.0050	<0.0050	0.0050	3867006
Pyrene	ug/g	<0.0050	<0.0050	0.0050	3867006
Extraction Surrogate Recovery (%)					
D10-Anthracene	%	83	92		3867006
D14-Terphenyl (FS)	%	102	103		3867006
D8-Acenaphthylene	%	84	86		3867006

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9434
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		YX3054	YX3055		
Sampling Date		2014/12/13 10:50	2014/12/13 11:40		
COC Number		496344-17-01	496344-17-01		
	Units	**BH-311-3.0-3.7**	**BH-311-5.5-6.1**	**RDL**	**QC Batch**
Acid Extractable Arsenic (As)	ug/g	<1.0	<1.0	1.0	3869519
Acid Extractable Barium (Ba)	ug/g	270	37	0.50	3869519
Acid Extractable Chromium (Cr)	ug/g	72	6.1	1.0	3869519
Acid Extractable Copper (Cu)	ug/g	32	12	0.50	3869519
Acid Extractable Lead (Pb)	ug/g	6.3	2.2	1.0	3869519
Acid Extractable Zinc (Zn)	ug/g	89	18	5.0	3869519

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9434
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YX3054
Sample ID: BH-311-3.0-3.7
Matrix: Soil

Collected: 2014/12/13
Relinquished: 2014/12/15
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3863849	N/A	2014/12/23	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3869158	2014/12/18	2014/12/23	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3869151	2014/12/23	2014/12/23	Jeevaraj Jeevaratrnam
Strong Acid Leachable Metals by ICPMS	ICP/MS	3869519	2014/12/23	2014/12/23	Grace Bu
Moisture	BAL	3868602	N/A	2014/12/22	Shivani Desai
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3867006	2014/12/19	2014/12/22	Lingyun Feng

Maxxam ID: YX3055
Sample ID: BH-311-5.5-6.1
Matrix: Soil

Collected: 2014/12/13
Relinquished: 2014/12/15
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3863849	N/A	2014/12/23	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3869158	2014/12/18	2014/12/23	Anca Ganea
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	3869151	2014/12/23	2014/12/23	Jeevaraj Jeevaratrnam
Strong Acid Leachable Metals by ICPMS	ICP/MS	3869519	2014/12/23	2014/12/23	Grace Bu
Moisture	BAL	3868602	N/A	2014/12/22	Shivani Desai
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3867006	2014/12/19	2014/12/22	Lingyun Feng

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Maxxam Job #: B4N9434
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C

Results relate only to the items tested.

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Maxxam Job #: B4N9434
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3867006	LFE	Method Blank	D10-Anthracene	2014/12/22		90	%	50 - 130
			D14-Terphenyl (FS)	2014/12/22		101	%	50 - 130
			D8-Acenaphthylene	2014/12/22		86	%	50 - 130
			Acenaphthene	2014/12/22	<0.0050		ug/g	
			Acenaphthylene	2014/12/22	<0.0050		ug/g	
			Anthracene	2014/12/22	<0.0050		ug/g	
			Benzo(a)anthracene	2014/12/22	<0.0050		ug/g	
			Benzo(a)pyrene	2014/12/22	<0.0050		ug/g	
			Benzo(b/j)fluoranthene	2014/12/22	<0.0050		ug/g	
			Benzo(g,h,i)perylene	2014/12/22	<0.0050		ug/g	
			Benzo(k)fluoranthene	2014/12/22	<0.0050		ug/g	
			Chrysene	2014/12/22	<0.0050		ug/g	
			Dibenz(a,h)anthracene	2014/12/22	<0.0050		ug/g	
			Fluoranthene	2014/12/22	<0.0050		ug/g	
			Fluorene	2014/12/22	<0.0050		ug/g	
			Indeno(1,2,3-cd)pyrene	2014/12/22	<0.0050		ug/g	
			1-Methylnaphthalene	2014/12/22	<0.0050		ug/g	
			2-Methylnaphthalene	2014/12/22	<0.0050		ug/g	
			Naphthalene	2014/12/22	<0.0050		ug/g	
			Phenanthrene	2014/12/22	<0.0050		ug/g	
			Pyrene	2014/12/22	<0.0050		ug/g	
3869151	JJE	Method Blank	o-Terphenyl	2014/12/23		99	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/23	<10		ug/g	
			F3 (C16-C34 Hydrocarbons)	2014/12/23	<50		ug/g	
			F4 (C34-C50 Hydrocarbons)	2014/12/23	<50		ug/g	
3869158	AGA	Method Blank	1,4-Difluorobenzene	2014/12/23		106	%	60 - 140
			4-Bromofluorobenzene	2014/12/23		104	%	60 - 140
			D10-Ethylbenzene	2014/12/23		84	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/23		99	%	60 - 140
			Benzene	2014/12/23	<0.020		ug/g	
			Toluene	2014/12/23	<0.020		ug/g	
			Ethylbenzene	2014/12/23	<0.020		ug/g	
			o-Xylene	2014/12/23	<0.020		ug/g	
			p+m-Xylene	2014/12/23	<0.040		ug/g	
			Total Xylenes	2014/12/23	<0.040		ug/g	
			Hexane	2014/12/23	<0.50		ug/g	
			F1 (C6-C10)	2014/12/23	<10		ug/g	
			F1 (C6-C10) - BTEX	2014/12/23	<10		ug/g	
3869519	GBU	Method Blank	Acid Extractable Arsenic (As)	2014/12/23	<1.0		ug/g	
			Acid Extractable Barium (Ba)	2014/12/23	<0.50		ug/g	
			Acid Extractable Chromium (Cr)	2014/12/23	<1.0		ug/g	
			Acid Extractable Copper (Cu)	2014/12/23	<0.50		ug/g	
			Acid Extractable Lead (Pb)	2014/12/23	<1.0		ug/g	
			Acid Extractable Zinc (Zn)	2014/12/23	<5.0		ug/g	
3867006	LFE	LCS	D10-Anthracene	2014/12/22		91	%	50 - 130
			D14-Terphenyl (FS)	2014/12/22		102	%	50 - 130
			D8-Acenaphthylene	2014/12/22		89	%	50 - 130
			Acenaphthene	2014/12/22		84	%	50 - 130
			Acenaphthylene	2014/12/22		87	%	50 - 130
			Anthracene	2014/12/22		87	%	50 - 130
			Benzo(a)anthracene	2014/12/22		87	%	50 - 130

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Maxxam Job #: B4N9434
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			Benzo(a)pyrene	2014/12/22		86	%	50 - 130
			Benzo(b/j)fluoranthene	2014/12/22		83	%	50 - 130
			Benzo(g,h,i)perylene	2014/12/22		79	%	50 - 130
			Benzo(k)fluoranthene	2014/12/22		83	%	50 - 130
			Chrysene	2014/12/22		87	%	50 - 130
			Dibenz(a,h)anthracene	2014/12/22		82	%	50 - 130
			Fluoranthene	2014/12/22		96	%	50 - 130
			Fluorene	2014/12/22		93	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2014/12/22		92	%	50 - 130
			1-Methylnaphthalene	2014/12/22		93	%	50 - 130
			2-Methylnaphthalene	2014/12/22		93	%	50 - 130
			Naphthalene	2014/12/22		83	%	50 - 130
			Phenanthrene	2014/12/22		84	%	50 - 130
			Pyrene	2014/12/22		97	%	50 - 130
3869151	JJE	LCS	o-Terphenyl	2014/12/23		96	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/23		93	%	80 - 120
			F3 (C16-C34 Hydrocarbons)	2014/12/23		99	%	80 - 120
			F4 (C34-C50 Hydrocarbons)	2014/12/23		104	%	80 - 120
3869158	AGA	LCS	1,4-Difluorobenzene	2014/12/23		104	%	60 - 140
			4-Bromofluorobenzene	2014/12/23		99	%	60 - 140
			D10-Ethylbenzene	2014/12/23		81	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/23		96	%	60 - 140
			Benzene	2014/12/23		87	%	60 - 140
			Toluene	2014/12/23		89	%	60 - 140
			Ethylbenzene	2014/12/23		96	%	60 - 140
			o-Xylene	2014/12/23		92	%	60 - 140
			p+m-Xylene	2014/12/23		87	%	60 - 140
			Hexane	2014/12/23		105	%	60 - 140
			F1 (C6-C10)	2014/12/23		88	%	80 - 120
3869519	GBU	LCS	Acid Extractable Arsenic (As)	2014/12/23		101	%	80 - 120
			Acid Extractable Barium (Ba)	2014/12/23		100	%	80 - 120
			Acid Extractable Chromium (Cr)	2014/12/23		100	%	80 - 120
			Acid Extractable Copper (Cu)	2014/12/23		101	%	80 - 120
			Acid Extractable Lead (Pb)	2014/12/23		100	%	80 - 120
			Acid Extractable Zinc (Zn)	2014/12/23		103	%	80 - 120

LCS: 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.

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Maxxam Job #: B4N9434
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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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Maxxam

6740 Campobello Road
Mississauga, Ontario L5N 2L8
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Phone: (905) 817-5700
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Toll Free: 800-563-6266

EXXONMOBIL/IMPERIAL OIL - MAXXAM
CHAIN-OF-CUSTODY RECORD
ANALYSIS REQUESTED

Page 1 of 1

C of C # 496344-17-01

496344

INVOICE INFORMATION	REPORT INFORMATION
Company Name: Imperial Oil, a partnership of Imperial Oil Limited and McColl Frontenac Petrole	Company Name: Parsons
Contact Name: Daniel Grenzowski	Contact Name: Holly Losignore
Address: 1 Duncan Mill Road North York ON M3B 1Z2	Address: 3715 Laird Road Suite 100 Mississauga ON L5L 0A3
Email: daniel.grenzowski@esso.ca	Email: Holly.Losignore@parsons.com; labreport@
Phone: (416) 442-5012 x	Phone: (905) 569-4111 x
Sampler Name (Print): THEO MOSHONAS	Consultant Project #: 10-8518.3

	FIELD SAMPLE ID	MATRIX: GROUND WATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE (YYYY/MM/DD)	SAMPLING: TIME (24 HR)	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	F1 / BTEX	F2 - F4	PAHs	VOCs	Lead	ICPMS Metals	TCLP VOC	TCLP Inorganics	TCLP SVOCS	TCLP PCBs	TCLP B(a)P	PCBs	n-HEXANE			METALS (6) arsenic, barium, cadmium, copper, lead, chromium					
1	BH-311-3,0-3,7			✓		6	2014/12/13	10:50	N	N	✓	✓	✓										✓			✓				
2	BH-311-5,5-6,1			✓		6	2014/12/13	11:40	N	N	✓	✓	✓										✓			✓				
3							YYYY/MM/DD	HH:MM																						
4							YYYY/MM/DD	HH:MM																						
5							YYYY/MM/DD	HH:MM																						
6							YYYY/MM/DD	HH:MM																						
7							YYYY/MM/DD	HH:MM																						
8							YYYY/MM/DD	HH:MM																						
9							YYYY/MM/DD	HH:MM																						
10							YYYY/MM/DD	HH:MM																						

IOL SITE LOCATION:
1545 WOODROFFE AVENUE, OTTAWA, ON

IOL SITE # (if applicable):
N/A

IOL PROJECT # (if applicable):
ME.00214

MAXXAM TASK ORDER # OR SERVICE ORDER # + LINE ITEM:
4410259930-10

REGULATORY CRITERIA / DETECTION LIMITS:
☒ REG 153 Table 3 ☐ 2004 ☒ 2011 ☐ RSC
(Please indicate which Reg. version and if RSC required)
☐ ODWS ☐ PWQO
☐ Other
I/c/c FINE/MED

SPECIAL INSTRUCTIONS:
TEST SAMPLES AS PER TDG
ICE - YES

JARS USED AND NOT SUBMITTED
Enter N/A for Water
0

TURNAROUND TIME
Standard (5 days) ☒
Rush (3 days) ☐
(2 days) ☐
(1 day) ☐
(same day) ☐
Date Required

COOLER ID: 1	YES	NO
CUSTODY SEAL PRESENT	✓	
CUSTODY SEAL INTACT	✓	
TEMP	3 (1)	3 (2)	3 (3)

COOLER ID:	YES	NO
CUSTODY SEAL PRESENT		
CUSTODY SEAL INTACT		
TEMP	1	2	3

COOLER ID:	YES	NO
CUSTODY SEAL PRESENT		
CUSTODY SEAL INTACT		
TEMP	1	2	3

LAB USE ONLY
MAXXAM JOB #
B4N9434
SAMPLES
LABELED BY: HG1
VERIFIED BY: FW

RELINQUISHED BY:	printed name	DATE: YYYY/MM/DD	TIME (24 HR) HH:MM	RECEIVED BY:	printed name	DATE: YYYY/MM/DD	TIME (24 HR) HH:MM
1. signature	THEO MOSHONAS	2014/12/13	15:20	1. signature	ALKA PATEL	2014/12/17	17:55
2. signature	printed name	YYYY/MM/DD	HH:MM	2. signature	printed name	YYYY/MM/DD	HH:MM
3. signature	printed name	YYYY/MM/DD	HH:MM	3. signature	printed name	YYYY/MM/DD	HH:MM

COC – 1012 (2013) IOL – ON

White: Maxxam

Yellow: Client

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Canada Ltd.*
1545 Woodroffe Avenue
Location: *Ottawa, Ontario*

Sampling Date: 2014/12/13

Laboratory: *Maxxam Analytics Inc.*

Consultant Project Number: *10-8518.3*

Laboratory Job Number: *B4N9434*

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/Spiked Blank	*X*			

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

	Yes	No	NA	Comments
Field Blank Concentration			*X*	*No field QC samples were submitted.*
Trip Blank Concentration			*X*	
Field Duplicate RPD			*X*	

Has CofA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CofA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CofA (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 or N/A)?:	*Yes*

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

Date Issued: *N/A* Date of Response: *N/A*

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

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

Data Reviewed by (Print): *Beverley Noel*

Data Reviewed by (Signature): 

Review Date: *2015/01/07*

Revision Date (if applicable):

Revised by (Signature):

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496344-06-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2015/01/26
Report #: R3312667
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4N9446
Received: 2014/12/17, 17:55

Sample Matrix: Soil
Samples Received: 2

Analyses	Quantity	Laboratory Method	Primary Reference
Methylnaphthalene Sum	1	CAM SOP-00301	EPA 8270D m
1,3-Dichloropropene Sum	1	CAM SOP-00226	EPA 8260
Petroleum Hydro. CCME F1 & BTEX in Soil	1	CAM SOP-00315	CCME PHC-CWS m
Moisture	1	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	1	CAM SOP-00318	EPA 8270D m
Volatile Organic Compounds in Soil	1	CAM SOP-00226	EPA 8260 m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by GUCSO and O.Reg 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

All data is in statistical control and has met all QC and method performance criteria unless otherwise flagged. All samples were analysed within hold time unless otherwise flagged. All soil samples for BTEX analysis were methanol extracted within 24 hours unless otherwise flagged.

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

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496344-06-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2015/01/26
Report #: R3312667
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4N9446
Received: 2014/12/17, 17:55

Encryption Key Kudrat Bajwa
Kudrat Bajwa
26 Jan 2015 09:34:27 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kudrat Bajwa, B.Sc., Project Manager
Email: KBajwa@maxxam.ca
Phone# (905)817-5822

==========

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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Maxxam Job #: B4N9446
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

O.REG 153 PAHS (SOIL)

Maxxam ID		YX3107		
Sampling Date		2014/12/13 09:25		
COC Number		496344-06-01		
	Units	**FIELD BLANK-01**	**RDL**	**QC Batch**
Moisture	%	<1.0	1.0	3865050
Methylnaphthalene, 2-(1-)	ug/g	<0.0071	0.0071	3863849
Acenaphthene	ug/g	<0.0050	0.0050	3865019
Acenaphthylene	ug/g	<0.0050	0.0050	3865019
Anthracene	ug/g	<0.0050	0.0050	3865019
Benzo(a)anthracene	ug/g	<0.0050	0.0050	3865019
Benzo(a)pyrene	ug/g	<0.0050	0.0050	3865019
Benzo(b/j)fluoranthene	ug/g	<0.0050	0.0050	3865019
Benzo(g,h,i)perylene	ug/g	<0.0050	0.0050	3865019
Benzo(k)fluoranthene	ug/g	<0.0050	0.0050	3865019
Chrysene	ug/g	<0.0050	0.0050	3865019
Dibenz(a,h)anthracene	ug/g	<0.0050	0.0050	3865019
Fluoranthene	ug/g	<0.0050	0.0050	3865019
Fluorene	ug/g	<0.0050	0.0050	3865019
Indeno(1,2,3-cd)pyrene	ug/g	<0.0050	0.0050	3865019
1-Methylnaphthalene	ug/g	<0.0050	0.0050	3865019
2-Methylnaphthalene	ug/g	<0.0050	0.0050	3865019
Naphthalene	ug/g	<0.0050	0.0050	3865019
Phenanthrene	ug/g	<0.0050	0.0050	3865019
Pyrene	ug/g	<0.0050	0.0050	3865019
Extraction Surrogate Recovery (%)				
D10-Anthracene	%	88		3865019
D14-Terphenyl (FS)	%	91		3865019
D8-Acenaphthylene	%	84		3865019

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9446
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

O.REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		YX3106		
Sampling Date		2014/12/13 09:40		
COC Number		496344-06-01		
	Units	**TRIP BLANK-01**	**RDL**	**QC Batch**
1,3-Dichloropropene (cis+trans)	ug/g	<0.050	0.050	3862761
Acetone (2-Propanone)	ug/g	<0.50	0.50	3864759
Benzene	ug/g	<0.020	0.020	3864759
Bromodichloromethane	ug/g	<0.050	0.050	3864759
Bromoform	ug/g	<0.050	0.050	3864759
Bromomethane	ug/g	<0.050	0.050	3864759
Carbon Tetrachloride	ug/g	<0.050	0.050	3864759
Chlorobenzene	ug/g	<0.050	0.050	3864759
Chloroform	ug/g	<0.050	0.050	3864759
Dibromochloromethane	ug/g	<0.050	0.050	3864759
1,2-Dichlorobenzene	ug/g	<0.050	0.050	3864759
1,3-Dichlorobenzene	ug/g	<0.050	0.050	3864759
1,4-Dichlorobenzene	ug/g	<0.050	0.050	3864759
Dichlorodifluoromethane (FREON 12)	ug/g	<0.050	0.050	3864759
1,1-Dichloroethane	ug/g	<0.050	0.050	3864759
1,2-Dichloroethane	ug/g	<0.050	0.050	3864759
1,1-Dichloroethylene	ug/g	<0.050	0.050	3864759
cis-1,2-Dichloroethylene	ug/g	<0.050	0.050	3864759
trans-1,2-Dichloroethylene	ug/g	<0.050	0.050	3864759
1,2-Dichloropropane	ug/g	<0.050	0.050	3864759
cis-1,3-Dichloropropene	ug/g	<0.030	0.030	3864759
trans-1,3-Dichloropropene	ug/g	<0.040	0.040	3864759
Ethylbenzene	ug/g	<0.020	0.020	3864759
Ethylene Dibromide	ug/g	<0.050	0.050	3864759
Hexane	ug/g	<0.050	0.050	3864759
Methylene Chloride(Dichloromethane)	ug/g	<0.050	0.050	3864759
Methyl Isobutyl Ketone	ug/g	<0.50	0.50	3864759
Methyl Ethyl Ketone (2-Butanone)	ug/g	<0.50	0.50	3864759
Methyl t-butyl ether (MTBE)	ug/g	<0.050	0.050	3864759
Styrene	ug/g	<0.050	0.050	3864759
1,1,1,2-Tetrachloroethane	ug/g	<0.050	0.050	3864759
1,1,2,2-Tetrachloroethane	ug/g	<0.050	0.050	3864759
Tetrachloroethylene	ug/g	<0.050	0.050	3864759
Toluene	ug/g	<0.020	0.020	3864759

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Parsons
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Project #: 10-8518.3

O.REG 153 VOLATILE ORGANICS (SOIL)

Maxxam ID		YX3106		
Sampling Date		2014/12/13 09:40		
COC Number		496344-06-01		
	Units	**TRIP BLANK-01**	**RDL**	**QC Batch**
1,1,1-Trichloroethane	ug/g	<0.050	0.050	3864759
1,1,2-Trichloroethane	ug/g	<0.050	0.050	3864759
Trichloroethylene	ug/g	<0.050	0.050	3864759
Vinyl Chloride	ug/g	<0.020	0.020	3864759
p+m-Xylene	ug/g	<0.020	0.020	3864759
o-Xylene	ug/g	<0.020	0.020	3864759
Total Xylenes	ug/g	<0.020	0.020	3864759
Trichlorofluoromethane (FREON 11)	ug/g	<0.050	0.050	3864759
Extraction Surrogate Recovery (%)				
D10-o-Xylene	%	84		3864759
Instrument Surrogate Recovery (%)				
4-Bromofluorobenzene	%	86		3864759
D4-1,2-Dichloroethane	%	100		3864759
D8-Toluene	%	102		3864759

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Parsons
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Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

PETROLEUM HYDROCARBONS (CCME)

Maxxam ID		YX3106		
Sampling Date		2014/12/13 09:40		
COC Number		496344-06-01		
	Units	**TRIP BLANK-01**	**RDL**	**QC Batch**
F1 (C6-C10)	ug/g	<10	10	3869158
F1 (C6-C10) - BTEX	ug/g	<10	10	3869158
Extraction Surrogate Recovery (%)				
D10-Ethylbenzene	%	80		3869158
Instrument Surrogate Recovery (%)				
1,4-Difluorobenzene	%	106		3869158
4-Bromofluorobenzene	%	100		3869158
D4-1,2-Dichloroethane	%	97		3869158

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9446
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YX3106
Sample ID: TRIP BLANK-01
Matrix: Soil

Collected: 2014/12/13
Relinquished: 2014/12/15
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3862761	N/A	2014/12/23	Automated Statchk
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	3869158	2014/12/18	2014/12/23	Anca Ganea
Volatile Organic Compounds in Soil	P&T/MS	3864759	2014/12/18	2014/12/19	Karen Huynh

Maxxam ID: YX3107
Sample ID: FIELD BLANK-01
Matrix: Soil

Collected: 2014/12/13
Relinquished: 2014/12/15
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	3863849	N/A	2014/12/22	Automated Statchk
Moisture	BAL	3865050	N/A	2014/12/18	Valentina Kaftani
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	3865019	2014/12/18	2014/12/19	Yuan Zhou

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Maxxam Job #: B4N9446
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	3.0°C

Revised Report: Report re-issued to include only PAH analysis results for sample ID FIELD BLANK-01 and VOC, F1BTEX, F2-F4 analysis for sample ID TRIP BLANK-01, as per request by D. Bettencourt.

Results relate only to the items tested.

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Parsons
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Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3864759	KH1	Method Blank	4-Bromofluorobenzene	2014/12/19		85	%	60 - 140
			D10-o-Xylene	2014/12/19		98	%	60 - 130
			D4-1,2-Dichloroethane	2014/12/19		98	%	60 - 140
			D8-Toluene	2014/12/19		102	%	60 - 140
			Acetone (2-Propanone)	2014/12/19	<0.50		ug/g	
			Benzene	2014/12/19	<0.020		ug/g	
			Bromodichloromethane	2014/12/19	<0.050		ug/g	
			Bromoform	2014/12/19	<0.050		ug/g	
			Bromomethane	2014/12/19	<0.050		ug/g	
			Carbon Tetrachloride	2014/12/19	<0.050		ug/g	
			Chlorobenzene	2014/12/19	<0.050		ug/g	
			Chloroform	2014/12/19	<0.050		ug/g	
			Dibromochloromethane	2014/12/19	<0.050		ug/g	
			1,2-Dichlorobenzene	2014/12/19	<0.050		ug/g	
			1,3-Dichlorobenzene	2014/12/19	<0.050		ug/g	
			1,4-Dichlorobenzene	2014/12/19	<0.050		ug/g	
			Dichlorodifluoromethane (FREON 12)	2014/12/19	<0.050		ug/g	
			1,1-Dichloroethane	2014/12/19	<0.050		ug/g	
			1,2-Dichloroethane	2014/12/19	<0.050		ug/g	
			1,1-Dichloroethylene	2014/12/19	<0.050		ug/g	
			cis-1,2-Dichloroethylene	2014/12/19	<0.050		ug/g	
			trans-1,2-Dichloroethylene	2014/12/19	<0.050		ug/g	
			1,2-Dichloropropane	2014/12/19	<0.050		ug/g	
			cis-1,3-Dichloropropene	2014/12/19	<0.030		ug/g	
			trans-1,3-Dichloropropene	2014/12/19	<0.040		ug/g	
			Ethylbenzene	2014/12/19	<0.020		ug/g	
			Ethylene Dibromide	2014/12/19	<0.050		ug/g	
			Hexane	2014/12/19	<0.050		ug/g	
			Methylene Chloride(Dichloromethane)	2014/12/19	<0.050		ug/g	
			Methyl Isobutyl Ketone	2014/12/19	<0.50		ug/g	
			Methyl Ethyl Ketone (2-Butanone)	2014/12/19	<0.50		ug/g	
			Methyl t-butyl ether (MTBE)	2014/12/19	<0.050		ug/g	
			Styrene	2014/12/19	<0.050		ug/g	
			1,1,1,2-Tetrachloroethane	2014/12/19	<0.050		ug/g	
			1,1,2,2-Tetrachloroethane	2014/12/19	<0.050		ug/g	
			Tetrachloroethylene	2014/12/19	<0.050		ug/g	
			Toluene	2014/12/19	<0.020		ug/g	
			1,1,1-Trichloroethane	2014/12/19	<0.050		ug/g	
			1,1,2-Trichloroethane	2014/12/19	<0.050		ug/g	
			Trichloroethylene	2014/12/19	<0.050		ug/g	
			Vinyl Chloride	2014/12/19	<0.020		ug/g	
			p+m-Xylene	2014/12/19	<0.020		ug/g	
			o-Xylene	2014/12/19	<0.020		ug/g	
			Total Xylenes	2014/12/19	<0.020		ug/g	
			Trichlorofluoromethane (FREON 11)	2014/12/19	<0.050		ug/g	
3865019	YZ	Method Blank	D10-Anthracene	2014/12/19		89	%	50 - 130
			D14-Terphenyl (FS)	2014/12/19		92	%	50 - 130
			D8-Acenaphthylene	2014/12/19		86	%	50 - 130
			Acenaphthene	2014/12/19	<0.0050		ug/g	
			Acenaphthylene	2014/12/19	<0.0050		ug/g	
			Anthracene	2014/12/19	<0.0050		ug/g	

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Maxxam Job #: B4N9446
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			Benzo(a)anthracene	2014/12/19	<0.0050		ug/g	
			Benzo(a)pyrene	2014/12/19	<0.0050		ug/g	
			Benzo(b/j)fluoranthene	2014/12/19	<0.0050		ug/g	
			Benzo(g,h,i)perylene	2014/12/19	<0.0050		ug/g	
			Benzo(k)fluoranthene	2014/12/19	<0.0050		ug/g	
			Chrysene	2014/12/19	<0.0050		ug/g	
			Dibenz(a,h)anthracene	2014/12/19	<0.0050		ug/g	
			Fluoranthene	2014/12/19	<0.0050		ug/g	
			Fluorene	2014/12/19	<0.0050		ug/g	
			Indeno(1,2,3-cd)pyrene	2014/12/19	<0.0050		ug/g	
			1-Methylnaphthalene	2014/12/19	<0.0050		ug/g	
			2-Methylnaphthalene	2014/12/19	<0.0050		ug/g	
			Naphthalene	2014/12/19	<0.0050		ug/g	
			Phenanthrene	2014/12/19	<0.0050		ug/g	
			Pyrene	2014/12/19	<0.0050		ug/g	
3869158	AGA	Method Blank	1,4-Difluorobenzene	2014/12/23		106	%	60 - 140
			4-Bromofluorobenzene	2014/12/23		104	%	60 - 140
			D10-Ethylbenzene	2014/12/23		84	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/23		99	%	60 - 140
			F1 (C6-C10)	2014/12/23	<10		ug/g	
			F1 (C6-C10) - BTEX	2014/12/23	<10		ug/g	
3864759	KH1	LCS	4-Bromofluorobenzene	2014/12/19		105	%	60 - 140
			D10-o-Xylene	2014/12/19		102	%	60 - 130
			D4-1,2-Dichloroethane	2014/12/19		96	%	60 - 140
			D8-Toluene	2014/12/19		99	%	60 - 140
			Acetone (2-Propanone)	2014/12/19		101	%	60 - 140
			Benzene	2014/12/19		101	%	60 - 130
			Bromodichloromethane	2014/12/19		95	%	60 - 130
			Bromoform	2014/12/19		93	%	60 - 130
			Bromomethane	2014/12/19		98	%	60 - 140
			Carbon Tetrachloride	2014/12/19		104	%	60 - 130
			Chlorobenzene	2014/12/19		97	%	60 - 130
			Chloroform	2014/12/19		102	%	60 - 130
			Dibromochloromethane	2014/12/19		96	%	60 - 130
			1,2-Dichlorobenzene	2014/12/19		95	%	60 - 130
			1,3-Dichlorobenzene	2014/12/19		94	%	60 - 130
			1,4-Dichlorobenzene	2014/12/19		89	%	60 - 130
			Dichlorodifluoromethane (FREON 12)	2014/12/19		100	%	60 - 140
			1,1-Dichloroethane	2014/12/19		103	%	60 - 130
			1,2-Dichloroethane	2014/12/19		101	%	60 - 130
			1,1-Dichloroethylene	2014/12/19		110	%	60 - 130
			cis-1,2-Dichloroethylene	2014/12/19		102	%	60 - 130
			trans-1,2-Dichloroethylene	2014/12/19		103	%	60 - 130
			1,2-Dichloropropane	2014/12/19		99	%	60 - 130
			cis-1,3-Dichloropropene	2014/12/19		92	%	60 - 130
			trans-1,3-Dichloropropene	2014/12/19		89	%	60 - 130
			Ethylbenzene	2014/12/19		97	%	60 - 130
			Ethylene Dibromide	2014/12/19		102	%	60 - 130
			Hexane	2014/12/19		98	%	60 - 130
			Methylene Chloride(Dichloromethane)	2014/12/19		105	%	60 - 130
			Methyl Isobutyl Ketone	2014/12/19		104	%	60 - 130

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Maxxam Job #: B4N9446
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Parsons
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Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			Methyl Ethyl Ketone (2-Butanone)	2014/12/19		101	%	60 - 140
			Methyl t-butyl ether (MTBE)	2014/12/19		105	%	60 - 130
			Styrene	2014/12/19		105	%	60 - 130
			1,1,1,2-Tetrachloroethane	2014/12/19		97	%	60 - 130
			1,1,2,2-Tetrachloroethane	2014/12/19		101	%	60 - 130
			Tetrachloroethylene	2014/12/19		99	%	60 - 130
			Toluene	2014/12/19		95	%	60 - 130
			1,1,1-Trichloroethane	2014/12/19		103	%	60 - 130
			1,1,2-Trichloroethane	2014/12/19		97	%	60 - 130
			Trichloroethylene	2014/12/19		102	%	60 - 130
			Vinyl Chloride	2014/12/19		99	%	60 - 130
			p+m-Xylene	2014/12/19		102	%	60 - 130
			o-Xylene	2014/12/19		97	%	60 - 130
			Trichlorofluoromethane (FREON 11)	2014/12/19		103	%	60 - 130
3865019	YZ	LCS	D10-Anthracene	2014/12/19		87	%	50 - 130
			D14-Terphenyl (FS)	2014/12/19		93	%	50 - 130
			D8-Acenaphthylene	2014/12/19		84	%	50 - 130
			Acenaphthene	2014/12/19		89	%	50 - 130
			Acenaphthylene	2014/12/19		85	%	50 - 130
			Anthracene	2014/12/19		88	%	50 - 130
			Benzo(a)anthracene	2014/12/19		82	%	50 - 130
			Benzo(a)pyrene	2014/12/19		89	%	50 - 130
			Benzo(b/j)fluoranthene	2014/12/19		88	%	50 - 130
			Benzo(g,h,i)perylene	2014/12/19		88	%	50 - 130
			Benzo(k)fluoranthene	2014/12/19		90	%	50 - 130
			Chrysene	2014/12/19		88	%	50 - 130
			Dibenz(a,h)anthracene	2014/12/19		89	%	50 - 130
			Fluoranthene	2014/12/19		91	%	50 - 130
			Fluorene	2014/12/19		89	%	50 - 130
			Indeno(1,2,3-cd)pyrene	2014/12/19		96	%	50 - 130
			1-Methylnaphthalene	2014/12/19		93	%	50 - 130
			2-Methylnaphthalene	2014/12/19		91	%	50 - 130
			Naphthalene	2014/12/19		82	%	50 - 130
			Phenanthrene	2014/12/19		84	%	50 - 130
			Pyrene	2014/12/19		91	%	50 - 130
3869158	AGA	LCS	1,4-Difluorobenzene	2014/12/23		104	%	60 - 140
			4-Bromofluorobenzene	2014/12/23		99	%	60 - 140
			D10-Ethylbenzene	2014/12/23		81	%	60 - 140
			D4-1,2-Dichloroethane	2014/12/23		96	%	60 - 140
			F1 (C6-C10)	2014/12/23		88	%	80 - 120

LCS: 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.

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Maxxam Job #: B4N9446
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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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Fax: (905) 817-5777
Toll Free: 800-563-6266

EXXONMOBIL/IMPERIAL OIL - MAXXAM
CHAIN-OF-CUSTODY RECORD
ANALYSIS REQUESTED

C of C # 496344-06-01

496344

INVOICE INFORMATION	REPORT INFORMATION
Company Name: Imperial Oil, a partnership of Imperial Oil Limited and McColl Frontenac Petrole	Company Name: Parsons
Contact Name: Daniel Grenzowski	Contact Name: Holly Losignore
Address: 1 Duncan Mill Road North York ON M3B 1Z2	Address: 3715 Laird Road Suite 100 Mississauga ON L5L 0A3
Email: daniel.grenzowski@esso.ca	Email: Holly.Losignore@parsons.com; labreport@
Phone: (416) 442-5012 x	Phone: (905) 569-4111 x
Sampler Name (Print): THEO MOSHONAS	Consultant Project #: 10-8518.3

	FIELD SAMPLE ID	MATRIX: GROUND WATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE (YYYY/MM/DD)	SAMPLING: TIME (24 HR)	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	F1 / BTEX	F2 - F4	PAHs	VOCs	Lead	ICPMS Metals	TCLP VOC	TCLP Inorganics	TCLP SVOCS	TCLP PCBs	TCLP B(a)P	PCBs	n-hexane
1	TRIP BLANK-01				✓	2	2014/12/13	09:40	N	N	✓			✓									✓
2	FIELD BLANK-01				✓	2	2014/12/13	09:25	N	N			✓									✓	
3							YYYY/MM/DD	HH:MM															
4							YYYY/MM/DD	HH:MM															
5							YYYY/MM/DD	HH:MM															
6							YYYY/MM/DD	HH:MM															
7							YYYY/MM/DD	HH:MM															
8							YYYY/MM/DD	HH:MM															
9							YYYY/MM/DD	HH:MM															
10							YYYY/MM/DD	HH:MM															

IOL SITE LOCATION: 1545 WOODROFFE AVENUE, OTTAWA, ON

IOL SITE # (if applicable): N/A

IOL PROJECT # (if applicable): ME.00214

MAXXAM TASK ORDER # OR SERVICE ORDER # + LINE ITEM: 4410259930-10

REGULATORY CRITERIA / DETECTION LIMITS:
☒ REG 153 Table 3 ☐ 2004 ☒ 2011 ☐ RSC
(Please indicate which Reg. version and if RSC required)
☐ ODWS ☐ PWQO
☐ Other

SPECIAL INSTRUCTIONS: TEST SAMPLES AS PER TOC — ICE-YES

JARS USED AND NOT SUBMITTED Enter N/A for Water: 0

TURNAROUND TIME
Standard (5 days) ☒
Rush (3 days) ☐ (2 days) ☐ (1 day) ☐ (same day) ☐
Date Required

COOLER ID: 1	YES	NO	TEMP 1	2	3
CUSTODY SEAL PRESENT	✓		3	3	3
CUSTODY SEAL INTACT	✓				

COOLER ID:	YES	NO	TEMP 1	2	3
CUSTODY SEAL PRESENT					
CUSTODY SEAL INTACT					

COOLER ID:	YES	NO	TEMP 1	2	3
CUSTODY SEAL PRESENT					
CUSTODY SEAL INTACT					

RELINQUISHED BY:	printed name	DATE: YYYY/MM/DD	TIME (24 HR): HH:MM
1. signature	THEO MOSHONAS	2014/12/15	15:20
2. signature	printed name	YYYY/MM/DD	HH:MM
3. signature	printed name	YYYY/MM/DD	HH:MM

RECEIVED BY:	printed name	DATE: YYYY/MM/DD	TIME (24 HR): HH:MM
1. signature	ALKA PATEL	2014/12/17	17:55
2. signature	printed name	YYYY/MM/DD	HH:MM
3. signature	printed name	YYYY/MM/DD	HH:MM

LAB USE ONLY
MAXXAM JOB # B4N9446
SAMPLES
LABELED BY: HG1
VERIFIED BY: FW

COC – 1012 (2013) IOL – ON

White: Maxxam

Yellow: Client

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Canada Ltd.*
1545 Woodroffe Avenue
Location: *Ottawa, Ontario*

Sampling Date: 2014/12/13

Laboratory: *Maxxam Analytics Inc.*

Consultant Project Number: *10-8518.3*

Laboratory Job Number: *B4N9446*

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/Spiked Blank	*X*			

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

	Yes	No	NA	Comments
Field Blank Concentration	*X*			*All field QC samples met the alert limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD			*X*	

Has CofA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CofA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CofA (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 or N/A)?:	*Yes*

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

Date Issued: *N/A* Date of Response: *N/A*

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

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

Data Reviewed by (Print): *Beverley Noel* Data Reviewed by (Signature):

Review Date: *2015/01/07*

Revision Date (if applicable): Revised by (Signature):

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496340-03-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2015/01/26
Report #: R3312640
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B4N9466
Received: 2014/12/17, 17:55

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Laboratory Method	Primary Reference
Petroleum Hydro. CCME F1 & BTEX in Water	2	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water	2	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	2	CAM SOP-00447	EPA 6020 m
Volatile Organic Compounds in Water	2	CAM SOP-00226	EPA 8260 m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by GUCSO and O.Reg 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

All data is in statistical control and has met all QC and method performance criteria unless otherwise flagged. All samples were analysed within hold time unless otherwise flagged. All soil samples for BTEX analysis were methanol extracted within 24 hours unless otherwise flagged.

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

Encryption Key

Kudrat Bajwa
26 Jan 2015 09:25:23 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kudrat Bajwa, B.Sc., Project Manager
Email: KBajwa@maxxam.ca
Phone# (905)817-5822

==========

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Maxxam Job #: B4N9466
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

HBTEX/F1-F4 PET. HYDROCARBONS IN WATER (WATER)

Maxxam ID		YX3184	YX3184	YX3185		
Sampling Date		2014/12/15 14:05	2014/12/15 14:05	2014/12/15 14:05		
COC Number		496340-03-01	496340-03-01	496340-03-01		
	Units	**BH-309**	**BH-309 Lab-Dup**	**DUP-04**	**RDL**	**QC Batch**
Benzene	ug/L	0.26		0.32	0.20	3869167
Toluene	ug/L	<0.20		<0.20	0.20	3869167
Ethylbenzene	ug/L	0.52		0.54	0.20	3869167
o-Xylene	ug/L	<0.20		<0.20	0.20	3869167
p+m-Xylene	ug/L	<0.40		<0.40	0.40	3869167
Total Xylenes	ug/L	<0.40		<0.40	0.40	3869167
Hexane	ug/L	<5.0		<5.0	5.0	3869167
F1 (C6-C10)	ug/L	79		68	25	3869167
F1 (C6-C10) - BTEX	ug/L	78		67	25	3869167
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	<100	100	3869805
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	<200	200	3869805
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	<200	200	3869805
Reached Baseline at C50	ug/L	Yes	Yes	Yes		3869805
Extraction Surrogate Recovery (%)						
o-Terphenyl	%	94	95	92		3869805
Instrument Surrogate Recovery (%)						
1,4-Difluorobenzene	%	102		102		3869167
4-Bromofluorobenzene	%	102		103		3869167
D10-Ethylbenzene	%	96		97		3869167
D4-1,2-Dichloroethane	%	92		91		3869167

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B4N9466
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		YX3184	YX3185		
Sampling Date		2014/12/15 14:05	2014/12/15 14:05		
COC Number		496340-03-01	496340-03-01		
	Units	**BH-309**	**DUP-04**	**RDL**	**QC Batch**
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	3866045
Dissolved Barium (Ba)	ug/L	360	350	2.0	3866045
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	5.0	3866045
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	2.0	3866045
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	3866045
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	3866045

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9466
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		YX3184	YX3184	YX3185		
Sampling Date		2014/12/15 14:05	2014/12/15 14:05	2014/12/15 14:05		
COC Number		496340-03-01	496340-03-01	496340-03-01		
	Units	**BH-309**	**BH-309 Lab-Dup**	**DUP-04**	**RDL**	**QC Batch**
1,2-Dichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	3865219
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	3865219
Methyl t-butyl ether (MTBE)	ug/L	1.0	1.0	0.98	0.20	3865219
Instrument Surrogate Recovery (%)						
4-Bromofluorobenzene	%	96	97	96		3865219
D4-1,2-Dichloroethane	%	101	101	101		3865219
D8-Toluene	%	97	98	98		3865219

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Maxxam Job #: B4N9466
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YX3184
Sample ID: BH-309
Matrix: Water

Collected: 2014/12/15
Relinquished: 2014/12/16
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	3869167	N/A	2014/12/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3869805	2014/12/23	2014/12/24	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	3866045	N/A	2014/12/22	Arefa Dabhad
Volatile Organic Compounds in Water	P&T/MS	3865219	N/A	2014/12/20	Sarah Lam

Maxxam ID: YX3184 Dup
Sample ID: BH-309
Matrix: Water

Collected: 2014/12/15
Relinquished: 2014/12/16
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3869805	2014/12/23	2014/12/24	(Kent) Maolin Li
Volatile Organic Compounds in Water	P&T/MS	3865219	N/A	2014/12/20	Sarah Lam

Maxxam ID: YX3185
Sample ID: DUP-04
Matrix: Water

Collected: 2014/12/15
Relinquished: 2014/12/16
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	3869167	N/A	2014/12/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3869805	2014/12/23	2014/12/24	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	3866045	N/A	2014/12/22	Arefa Dabhad
Volatile Organic Compounds in Water	P&T/MS	3865219	N/A	2014/12/20	Sarah Lam

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Maxxam Job #: B4N9466
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	-0.7°C

Revised Report: Report re-issued to include only sample ID BH-309 and DUP-04 on this CofA, as per request by D. Bettencourt.

Results relate only to the items tested.

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Maxxam Job #: B4N9466
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3865219	SLM	Method Blank	4-Bromofluorobenzene	2014/12/19		95	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/19		104	%	70 - 130
			D8-Toluene	2014/12/19		97	%	70 - 130
			1,2-Dichloroethane	2014/12/19	<0.20		ug/L	
			Ethylene Dibromide	2014/12/19	<0.20		ug/L	
			Methyl t-butyl ether (MTBE)	2014/12/19	<0.20		ug/L	
3866045	ADA	Method Blank	Dissolved Arsenic (As)	2014/12/22	<1.0		ug/L	
			Dissolved Barium (Ba)	2014/12/22	<2.0		ug/L	
			Dissolved Chromium (Cr)	2014/12/22	<5.0		ug/L	
			Dissolved Copper (Cu)	2014/12/22	<1.0		ug/L	
			Dissolved Lead (Pb)	2014/12/22	<0.50		ug/L	
			Dissolved Zinc (Zn)	2014/12/22	<5.0		ug/L	
3869167	AAI	Method Blank	1,4-Difluorobenzene	2014/12/23		100	%	70 - 130
			4-Bromofluorobenzene	2014/12/23		103	%	70 - 130
			D10-Ethylbenzene	2014/12/23		92	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/23		97	%	70 - 130
			Benzene	2014/12/23	<0.20		ug/L	
			Toluene	2014/12/23	<0.20		ug/L	
			Ethylbenzene	2014/12/23	<0.20		ug/L	
			o-Xylene	2014/12/23	<0.20		ug/L	
			p+m-Xylene	2014/12/23	<0.40		ug/L	
			Total Xylenes	2014/12/23	<0.40		ug/L	
			Hexane	2014/12/23	<5.0		ug/L	
			F1 (C6-C10)	2014/12/23	<25		ug/L	
			F1 (C6-C10) - BTEX	2014/12/23	<25		ug/L	
3869805	KLI	Method Blank	o-Terphenyl	2014/12/24		94	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2014/12/24	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2014/12/24	<200		ug/L	
3865219	SLM	RPD [YX3184-04]	1,2-Dichloroethane	2014/12/20	NC		%	30
			Ethylene Dibromide	2014/12/20	NC		%	30
			Methyl t-butyl ether (MTBE)	2014/12/20	1.9		%	30
3869805	KLI	RPD [YX3184-02]	F2 (C10-C16 Hydrocarbons)	2014/12/24	NC		%	30
			F3 (C16-C34 Hydrocarbons)	2014/12/24	NC		%	30
			F4 (C34-C50 Hydrocarbons)	2014/12/24	NC		%	30
3865219	SLM	Matrix Spike [YX3183-04]	4-Bromofluorobenzene	2014/12/20		99	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/20		98	%	70 - 130
			D8-Toluene	2014/12/20		100	%	70 - 130
			1,2-Dichloroethane	2014/12/20		95	%	70 - 130
			Ethylene Dibromide	2014/12/20		102	%	70 - 130
			Methyl t-butyl ether (MTBE)	2014/12/20		93	%	70 - 130
3869805	KLI	Matrix Spike [YX3183-02]	o-Terphenyl	2014/12/24		96	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24		104	%	50 - 130
			F3 (C16-C34 Hydrocarbons)	2014/12/24		105	%	50 - 130
			F4 (C34-C50 Hydrocarbons)	2014/12/24		104	%	50 - 130
3865219	SLM	LCS	4-Bromofluorobenzene	2014/12/19		99	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/19		98	%	70 - 130
			D8-Toluene	2014/12/19		101	%	70 - 130
			1,2-Dichloroethane	2014/12/19		88	%	70 - 130
			Ethylene Dibromide	2014/12/19		95	%	70 - 130
			Methyl t-butyl ether (MTBE)	2014/12/19		86	%	70 - 130

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Maxxam Job #: B4N9466
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3866045	ADA	LCS	Dissolved Arsenic (As)	2014/12/22		101	%	80 - 120
			Dissolved Barium (Ba)	2014/12/22		103	%	80 - 120
			Dissolved Chromium (Cr)	2014/12/22		101	%	80 - 120
			Dissolved Copper (Cu)	2014/12/22		101	%	80 - 120
			Dissolved Lead (Pb)	2014/12/22		98	%	80 - 120
			Dissolved Zinc (Zn)	2014/12/22		99	%	80 - 120
3869167	AAI	LCS	1,4-Difluorobenzene	2014/12/23		99	%	70 - 130
			4-Bromofluorobenzene	2014/12/23		104	%	70 - 130
			D10-Ethylbenzene	2014/12/23		92	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/23		97	%	70 - 130
			Benzene	2014/12/23		93	%	70 - 130
			Toluene	2014/12/23		94	%	70 - 130
			Ethylbenzene	2014/12/23		101	%	70 - 130
			o-Xylene	2014/12/23		103	%	70 - 130
			p+m-Xylene	2014/12/23		93	%	70 - 130
			Hexane	2014/12/23		77	%	70 - 130
			F1 (C6-C10)	2014/12/23		88	%	70 - 130
3869805	KLI	LCS	o-Terphenyl	2014/12/24		96	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24		98	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2014/12/24		107	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2014/12/24		103	%	60 - 130

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.

LCS: 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 (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4N9466
Report Date: 2015/01/26

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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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Toll Free: 800-563-6266

EXXONMOBIL/IMPERIAL OIL - MAXXAM
CHAIN-OF-CUSTODY RECORD
ANALYSIS REQUESTED

C of C # 496340-03-01

496340

INVOICE INFORMATION	REPORT INFORMATION
Company Name: Imperial Oil, a partnership of Imperial Oil Limited and McColl Frontenac Petrole	Company Name: Parsons
Contact Name: Daniel Grenzowski	Contact Name: Holly Losignore
Address: 1 Duncan Mill Road North York ON M3B 1Z2	Address: 3715 Laird Road Suite 100 Mississauga ON L5L 0A3
Email: daniel.grenzowski@esso.ca	Email: Holly.Losignore@parsons.com; labreport@
Phone: (416) 442-5012 x	Phone: (905) 569-4111 x
Sampler Name (Print): THEO MOSHONAS	Consultant Project #: 10-8518.3

	FIELD SAMPLE ID	MATRIX: GROUNDWATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE (YYYY/MM/DD)	SAMPLING: TIME (24 HR)	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	F1/BTEX	F2-F4	VOC	LEAD	VOC (3): ethylene dibromide, 1,2-dichloroethane, MTBE	n-hexane	METALS (6) arsenic, barium, chromium, cobalt, lead, zinc
1	BH-306	✓				12	2014/12/15	12:55	Y	N	✓	✓	✓	✓	✓	✓	
2	BH-309	✓				12	2014/12/15	14:05	Y	N	✓	✓	✓		✓	✓	✓
3	DUP-04	✓				12	2014/12/15	14:05	Y	N	✓	✓	✓		✓	✓	✓
4							YYYY/MM/DD	HH:MM									
5							YYYY/MM/DD	HH:MM									
6							YYYY/MM/DD	HH:MM									
7							YYYY/MM/DD	HH:MM									
8							YYYY/MM/DD	HH:MM									
9							YYYY/MM/DD	HH:MM									
10							YYYY/MM/DD	HH:MM									

IOL SITE LOCATION: 1545 WOODROFFE AVENUE, OTTAWA, ON

IOL SITE # (if applicable): N/A

IOL PROJECT # (if applicable): ME.00214

MAXXAM TASK ORDER # OR SERVICE ORDER # + LINE ITEM: 4410259930-10

REGULATORY CRITERIA / DETECTION LIMITS:
☒ REG 153 Table 3 ☐ 2004 ☒ 2011 ☐ RSC
(Please indicate which Reg. version and if RSC required)
☐ ODWS ☐ PWQO
☐ Other

I/C/C MED/FINE

SPECIAL INSTRUCTIONS: TEST SAMPLES AS PER TOC

ICE - YES

JARS USED AND NOT SUBMITTED Enter N/A for Water: N/A

TURNAROUND TIME
Standard (5 days) ☒
Rush (3 days) ☐
(2 days) ☐
(1 day) ☐
(same day) ☐
Date Required

COOLER ID: 1						COOLER ID:						COOLER ID:					
CUSTODY SEAL	YES	NO	TEMP	1	2	3	CUSTODY SEAL	YES	NO	TEMP	1	2	3	CUSTODY SEAL	YES	NO	TEMP	1	2	3
PRESENT	✓			0	0	-2	PRESENT							PRESENT						
INTACT	✓						INTACT							INTACT						

LAB USE ONLY
MAXXAM JOB # B4N9466
SAMPLES
LABELED BY: HG1
VERIFIED BY: FW

RELINQUISHED BY:		DATE:	TIME (24 HR)	RECEIVED BY:		DATE:	TIME (24 HR)
1. signature	THEO MOSHONAS printed name	2014/12/16 YYYY/MM/DD	17:00 HH:MM	1. signature	FANG WANG printed name	2014/12/17 YYYY/MM/DD	17:55 HH:MM
2. signature	printed name	YYYY/MM/DD	HH:MM	2. signature	printed name	YYYY/MM/DD	HH:MM
3. signature	printed name	YYYY/MM/DD	HH:MM	3. signature	printed name	YYYY/MM/DD	HH:MM

COC – 1012 (2013) IOL – ON White: Maxxam Yellow: Client

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Canada Ltd.*
1545 Woodroffe Avenue
Location: *Ottawa, Ontario*

Sampling Date: 2014/12/15

Laboratory: *Maxxam Analytics Inc.*

Consultant Project Number: *10-8518.3*

Laboratory Job Number: *B4N9466*

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/Spiked Blank	*X*			

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

	Yes	No	NA	Comments
Field Blank Concentration			*X*	*All field QC samples met the alert limits.*
Trip Blank Concentration			*X*	
Field Duplicate RPD	*X*			

Has CofA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CofA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CofA (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 or N/A)?:	*Yes*

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

Date Issued: *N/A* Date of Response: *N/A*

Is data considered to be reliable (Yes/No)?: *Yes*
If answer is "No", describe and provide rationale:

Data Reviewed by (Print): *Beverley Noel* Data Reviewed by (Signature): 
Review Date: *2015/01/07*
Revision Date (if applicable): Revised by (Signature):

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496340-02-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2014/12/29
Report #: R3273072
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4N9500
Received: 2014/12/17, 17:55

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Laboratory Method	Primary Reference
Petroleum Hydro. CCME F1 & BTEX in Water	2	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water	2	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	2	CAM SOP-00447	EPA 6020 m
Volatile Organic Compounds in Water	2	CAM SOP-00226	EPA 8260 m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by GUCSO and O.Reg 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

All data is in statistical control and has met all QC and method performance criteria unless otherwise flagged. All samples were analysed within hold time unless otherwise flagged. All soil samples for BTEX analysis were methanol extracted within 24 hours unless otherwise flagged.

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

Encryption Key

Kudrat Bajwa
29 Dec 2014 09:43:13 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kudrat Bajwa, B.Sc., Project Manager
Email: KBajwa@maxxam.ca
Phone# (905)817-5822

==========

Maxxam Job #: B4N9500
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

HBTEX/F1-F4 PET. HYDROCARBONS IN WATER (WATER)

Maxxam ID		YX3349	YX3350		
Sampling Date		2014/12/15 10:50	2014/12/15 11:45		
COC Number		496340-02-01	496340-02-01		
	Units	**BH-302**	**BH-301**	**RDL**	**QC Batch**
Benzene	ug/L	<0.20	<0.20	0.20	3869167
Toluene	ug/L	<0.20	<0.20	0.20	3869167
Ethylbenzene	ug/L	<0.20	<0.20	0.20	3869167
o-Xylene	ug/L	<0.20	0.85	0.20	3869167
p+m-Xylene	ug/L	<0.40	0.52	0.40	3869167
Total Xylenes	ug/L	<0.40	1.4	0.40	3869167
Hexane	ug/L	<5.0	<5.0	5.0	3869167
F1 (C6-C10)	ug/L	<25	<25	25	3869167
F1 (C6-C10) - BTEX	ug/L	<25	<25	25	3869167
F2 (C10-C16 Hydrocarbons)	ug/L	<100	<100	100	3869805
F3 (C16-C34 Hydrocarbons)	ug/L	<200	<200	200	3869805
F4 (C34-C50 Hydrocarbons)	ug/L	<200	<200	200	3869805
Reached Baseline at C50	ug/L	Yes	Yes		3869805
Extraction Surrogate Recovery (%)					
o-Terphenyl	%	97	98		3869805
Instrument Surrogate Recovery (%)					
1,4-Difluorobenzene	%	101	101		3869167
4-Bromofluorobenzene	%	101	102		3869167
D10-Ethylbenzene	%	96	96		3869167
D4-1,2-Dichloroethane	%	92	92		3869167

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9500
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		YX3349	YX3350		
Sampling Date		2014/12/15 10:50	2014/12/15 11:45		
COC Number		496340-02-01	496340-02-01		
	Units	**BH-302**	**BH-301**	**RDL**	**QC Batch**
Dissolved Arsenic (As)	ug/L	<1.0	<1.0	1.0	3866045
Dissolved Barium (Ba)	ug/L	120	150	2.0	3866045
Dissolved Chromium (Cr)	ug/L	<5.0	<5.0	5.0	3866045
Dissolved Copper (Cu)	ug/L	<2.0	<2.0	2.0	3866045
Dissolved Lead (Pb)	ug/L	<0.50	<0.50	0.50	3866045
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	5.0	3866045

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9500
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		YX3349	YX3350		
Sampling Date		2014/12/15 10:50	2014/12/15 11:45		
COC Number		496340-02-01	496340-02-01		
	Units	**BH-302**	**BH-301**	**RDL**	**QC Batch**
1,2-Dichloroethane	ug/L	<0.20	<0.20	0.20	3865219
Ethylene Dibromide	ug/L	<0.20	<0.20	0.20	3865219
Methyl t-butyl ether (MTBE)	ug/L	<0.20	<0.20	0.20	3865219
Instrument Surrogate Recovery (%)					
4-Bromofluorobenzene	%	95	96		3865219
D4-1,2-Dichloroethane	%	103	102		3865219
D8-Toluene	%	98	99		3865219

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9500
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YX3349
Sample ID: BH-302
Matrix: Water

Collected: 2014/12/15
Relinquished: 2014/12/16
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	3869167	N/A	2014/12/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3869805	2014/12/23	2014/12/24	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	3866045	N/A	2014/12/22	Arefa Dabhad
Volatile Organic Compounds in Water	P&T/MS	3865219	N/A	2014/12/20	Sarah Lam

Maxxam ID: YX3350
Sample ID: BH-301
Matrix: Water

Collected: 2014/12/15
Relinquished: 2014/12/16
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	3869167	N/A	2014/12/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3869805	2014/12/23	2014/12/24	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	3866045	N/A	2014/12/22	Arefa Dabhad
Volatile Organic Compounds in Water	P&T/MS	3865219	N/A	2014/12/20	Sarah Lam

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Maxxam Job #: B4N9500
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	0.7°C

Results relate only to the items tested.

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Maxxam Job #: B4N9500
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3865219	SLM	Method Blank	4-Bromofluorobenzene	2014/12/19		95	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/19		104	%	70 - 130
			D8-Toluene	2014/12/19		97	%	70 - 130
			1,2-Dichloroethane	2014/12/19	<0.20		ug/L	
			Ethylene Dibromide	2014/12/19	<0.20		ug/L	
			Methyl t-butyl ether (MTBE)	2014/12/19	<0.20		ug/L	
3866045	ADA	Method Blank	Dissolved Arsenic (As)	2014/12/22	<1.0		ug/L	
			Dissolved Barium (Ba)	2014/12/22	<2.0		ug/L	
			Dissolved Chromium (Cr)	2014/12/22	<5.0		ug/L	
			Dissolved Copper (Cu)	2014/12/22	<1.0		ug/L	
			Dissolved Lead (Pb)	2014/12/22	<0.50		ug/L	
			Dissolved Zinc (Zn)	2014/12/22	<5.0		ug/L	
3869167	AAI	Method Blank	1,4-Difluorobenzene	2014/12/23		100	%	70 - 130
			4-Bromofluorobenzene	2014/12/23		103	%	70 - 130
			D10-Ethylbenzene	2014/12/23		92	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/23		97	%	70 - 130
			Benzene	2014/12/23	<0.20		ug/L	
			Toluene	2014/12/23	<0.20		ug/L	
			Ethylbenzene	2014/12/23	<0.20		ug/L	
			o-Xylene	2014/12/23	<0.20		ug/L	
			p+m-Xylene	2014/12/23	<0.40		ug/L	
			Total Xylenes	2014/12/23	<0.40		ug/L	
			Hexane	2014/12/23	<5.0		ug/L	
			F1 (C6-C10)	2014/12/23	<25		ug/L	
			F1 (C6-C10) - BTEX	2014/12/23	<25		ug/L	
3869805	KLI	Method Blank	o-Terphenyl	2014/12/24		94	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2014/12/24	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2014/12/24	<200		ug/L	
3865219	SLM	LCS	4-Bromofluorobenzene	2014/12/19		99	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/19		98	%	70 - 130
			D8-Toluene	2014/12/19		101	%	70 - 130
			1,2-Dichloroethane	2014/12/19		88	%	70 - 130
			Ethylene Dibromide	2014/12/19		95	%	70 - 130
			Methyl t-butyl ether (MTBE)	2014/12/19		86	%	70 - 130
3866045	ADA	LCS	Dissolved Arsenic (As)	2014/12/22		101	%	80 - 120
			Dissolved Barium (Ba)	2014/12/22		103	%	80 - 120
			Dissolved Chromium (Cr)	2014/12/22		101	%	80 - 120
			Dissolved Copper (Cu)	2014/12/22		101	%	80 - 120
			Dissolved Lead (Pb)	2014/12/22		98	%	80 - 120
			Dissolved Zinc (Zn)	2014/12/22		99	%	80 - 120
3869167	AAI	LCS	1,4-Difluorobenzene	2014/12/23		99	%	70 - 130
			4-Bromofluorobenzene	2014/12/23		104	%	70 - 130
			D10-Ethylbenzene	2014/12/23		92	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/23		97	%	70 - 130
			Benzene	2014/12/23		93	%	70 - 130
			Toluene	2014/12/23		94	%	70 - 130
			Ethylbenzene	2014/12/23		101	%	70 - 130
			o-Xylene	2014/12/23		103	%	70 - 130
			p+m-Xylene	2014/12/23		93	%	70 - 130
			Hexane	2014/12/23		77	%	70 - 130

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Maxxam Job #: B4N9500
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3869805	KLI	LCS	F1 (C6-C10)	2014/12/23		88	%	70 - 130
			o-Terphenyl	2014/12/24		96	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24		98	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2014/12/24		107	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2014/12/24		103	%	60 - 130

LCS: 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.

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Maxxam Job #: B4N9500
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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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Toll Free: 800-563-6266

EXXONMOBIL/IMPERIAL OIL - MAXXAM CHAIN-OF-CUSTODY RECORD

ANALYSIS REQUESTED

Page 1 of 1

C of C # 496340-02-01

496340

INVOICE INFORMATION	REPORT INFORMATION
Company Name: Imperial Oil, a partnership of Imperial Oil Limited and McColl Frontenac Petrole	Company Name: Parsons
Contact Name: Daniel Grenzowski	Contact Name: Holly Losignore
Address: 1 Duncan Mill Road North York ON M3B 1Z2	Address: 3715 Laird Road Suite 100 Mississauga ON L5L 0A3
Email: daniel.grenzowski@esso.ca	Email: Holly.Losignore@parsons.com; labreport@
Phone: (416) 442-5012 x	Phone: (905) 569-4111 x
Sampler Name (Print): THEO MOSHONAS	Consultant Project #: 10-8518.3

	FIELD SAMPLE ID	MATRIX: GROUND WATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE (YYYY/MM/DD)	SAMPLING: TIME (24 HR)	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	F1/BTEX	F2-F4	VOC	LEAD		n-hexane			METALS (6) arsenic, barium, chromium, copper, lead, zinc		VOC (3): ethylene dibromide, 1,2-dichloroethane, MTBE										
1	BH-302	✓				12	2014/12/15	10:50	Y	N	✓	✓				✓			✓		✓										
2	BH-301	✓				12	2014/12/15	11:45	Y	N	✓	✓				✓			✓		✓										
3							YYYY/MM/DD	HH:MM																							
4							YYYY/MM/DD	HH:MM																							
5							YYYY/MM/DD	HH:MM																							
6							YYYY/MM/DD	HH:MM																							
7							YYYY/MM/DD	HH:MM																							
8							YYYY/MM/DD	HH:MM																							
9							YYYY/MM/DD	HH:MM																							
10							YYYY/MM/DD	HH:MM																							

IOL SITE LOCATION: 1545 WOODROFFE AVENUE, OTTAWA, ON

IOL SITE # (if applicable): N/A

IOL PROJECT # (if applicable): ME.00214

MAXXAM TASK ORDER # OR SERVICE ORDER # + LINE ITEM: 4410259930-10

REGULATORY CRITERIA / DETECTION LIMITS:
☒ REG 153 Table 3 ☐ 2004 ☒ 2011 ☐ RSC
(Please indicate which Reg. version and if RSC required)
☐ ODWS ☐ PWQO
☐ Other
Y/C MEO/FME

SPECIAL INSTRUCTIONS: TEST SAMPLES AS PER TOC
ICE - YES

JARS USED AND NOT SUBMITTED Enter N/A for Water: N/A

TURNAROUND TIME
Standard (5 days) ☒
Rush (3 days) ☐
(2 days) ☐
(1 day) ☐
(same day) ☐
Date Required

COOLER ID: 1	YES	NO	TEMP	1	2	3
CUSTODY SEAL PRESENT	✓			0	0	2
CUSTODY SEAL INTACT	✓					

COOLER ID:	YES	NO	TEMP	1	2	3
CUSTODY SEAL PRESENT						
CUSTODY SEAL INTACT						

COOLER ID:	YES	NO	TEMP	1	2	3
CUSTODY SEAL PRESENT						
CUSTODY SEAL INTACT						

LAB USE ONLY
MAXXAM JOB # B4N9500
SAMPLES
LABELED BY: HG1
VERIFIED BY: FW

RELINQUISHED BY:	printed name	DATE:	TIME (24 HR)	RECEIVED BY:	printed name	DATE:	TIME (24 HR)
1. signature	THEO MOSHONAS	2014/12/16	17:00	1. signature	FANG WANG	2014/12/17	17:55
2. signature	printed name	YYYY/MM/DD	HH:MM	2. signature	printed name	YYYY/MM/DD	HH:MM
3. signature	printed name	YYYY/MM/DD	HH:MM	3. signature	printed name	YYYY/MM/DD	HH:MM

COC – 1012 (2013) IOL – ON White: Maxxam Yellow: Client

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Canada Ltd.*
1545 Woodroffe Avenue
Location: *Ottawa, Ontario*

Sampling Date: 2014/12/15

Laboratory: *Maxxam Analytics Inc.*

Consultant Project Number: *10-8518.3*

Laboratory Job Number: *B4N9500*

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/Spiked Blank	*X*			

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

	Yes	No	NA	Comments
Field Blank Concentration			*X*	*No field QC samples were submitted.*
Trip Blank Concentration			*X*	
Field Duplicate RPD			*X*	

Has CofA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CofA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CofA (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 or N/A)?:	*Yes*

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

Date Issued: *N/A* Date of Response: *N/A*

Is data considered to be reliable (Yes/No)?: *Yes*
If answer is "No", describe and provide rationale:

Data Reviewed by (Print): *Beverley Noel* Data Reviewed by (Signature): 
Review Date: *2015/01/07*
Revision Date (if applicable): Revised by (Signature):

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496340-04-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2014/12/29
Report #: R3273074
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4N9503
Received: 2014/12/17, 17:55

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Laboratory Method	Primary Reference
Petroleum Hydro. CCME F1 & BTEX in Water	1	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water	1	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	1	CAM SOP-00447	EPA 6020 m
Volatile Organic Compounds in Water	1	CAM SOP-00226	EPA 8260 m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by GUCSO and O.Reg 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

All data is in statistical control and has met all QC and method performance criteria unless otherwise flagged. All samples were analysed within hold time unless otherwise flagged. All soil samples for BTEX analysis were methanol extracted within 24 hours unless otherwise flagged.

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

Encryption Key

Kudrat Bajwa
29 Dec 2014 09:38:10 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kudrat Bajwa, B.Sc., Project Manager
Email: KBajwa@maxxam.ca
Phone# (905)817-5822

==========

Maxxam Job #: B4N9503
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

HBTEX/F1-F4 PET. HYDROCARBONS IN WATER (WATER)

Maxxam ID		YX3356		
Sampling Date		2014/12/15 14:10		
COC Number		496340-04-01		
	Units	**FIELD BLANK-02**	**RDL**	**QC Batch**
Benzene	ug/L	<0.20	0.20	3869167
Toluene	ug/L	<0.20	0.20	3869167
Ethylbenzene	ug/L	<0.20	0.20	3869167
o-Xylene	ug/L	<0.20	0.20	3869167
p+m-Xylene	ug/L	<0.40	0.40	3869167
Total Xylenes	ug/L	<0.40	0.40	3869167
Hexane	ug/L	<5.0	5.0	3869167
F1 (C6-C10)	ug/L	<25	25	3869167
F1 (C6-C10) - BTEX	ug/L	<25	25	3869167
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	3869805
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	3869805
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	3869805
Reached Baseline at C50	ug/L	Yes		3869805
Extraction Surrogate Recovery (%)				
o-Terphenyl	%	97		3869805
Instrument Surrogate Recovery (%)				
1,4-Difluorobenzene	%	101		3869167
4-Bromofluorobenzene	%	103		3869167
D10-Ethylbenzene	%	98		3869167
D4-1,2-Dichloroethane	%	92		3869167

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9503
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		YX3356		
Sampling Date		2014/12/15 14:10		
COC Number		496340-04-01		
	Units	**FIELD BLANK-02**	**RDL**	**QC Batch**
Dissolved Arsenic (As)	ug/L	<1.0	1.0	3866045
Dissolved Barium (Ba)	ug/L	<2.0	2.0	3866045
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	3866045
Dissolved Copper (Cu)	ug/L	<1.0	1.0	3866045
Dissolved Lead (Pb)	ug/L	<0.50	0.50	3866045
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	3866045

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9503
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		YX3356		
Sampling Date		2014/12/15 14:10		
COC Number		496340-04-01		
	Units	**FIELD BLANK-02**	**RDL**	**QC Batch**
Dichlorodifluoromethane (FREON 12)	ug/L	<0.50	0.50	3865219
1,1-Dichloroethane	ug/L	<0.10	0.10	3865219
1,2-Dichloroethane	ug/L	<0.20	0.20	3865219
1,1-Dichloroethylene	ug/L	<0.10	0.10	3865219
cis-1,2-Dichloroethylene	ug/L	<0.10	0.10	3865219
trans-1,2-Dichloroethylene	ug/L	<0.10	0.10	3865219
Ethylene Dibromide	ug/L	<0.20	0.20	3865219
Methyl t-butyl ether (MTBE)	ug/L	<0.20	0.20	3865219
Tetrachloroethylene	ug/L	<0.10	0.10	3865219
1,1,1-Trichloroethane	ug/L	<0.10	0.10	3865219
1,1,2-Trichloroethane	ug/L	<0.20	0.20	3865219
Trichloroethylene	ug/L	<0.10	0.10	3865219
Vinyl Chloride	ug/L	<0.20	0.20	3865219
Trichlorofluoromethane (FREON 11)	ug/L	<0.20	0.20	3865219
Instrument Surrogate Recovery (%)				
4-Bromofluorobenzene	%	95		3865219
D4-1,2-Dichloroethane	%	104		3865219
D8-Toluene	%	97		3865219

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9503
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YX3356
Sample ID: FIELD BLANK-02
Matrix: Water

Collected: 2014/12/15
Relinquished: 2014/12/16
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	3869167	N/A	2014/12/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3869805	2014/12/23	2014/12/24	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	3866045	N/A	2014/12/22	Arefa Dabhad
Volatile Organic Compounds in Water	P&T/MS	3865219	N/A	2014/12/20	Sarah Lam

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Maxxam Job #: B4N9503
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Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	0.7°C

Results relate only to the items tested.

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Maxxam Job #: B4N9503
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3865219	SLM	Method Blank	4-Bromofluorobenzene	2014/12/19		95	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/19		104	%	70 - 130
			D8-Toluene	2014/12/19		97	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2014/12/19	<0.50		ug/L	
			1,1-Dichloroethane	2014/12/19	<0.10		ug/L	
			1,2-Dichloroethane	2014/12/19	<0.20		ug/L	
			1,1-Dichloroethylene	2014/12/19	<0.10		ug/L	
			cis-1,2-Dichloroethylene	2014/12/19	<0.10		ug/L	
			trans-1,2-Dichloroethylene	2014/12/19	<0.10		ug/L	
			Ethylene Dibromide	2014/12/19	<0.20		ug/L	
			Methyl t-butyl ether (MTBE)	2014/12/19	<0.20		ug/L	
			Tetrachloroethylene	2014/12/19	<0.10		ug/L	
			1,1,1-Trichloroethane	2014/12/19	<0.10		ug/L	
			1,1,2-Trichloroethane	2014/12/19	<0.20		ug/L	
			Trichloroethylene	2014/12/19	<0.10		ug/L	
			Vinyl Chloride	2014/12/19	<0.20		ug/L	
			Trichlorofluoromethane (FREON 11)	2014/12/19	<0.20		ug/L	
3866045	ADA	Method Blank	Dissolved Arsenic (As)	2014/12/22	<1.0		ug/L	
			Dissolved Barium (Ba)	2014/12/22	<2.0		ug/L	
			Dissolved Chromium (Cr)	2014/12/22	<5.0		ug/L	
			Dissolved Copper (Cu)	2014/12/22	<1.0		ug/L	
			Dissolved Lead (Pb)	2014/12/22	<0.50		ug/L	
			Dissolved Zinc (Zn)	2014/12/22	<5.0		ug/L	
3869167	AAI	Method Blank	1,4-Difluorobenzene	2014/12/23		100	%	70 - 130
			4-Bromofluorobenzene	2014/12/23		103	%	70 - 130
			D10-Ethylbenzene	2014/12/23		92	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/23		97	%	70 - 130
			Benzene	2014/12/23	<0.20		ug/L	
			Toluene	2014/12/23	<0.20		ug/L	
			Ethylbenzene	2014/12/23	<0.20		ug/L	
			o-Xylene	2014/12/23	<0.20		ug/L	
			p+m-Xylene	2014/12/23	<0.40		ug/L	
			Total Xylenes	2014/12/23	<0.40		ug/L	
			Hexane	2014/12/23	<5.0		ug/L	
			F1 (C6-C10)	2014/12/23	<25		ug/L	
			F1 (C6-C10) - BTEX	2014/12/23	<25		ug/L	
3869805	KLI	Method Blank	o-Terphenyl	2014/12/24		94	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2014/12/24	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2014/12/24	<200		ug/L	
3865219	SLM	LCS	4-Bromofluorobenzene	2014/12/19		99	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/19		98	%	70 - 130
			D8-Toluene	2014/12/19		101	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2014/12/19		83	%	60 - 140
			1,1-Dichloroethane	2014/12/19		90	%	70 - 130
			1,2-Dichloroethane	2014/12/19		88	%	70 - 130
			1,1-Dichloroethylene	2014/12/19		92	%	70 - 130
			cis-1,2-Dichloroethylene	2014/12/19		93	%	70 - 130
			trans-1,2-Dichloroethylene	2014/12/19		90	%	70 - 130
			Ethylene Dibromide	2014/12/19		95	%	70 - 130
			Methyl t-butyl ether (MTBE)	2014/12/19		86	%	70 - 130

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Maxxam Job #: B4N9503
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			Tetrachloroethylene	2014/12/19		93	%	70 - 130
			1,1,1-Trichloroethane	2014/12/19		90	%	70 - 130
			1,1,2-Trichloroethane	2014/12/19		95	%	70 - 130
			Trichloroethylene	2014/12/19		93	%	70 - 130
			Vinyl Chloride	2014/12/19		79	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2014/12/19		89	%	70 - 130
3866045	ADA	LCS	Dissolved Arsenic (As)	2014/12/22		101	%	80 - 120
			Dissolved Barium (Ba)	2014/12/22		103	%	80 - 120
			Dissolved Chromium (Cr)	2014/12/22		101	%	80 - 120
			Dissolved Copper (Cu)	2014/12/22		101	%	80 - 120
			Dissolved Lead (Pb)	2014/12/22		98	%	80 - 120
			Dissolved Zinc (Zn)	2014/12/22		99	%	80 - 120
3869167	AAI	LCS	1,4-Difluorobenzene	2014/12/23		99	%	70 - 130
			4-Bromofluorobenzene	2014/12/23		104	%	70 - 130
			D10-Ethylbenzene	2014/12/23		92	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/23		97	%	70 - 130
			Benzene	2014/12/23		93	%	70 - 130
			Toluene	2014/12/23		94	%	70 - 130
			Ethylbenzene	2014/12/23		101	%	70 - 130
			o-Xylene	2014/12/23		103	%	70 - 130
			p+m-Xylene	2014/12/23		93	%	70 - 130
			Hexane	2014/12/23		77	%	70 - 130
			F1 (C6-C10)	2014/12/23		88	%	70 - 130
3869805	KLI	LCS	o-Terphenyl	2014/12/24		96	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24		98	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2014/12/24		107	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2014/12/24		103	%	60 - 130

LCS: 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.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4N9503
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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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Fax: (905) 817-5777
Toll Free: 800-563-6266

EXXONMOBIL/IMPERIAL OIL - MAXXAM
CHAIN-OF-CUSTODY RECORD
ANALYSIS REQUESTED

Page 1 of 1

C of C # 496340-04-01

496340

INVOICE INFORMATION	REPORT INFORMATION
Company Name: Imperial Oil, a partnership of Imperial Oil Limited and McColl Frontenac Petrole	Company Name: Parsons
Contact Name: Daniel Grenzowski	Contact Name: Holly Losignore
Address: 1 Duncan Mill Road, North York ON M3B 1Z2	Address: 3715 Laird Road Suite 100, Mississauga ON L5L 0A3
Email: daniel.grenzowski@esso.ca	Email: Holly.Losignore@parsons.com; labreport@
Phone: (416) 442-5012 x	Phone: (905) 569-4111 x
Sampler Name (Print): THEO MOSHONAS	Consultant Project #: 10-8518.3

#	FIELD SAMPLE ID	MATRIX: GROUND WATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE (YYYY/MM/DD)	SAMPLING: TIME (24 HR)	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	F1/BTEX	F2-F4	VOC	LEAD	n-hexane	METALS (6) (arsenic, barium, chromium, copper, lead, zinc)	VOC (14): ethylene dibromide, 1,2-dichloroethane, 1,1-dichloroethane, tetrachloroethylene, trichloroethylene, 1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, vinyl chloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, MTBE, Freon-11, Freon-12
1	FIELD BLANK-02				✓	12	2014/12/15	14:10	N	N	✓	✓			✓	✓	✓
2							YYYY/MM/DD	HH:MM									
3							YYYY/MM/DD	HH:MM									
4							YYYY/MM/DD	HH:MM									
5							YYYY/MM/DD	HH:MM									
6							YYYY/MM/DD	HH:MM									
7							YYYY/MM/DD	HH:MM									
8							YYYY/MM/DD	HH:MM									
9							YYYY/MM/DD	HH:MM									
10							YYYY/MM/DD	HH:MM									

IOL SITE LOCATION: 1545 WOODROFFE AVENUE, OTTAWA, ON
IOL SITE # (if applicable): N/A
IOL PROJECT # (if applicable): ME.00214
MAXXAM TASK ORDER # OR SERVICE ORDER # + LINE ITEM: 4410259930-10

REGULATORY CRITERIA / DETECTION LIMITS:
[X] REG 153 Table 3 [ ] 2004 [X] 2011 [ ] RSC
(Please indicate which Reg. version and if RSC required)
[ ] ODWS [ ] PWQO
[ ] Other ______
V/C/C MEO/FINE

SPECIAL INSTRUCTIONS: TEST SAMPLES AS PER TOG
ICE-YES

JARS USED AND NOT SUBMITTED Enter N/A for Water: N/A

TURNAROUND TIME
Standard (5 days) [X]
Rush (3 days) [ ] (2 days) [ ] (1 day) [ ] (same day) [ ]
Date Required

COOLER ID: 1	YES	NO	TEMP	1	2	3
CUSTODY SEAL	✓			0	0	2
PRESENT	✓					
INTACT	✓					

COOLER ID:	YES	NO	TEMP	1	2	3
CUSTODY SEAL						
PRESENT						
INTACT						

COOLER ID:	YES	NO	TEMP	1	2	3
CUSTODY SEAL						
PRESENT						
INTACT						

RELINQUISHED BY: signature	printed name	DATE:	TIME (24 HR)	RECEIVED BY: signature	printed name	DATE:	TIME (24 HR)
1. [signature]	THEO MOSHONAS	2014/12/16	17:00	1. [signature]	FANG WANG	2014/12/17	17:55
2. signature	printed name	YYYY/MM/DD	HH:MM	2. signature	printed name	YYYY/MM/DD	HH:MM
3. signature	printed name	YYYY/MM/DD	HH:MM	3. signature	printed name	YYYY/MM/DD	HH:MM

LAB USE ONLY
MAXXAM JOB #: B4N 9503
SAMPLES
LABELED BY: HG1 | VERIFIED BY: FW

COC – 1012 (2013) IOL – ON   White: Maxxam   Yellow: Client

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Canada Ltd.*
1545 Woodroffe Avenue
Location: *Ottawa, Ontario*

Sampling Date: 2014/12/15

Laboratory: *Maxxam Analytics Inc.*

Consultant Project Number: *10-8518.3*

Laboratory Job Number: *B4N9503*

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/Spiked Blank	*X*			

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

	Yes	No	NA	Comments
Field Blank Concentration	*X*			*All field QC samples met the alert limits.*
Trip Blank Concentration			*X*	
Field Duplicate RPD			*X*	

Has CofA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CofA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CofA (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 or N/A)?:	*Yes*

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

Date Issued: *N/A* Date of Response: *N/A*

Is data considered to be reliable (Yes/No)?: *Yes*
If answer is "No", describe and provide rationale:

Data Reviewed by (Print): *Beverley Noel* Data Reviewed by (Signature):
Review Date: *2015/01/07*
Revision Date (if applicable): Revised by (Signature):

Maxxam
A Bureau Veritas Group Company

Success Through Science®

Task Order#: 4410259930
Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3
Your C.O.C. #: 496340-05-01

Attention:Holly Losignore

Parsons
3715 Laird Road
Suite 100
Mississauga, ON
L5L 0A3

Report Date: 2014/12/29
Report #: R3273075
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B4N9508
Received: 2014/12/17, 17:55

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Laboratory Method	Primary Reference
Petroleum Hydro. CCME F1 & BTEX in Water	1	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Water	1	CAM SOP-00316	CCME PHC-CWS m
Dissolved Metals by ICPMS	1	CAM SOP-00447	EPA 6020 m
Volatile Organic Compounds in Water	1	CAM SOP-00226	EPA 8260 m

Remarks:

Maxxam Analytics has performed all analytical testing herein in accordance with ISO 17025 and the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act. All methodologies comply with this document and are validated for use in the laboratory. The methods and techniques employed in this analysis conform to the performance criteria (detection limits, accuracy and precision) as outlined in the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act.

The CWS PHC methods employed by Maxxam conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following the 'Alberta Environment Draft Addenda to the CWS-PHC, Appendix 6, Validation of Alternate Methods'. Documentation is available upon request. Maxxam has made the following improvements to the CWS-PHC reference benchmark method: (i) Headspace for F1; and, (ii) Mechanical extraction for F2-F4. Note: F4G cannot be added to the C6 to C50 hydrocarbons.

Maxxam Analytics is accredited by SCC (Lab ID 97) for all specific parameters as required by GUCSO and O.Reg 153/04. Maxxam Analytics is limited in liability to the actual cost of analysis unless otherwise agreed in writing. There is no other warranty expressed or implied. Samples will be retained at Maxxam Analytics for three weeks from receipt of data or as per contract.

All data is in statistical control and has met all QC and method performance criteria unless otherwise flagged. All samples were analysed within hold time unless otherwise flagged. All soil samples for BTEX analysis were methanol extracted within 24 hours unless otherwise flagged.

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

Encryption Key

Kudrat Bajwa
29 Dec 2014 10:13:40 -05:00

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Kudrat Bajwa, B.Sc., Project Manager
Email: KBajwa@maxxam.ca
Phone# (905)817-5822

==========

Maxxam Job #: B4N9508
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

HBTEX/F1-F4 PET. HYDROCARBONS IN WATER (WATER)

Maxxam ID		YX3375		
Sampling Date		2014/12/15 14:25		
COC Number		496340-05-01		
	Units	**TRIP BLANK-02**	**RDL**	**QC Batch**
Benzene	ug/L	<0.20	0.20	3869167
Toluene	ug/L	<0.20	0.20	3869167
Ethylbenzene	ug/L	<0.20	0.20	3869167
o-Xylene	ug/L	<0.20	0.20	3869167
p+m-Xylene	ug/L	<0.40	0.40	3869167
Total Xylenes	ug/L	<0.40	0.40	3869167
Hexane	ug/L	<5.0	5.0	3869167
F1 (C6-C10)	ug/L	<25	25	3869167
F1 (C6-C10) - BTEX	ug/L	<25	25	3869167
F2 (C10-C16 Hydrocarbons)	ug/L	<100	100	3869805
F3 (C16-C34 Hydrocarbons)	ug/L	<200	200	3869805
F4 (C34-C50 Hydrocarbons)	ug/L	<200	200	3869805
Reached Baseline at C50	ug/L	Yes		3869805
Extraction Surrogate Recovery (%)				
o-Terphenyl	%	97		3869805
Instrument Surrogate Recovery (%)				
1,4-Difluorobenzene	%	101		3869167
4-Bromofluorobenzene	%	101		3869167
D10-Ethylbenzene	%	96		3869167
D4-1,2-Dichloroethane	%	92		3869167

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9508
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

ELEMENTS BY ATOMIC SPECTROSCOPY (WATER)

Maxxam ID		YX3375		
Sampling Date		2014/12/15 14:25		
COC Number		496340-05-01		
	Units	**TRIP BLANK-02**	**RDL**	**QC Batch**
Dissolved Arsenic (As)	ug/L	<1.0	1.0	3866045
Dissolved Barium (Ba)	ug/L	<2.0	2.0	3866045
Dissolved Chromium (Cr)	ug/L	<5.0	5.0	3866045
Dissolved Copper (Cu)	ug/L	<1.0	1.0	3866045
Dissolved Lead (Pb)	ug/L	<0.50	0.50	3866045
Dissolved Zinc (Zn)	ug/L	<5.0	5.0	3866045

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9508
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		YX3375		
Sampling Date		2014/12/15 14:25		
COC Number		496340-05-01		
	Units	**TRIP BLANK-02**	**RDL**	**QC Batch**
Dichlorodifluoromethane (FREON 12)	ug/L	<0.50	0.50	3865219
1,1-Dichloroethane	ug/L	<0.10	0.10	3865219
1,2-Dichloroethane	ug/L	<0.20	0.20	3865219
1,1-Dichloroethylene	ug/L	<0.10	0.10	3865219
cis-1,2-Dichloroethylene	ug/L	<0.10	0.10	3865219
trans-1,2-Dichloroethylene	ug/L	<0.10	0.10	3865219
Ethylene Dibromide	ug/L	<0.20	0.20	3865219
Methyl t-butyl ether (MTBE)	ug/L	<0.20	0.20	3865219
Tetrachloroethylene	ug/L	<0.10	0.10	3865219
1,1,1-Trichloroethane	ug/L	<0.10	0.10	3865219
1,1,2-Trichloroethane	ug/L	<0.20	0.20	3865219
Trichloroethylene	ug/L	<0.10	0.10	3865219
Vinyl Chloride	ug/L	<0.20	0.20	3865219
Trichlorofluoromethane (FREON 11)	ug/L	<0.20	0.20	3865219
Instrument Surrogate Recovery (%)				
4-Bromofluorobenzene	%	95		3865219
D4-1,2-Dichloroethane	%	103		3865219
D8-Toluene	%	98		3865219

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Maxxam Job #: B4N9508
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

TEST SUMMARY

Maxxam ID: YX3375
Sample ID: TRIP BLANK-02
Matrix: Water

Collected: 2014/12/15
Relinquished: 2014/12/16
Received: 2014/12/17

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Water	HSGC/MSFD	3869167	N/A	2014/12/24	Abdikarim Ali
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	3869805	2014/12/23	2014/12/24	(Kent) Maolin Li
Dissolved Metals by ICPMS	ICP/MS	3866045	N/A	2014/12/22	Arefa Dabhad
Volatile Organic Compounds in Water	P&T/MS	3865219	N/A	2014/12/20	Sarah Lam

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Maxxam Job #: B4N9508
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	-0.7°C

Results relate only to the items tested.

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Maxxam Job #: B4N9508
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
3865219	SLM	Method Blank	4-Bromofluorobenzene	2014/12/19		95	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/19		104	%	70 - 130
			D8-Toluene	2014/12/19		97	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2014/12/19	<0.50		ug/L	
			1,1-Dichloroethane	2014/12/19	<0.10		ug/L	
			1,2-Dichloroethane	2014/12/19	<0.20		ug/L	
			1,1-Dichloroethylene	2014/12/19	<0.10		ug/L	
			cis-1,2-Dichloroethylene	2014/12/19	<0.10		ug/L	
			trans-1,2-Dichloroethylene	2014/12/19	<0.10		ug/L	
			Ethylene Dibromide	2014/12/19	<0.20		ug/L	
			Methyl t-butyl ether (MTBE)	2014/12/19	<0.20		ug/L	
			Tetrachloroethylene	2014/12/19	<0.10		ug/L	
			1,1,1-Trichloroethane	2014/12/19	<0.10		ug/L	
			1,1,2-Trichloroethane	2014/12/19	<0.20		ug/L	
			Trichloroethylene	2014/12/19	<0.10		ug/L	
			Vinyl Chloride	2014/12/19	<0.20		ug/L	
			Trichlorofluoromethane (FREON 11)	2014/12/19	<0.20		ug/L	
3866045	ADA	Method Blank	Dissolved Arsenic (As)	2014/12/22	<1.0		ug/L	
			Dissolved Barium (Ba)	2014/12/22	<2.0		ug/L	
			Dissolved Chromium (Cr)	2014/12/22	<5.0		ug/L	
			Dissolved Copper (Cu)	2014/12/22	<1.0		ug/L	
			Dissolved Lead (Pb)	2014/12/22	<0.50		ug/L	
			Dissolved Zinc (Zn)	2014/12/22	<5.0		ug/L	
3869167	AAI	Method Blank	1,4-Difluorobenzene	2014/12/23		100	%	70 - 130
			4-Bromofluorobenzene	2014/12/23		103	%	70 - 130
			D10-Ethylbenzene	2014/12/23		92	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/23		97	%	70 - 130
			Benzene	2014/12/23	<0.20		ug/L	
			Toluene	2014/12/23	<0.20		ug/L	
			Ethylbenzene	2014/12/23	<0.20		ug/L	
			o-Xylene	2014/12/23	<0.20		ug/L	
			p+m-Xylene	2014/12/23	<0.40		ug/L	
			Total Xylenes	2014/12/23	<0.40		ug/L	
			Hexane	2014/12/23	<5.0		ug/L	
			F1 (C6-C10)	2014/12/23	<25		ug/L	
			F1 (C6-C10) - BTEX	2014/12/23	<25		ug/L	
3869805	KLI	Method Blank	o-Terphenyl	2014/12/24		94	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24	<100		ug/L	
			F3 (C16-C34 Hydrocarbons)	2014/12/24	<200		ug/L	
			F4 (C34-C50 Hydrocarbons)	2014/12/24	<200		ug/L	
3865219	SLM	LCS	4-Bromofluorobenzene	2014/12/19		99	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/19		98	%	70 - 130
			D8-Toluene	2014/12/19		101	%	70 - 130
			Dichlorodifluoromethane (FREON 12)	2014/12/19		83	%	60 - 140
			1,1-Dichloroethane	2014/12/19		90	%	70 - 130
			1,2-Dichloroethane	2014/12/19		88	%	70 - 130
			1,1-Dichloroethylene	2014/12/19		92	%	70 - 130
			cis-1,2-Dichloroethylene	2014/12/19		93	%	70 - 130
			trans-1,2-Dichloroethylene	2014/12/19		90	%	70 - 130
			Ethylene Dibromide	2014/12/19		95	%	70 - 130
			Methyl t-butyl ether (MTBE)	2014/12/19		86	%	70 - 130

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Maxxam Job #: B4N9508
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

QUALITY ASSURANCE REPORT(CONT'D)

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	Units	QC Limits
			Tetrachloroethylene	2014/12/19		93	%	70 - 130
			1,1,1-Trichloroethane	2014/12/19		90	%	70 - 130
			1,1,2-Trichloroethane	2014/12/19		95	%	70 - 130
			Trichloroethylene	2014/12/19		93	%	70 - 130
			Vinyl Chloride	2014/12/19		79	%	70 - 130
			Trichlorofluoromethane (FREON 11)	2014/12/19		89	%	70 - 130
3866045	ADA	LCS	Dissolved Arsenic (As)	2014/12/22		101	%	80 - 120
			Dissolved Barium (Ba)	2014/12/22		103	%	80 - 120
			Dissolved Chromium (Cr)	2014/12/22		101	%	80 - 120
			Dissolved Copper (Cu)	2014/12/22		101	%	80 - 120
			Dissolved Lead (Pb)	2014/12/22		98	%	80 - 120
			Dissolved Zinc (Zn)	2014/12/22		99	%	80 - 120
3869167	AAI	LCS	1,4-Difluorobenzene	2014/12/23		99	%	70 - 130
			4-Bromofluorobenzene	2014/12/23		104	%	70 - 130
			D10-Ethylbenzene	2014/12/23		92	%	70 - 130
			D4-1,2-Dichloroethane	2014/12/23		97	%	70 - 130
			Benzene	2014/12/23		93	%	70 - 130
			Toluene	2014/12/23		94	%	70 - 130
			Ethylbenzene	2014/12/23		101	%	70 - 130
			o-Xylene	2014/12/23		103	%	70 - 130
			p+m-Xylene	2014/12/23		93	%	70 - 130
			Hexane	2014/12/23		77	%	70 - 130
			F1 (C6-C10)	2014/12/23		88	%	70 - 130
3869805	KLI	LCS	o-Terphenyl	2014/12/24		96	%	60 - 130
			F2 (C10-C16 Hydrocarbons)	2014/12/24		98	%	60 - 130
			F3 (C16-C34 Hydrocarbons)	2014/12/24		107	%	60 - 130
			F4 (C34-C50 Hydrocarbons)	2014/12/24		103	%	60 - 130

LCS: 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.

Maxxam Analytics International Corporation o/a Maxxam Analytics 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.maxxam.ca

Maxxam Job #: B4N9508
Report Date: 2014/12/29

Parsons
Task Order#: 4410259930, Line Item: 10
Site#: ME.00214
Site Location: N/A;1545 WOODROFFE AVENUE, OTTAWA, ON
Project #: 10-8518.3

VALIDATION SIGNATURE PAGE

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

Cristina Carriere

Cristina Carriere, Scientific Services

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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EXXONMOBIL/IMPERIAL OIL - MAXXAM
CHAIN-OF-CUSTODY RECORD
ANALYSIS REQUESTED

C of C # 496340-05-01

496340

INVOICE INFORMATION	REPORT INFORMATION
Company Name: Imperial Oil, a partnership of Imperial Oil Limited and McColl Frontenac Petrole	Company Name: Parsons
Contact Name: Daniel Grenzowski	Contact Name: Holly Losignore
Address: 1 Duncan Mill Road North York ON M3B 1Z2	Address: 3715 Laird Road Suite 100 Mississauga ON L5L 0A3
Email: daniel.grenzowski@esso.ca	Email: Holly.Losignore@parsons.com; labreport@
Phone: (416) 442-5012 x	Phone: (905) 569-4111 x
Sampler Name (Print): THEO MOSHONAS	Consultant Project #: 10-8518.3

	FIELD SAMPLE ID	MATRIX: GROUNDWATER	MATRIX: SURFACE WATER	MATRIX: SOIL	MATRIX: OTHER	# CONTAINERS	SAMPLING: DATE (YYYY/MM/DD)	SAMPLING: TIME (24 HR)	FIELD FILTERED & PRESERVED	LAB FILTRATION REQUIRED	F1/BTEX	F2-F4	VOC	LEAD		n-hexane			METALS (6) arsenic, boron, chromium, copper, lead, zinc		VOC (14): ethylene dibromide, 1,2-dichloroethane, 1,1-dichloroethane, tetrachloroethylene, trichloroethylene, 1,1-dichloroethylene, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, vinyl chloride, 1,1,1-trichloroethane, 1,1,2-trichloroethane, MTBE, Freon-11, Freon-12								
1	TRIP BLANK-02				✓	1	2014/12/15	14:25	N	N	✓	✓				✓			✓		✓								
2							YYYY/MM/DD	HH:MM																					
3							YYYY/MM/DD	HH:MM																					
4							YYYY/MM/DD	HH:MM																					
5							YYYY/MM/DD	HH:MM																					
6							YYYY/MM/DD	HH:MM																					
7							YYYY/MM/DD	HH:MM																					
8							YYYY/MM/DD	HH:MM																					
9							YYYY/MM/DD	HH:MM																					
10							YYYY/MM/DD	HH:MM																					

IOL SITE LOCATION: 1545 WOODROFFE AVENUE, OTTAWA, ON

IOL SITE # (if applicable): N/A

IOL PROJECT # (if applicable): ME.00214

MAXXAM TASK ORDER # OR SERVICE ORDER # + LINE ITEM: 4410259930-10

REGULATORY CRITERIA / DETECTION LIMITS:

☒ REG 153 Table 3 ☐ 2004 ☒ 2011 ☐ RSC
(Please indicate which Reg. version and if RSC required)

☐ ODWS ☐ PWQO

☐ Other

I/C/C MED/RANK

SPECIAL INSTRUCTIONS: TEST SAMPLES AS PER TOC

ICE-YES

JARS USED AND NOT SUBMITTED Enter N/A for Water: N/A

TURNAROUND TIME

Standard	(5 days)	☒
Rush	(3 days)	☐
	(2 days)	☐
	(1 day)	☐
	(same day)	☐

Date Required

COOLER ID: 1	YES	NO	TEMP	1	2	3
CUSTODY SEAL PRESENT	✓			0	0	-2
CUSTODY SEAL INTACT	✓					

COOLER ID:	YES	NO	TEMP	1	2	3
CUSTODY SEAL PRESENT						
CUSTODY SEAL INTACT						

COOLER ID:	YES	NO	TEMP	1	2	3
CUSTODY SEAL PRESENT						
CUSTODY SEAL INTACT						

	RELINQUISHED BY:		DATE:	TIME (24 HR)	RECEIVED BY:		DATE:	TIME (24 HR)
1.	signature	THEO MOSHONAS printed name	2014/12/16	17:00	signature	FANG WANG printed name	2014/12/17	17:55
2.	signature	printed name	YYYY/MM/DD	HH:MM	signature	printed name	YYYY/MM/DD	HH:MM
3.	signature	printed name	YYYY/MM/DD	HH:MM	signature	printed name	YYYY/MM/DD	HH:MM

LAB USE ONLY

MAXXAM JOB # B4N9508

SAMPLES

LABELED BY: HG

VERIFIED BY: FW

COC – 1012 (2013) IOL – ON White: Maxxam Yellow: Client

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Canada Ltd.*
1545 Woodroffe Avenue
Location: *Ottawa, Ontario*

Sampling Date: 2014/12/15

Laboratory: *Maxxam Analytics Inc.*

Consultant Project Number: *10-8518.3*

Laboratory Job Number: *B4N9508*

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/Spiked Blank	*X*			

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

	Yes	No	NA	Comments
Field Blank Concentration			*X*	*All field QC samples met the alert limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD			*X*	

Has CofA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CofA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CofA (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 or N/A)?:	*Yes*

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

Date Issued: *N/A* Date of Response: *N/A*

Is data considered to be reliable (Yes/No)?: *Yes*
If answer is "No", describe and provide rationale:

Data Reviewed by (Print): *Beverley Noel* Data Reviewed by (Signature): 
Review Date: *2015/01/07*
Revision Date (if applicable): Revised by (Signature):

APPENDIX D

QUALITY ASSURANCE AND QUALITY CONTROL

QUALITY ASSURANCE AND QUALITY CONTROL DISCUSSION

There were no lab or field QA/QC issues identified in this report that need to be discussed in detail.

The soil field QA/QC program consisted of one field duplicate sample for the analysis of BTEX, PHC fractions F1 to F4, hexane, lead, PAHs, and selected metals. The program also included one trip blank methanol sample for analysis of BTEX, PHC fraction F1, and VOCs; and one field blank silica sand soil samples for analysis of PAHs.

The groundwater field QA/QC program consisted of one field duplicate, one field blank, and one trip blank samples for the analysis of BTEX, PHC fractions F1 to F4, lead, selected VOCs, and selected metals.

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.

$$RPD = \left| \frac{(x_1 - x_2)}{\left(\frac{(x_1 + x_2)}{2}\right)} \right| \times 100$$

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.

The designated field duplicate RPD alert limits are presented in Tables D-1 to D-3 for soil. All of the RPDs were within acceptable limits.

The soil trip blank data was compared to the alert limits and are presented in Table D-4 and Table D-5. All of the results were within the alert limits.

The soil field blank data were compared to the alert limits and are presented in Table D-6. All of the results were within the alert limits.

The designated field duplicate RPD alert limits are presented in Tables D-7 to D-9 for groundwater. All of the RPDs were within acceptable limits.

The water trip blank and field blank data were compared to the alert limits and are presented in Table D-10 to Table D-12. 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 and/or groundwater samples that were analyzed, and (b) the analysis of method blank, matrix 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. 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 D-1

RELATIVE PERCENT DIFFERENCE CALCULATIONS - SOIL FIELD DUPLICATE SAMPLES
PETROLEUM HYDROCARBON PARAMETERS, HEXANE AND LEAD

SAMPLE LOCATIONS	BH-301-5.3-5.9	RDL	DUP-01 FIELD DUPLICATE BH-301-5.3-5.9	RDL	RPD	
Maxxam Certificate of Analysis No.	B4N6049V1		B4N6049V1			RPD ALERT LIMITS (%)[a]
Maxxam Sample ID	YV6418		YV6419			
Depth (mbgs)	5.3-5.9		5.3-5.9			
Date Sampled (yyyy/mm/dd)	2014/12/09		2014/12/09			
PARAMETERS						
Benzene	<0.020	0.020	<0.020	0.020	NC	100
Toluene	<0.020	0.020	<0.020	0.020	NC	100
Ethylbenzene	<0.020	0.020	<0.020	0.020	NC	100
Total Xylenes	<0.040	0.040	<0.040	0.040	NC	100
Petroleum Hydrocarbons F1 (C6 - C10)[b]	<10	10	<10	10	NC	100
Petroleum Hydrocarbons F2 (>C10 - C16)[c]	<10	10	<10	10	NC	100
Petroleum Hydrocarbons F3 (>C16 - C34)[d]	<50	50	<50	50	NC	100
Petroleum Hydrocarbons F4 (>C34 - C50)	<50	50	<50	50	NC	100
Hexane	<0.50	0.50	<0.50	0.50	NC	100
Lead	5.4	1.0	2.8	1.0	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
NA - Not applicable
NC - Not calculated
RDL - Reportable Detection Limit
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)
"-" - Not analyzed
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit
Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-2

RELATIVE PERCENT DIFFERENCE CALCULATIONS - SOIL FIELD DUPLICATE SAMPLES
POLYCYCLIC AROMATIC HYDROCARBONS

SAMPLE LOCATIONS	BH-301-5.3-5.9	RDL	DUP-01 FIELD DUPLICATE BH-301-5.3-5.9	RDL	RPD	
Maxxam Certificate of Analysis No.	B4N6049V1		B4N6049V1			RPD ALERT LIMITS (%)[a]
Maxxam Sample ID	YV6418		YV6419			
Depth (mbgs)	5.3-5.9		5.3-5.9			
Date Sampled (yyyy/mm/dd)	2014/12/09		2014/12/09			
PARAMETERS						
Acenaphthene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Acenaphthylene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Anthracene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Benzo(a)anthracene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Benzo(a)pyrene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Benzo(b/j)fluoranthene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Benzo(g,h,i)perylene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Benzo(k)fluoranthene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Chrysene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Dibenz(a,h)anthracene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Fluoranthene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Fluorene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Indeno(1,2,3-cd)pyrene	<0.0050	0.0050	<0.0050	0.0050	NC	100
1-Methylnaphthalene	<0.0050	0.0050	<0.0050	0.0050	NC	100
2-Methylnaphthalene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Total Methylnaphthalenes	<0.0071	0.0071	<0.0071	0.0071	NC	100
Naphthalene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Phenanthrene	<0.0050	0.0050	<0.0050	0.0050	NC	100
Pyrene	<0.0050	0.0050	<0.0050	0.0050	NC	100

a - Alert limits used for field duplicate samples
NA - Not applicable
NC - Not calculated
RDL - Reportable Detection Limit
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)
"-" - Not analyzed
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit
Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-3

RELATIVE PERCENT DIFFERENCE CALCULATIONS - SOIL FIELD DUPLICATE SAMPLES
SELECTED METALS

SAMPLE LOCATIONS	BH-301-5.3-5.9	RDL	DUP-01 FIELD DUPLICATE BH-301-5.3-5.9	RDL	RPD	
Maxxam Certificate of Analysis No.	B4N6049V1		B4N6049V1			RPD ALERT LIMITS (%)[a]
Maxxam Sample ID	YV6418		YV6419			
Depth (mbgs)	5.3-5.9		5.3-5.9			
Date Sampled (yyyy/mm/dd)	2014/12/09		2014/12/09			
PARAMETERS						
Arsenic	<1.0	1.0	<1.0	1.0	NC	100
Barium	23	0.50	28	0.50	20%	100
Chromium (Total)	9.0	1.0	5.2	1.0	54%	100
Copper	9.7	0.50	25	0.50	88%	100
Zinc	11	5.0	30	5.0	NC	100

a - Alert limits used for field duplicate samples
NA - Not applicable
NC - Not calculated
RDL - Reportable Detection Limit
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)
"-" - Not analyzed
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit
Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-4

SOIL TRIP BLANK DATA
PETROLEUM HYDROCARBON PARAMETERS AND HEXANE

SAMPLE LOCATIONS	RDL	TRIP BLANK-01	
Maxxam Certificate of Analysis No.		B4N9446V1	EXCEEDS ALERT LIMIT (yes/no)
Maxxam Sample ID		YX3106	
Date Sampled (yyyy/mm/dd)		2014/12/13	
PARAMETERS			
Benzene	0.020	<0.020	No
Toluene	0.020	<0.020	No
Ethylbenzene	0.020	<0.020	No
Total Xylenes	0.040	<0.020	No
Petroleum Hydrocarbons F1 (C6 - C10)[a]	10	<10	No
Hexane	0.50	<0.050	No

a - BTEX have been subtracted from the fraction
b - Naphthalene has not been subtracted from the fraction
c - PAHs have not been subtracted from the fraction
RDL - Reportable detection limit
"-" - Not analyzed
BOLD - Exceeds alert limit
Note - Alert limits for field blanks are 1x RDL for BTEX, Hexane, and Petroleum Hydrocarbons fraction F1.
Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-5

SOIL TRIP BLANK DATA
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATIONS	RDL	TRIP BLANK-01	EXCEEDS ALERT LIMIT (yes/no)
Maxxam Certificate of Analysis No.		B4N9446V1	
Maxxam Sample ID		YX3106	
Date Sampled (yyyy/mm/dd)		2014/12/13	
PARAMETERS			
Acetone	0.50	<0.50	No
Bromodichloromethane	0.050	<0.050	No
Bromoform	0.050	<0.050	No
Bromomethane	0.050	<0.050	No
Carbon Tetrachloride	0.050	<0.050	No
Chlorobenzene	0.050	<0.050	No
Chloroform	0.050	<0.050	No
Dibromochloromomethane	0.050	<0.050	No
1,2-Dichlorobenzene	0.050	<0.050	No
1,3-Dichlorobenzene	0.050	<0.050	No
1,4-Dichlorobenzene	0.050	<0.050	No
Dichlorodifluoromethane	0.050	<0.050	No
1,1-Dichloroethane	0.050	<0.050	No
1,2-Dichloroethane	0.050	<0.050	No
1,1-Dichloroethylene	0.050	<0.050	No
cis-1,2-Dichloroethylene	0.050	<0.050	No
trans-1,2-Dichloroethylene	0.050	<0.050	No
1,2-Dichloropropane	0.050	<0.050	No
cis-1,3-Dichloropropene	0.030	<0.030	No
trans-1,3-Dichloropropene	0.040	<0.040	No
1,3-Dichloropropene	0.050	<0.050	No
Ethylene Dibromide	0.050	<0.050	No
Methyl ethyl ketone	0.50	<0.50	No
Methyl isobutyl ketone	0.50	<0.50	No
Methyl t-butyl ether	0.050	<0.050	No
Methylene Chloride	0.050	<0.050	No
Styrene	0.050	<0.050	No
1,1,1,2-Tetrachloroethane	0.050	<0.050	No
1,1,2,2-Tetrachloroethane	0.050	<0.050	No
Tetrachloroethylene	0.050	<0.050	No
1,1,1-Trichloroethane	0.050	<0.050	No
1,1,2-Trichloroethane	0.050	<0.050	No
Trichloroethylene	0.050	<0.050	No
Trichlorofluoromethane	0.050	<0.050	No
Vinyl Chloride	0.020	<0.020	No

RDL - Reportable detection limit
"-" - Not analyzed
BOLD - Exceeds alert limit
Note - Alert limits for trip blanks are 1x RDL for VOCs.
Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-6

SOIL FIELD BLANK DATA
POLYCYCLIC AROMATIC HYDROCARBONS

SAMPLE LOCATIONS	RDL	FIELD BLANK-01	EXCEEDS ALERT LIMIT (yes/no)
Maxxam Certificate of Analysis No.		B4N9446V1	
Maxxam Sample ID		YX3107	
Date Sampled (yyyy/mm/dd)		2014/12/13	
PARAMETERS			
Acenaphthene	0.0050	<0.0050	No
Acenaphthylene	0.0050	<0.0050	No
Anthracene	0.0050	<0.0050	No
Benzo(a)anthracene	0.0050	<0.0050	No
Benzo(a)pyrene	0.0050	<0.0050	No
Benzo(b/j)fluoranthene	0.0050	<0.0050	No
Benzo(g,h,i)perylene	0.0050	<0.0050	No
Benzo(k)fluoranthene	0.0050	<0.0050	No
Chrysene	0.0050	<0.0050	No
Dibenz(a,h)anthracene	0.0050	<0.0050	No
Fluoranthene	0.0050	<0.0050	No
Fluorene	0.0050	<0.0050	No
Indeno(1,2,3-cd)pyrene	0.0050	<0.0050	No
1-Methylnaphthalene	0.0050	<0.0050	No
2-Methylnaphthalene	0.0050	<0.0050	No
Total Methylnaphthalenes	0.0071	<0.0071	No
Naphthalene	0.0050	<0.0050	No
Phenanthrene	0.0050	<0.0050	No
Pyrene	0.0050	<0.0050	No

RDL - Reportable detection limit
"-" - Not analyzed
BOLD - Exceeds alert limit
Note - Alert limits for field blanks are 5x RDL for PAHs.
Results for all parameters are reported in micrograms per gram (µg/g) on a dry weight basis
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-7

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
PETROLEUM HYDROCARBON PARAMETERS, HEXANE AND LEAD

SAMPLE LOCATIONS	BH-309	RDL	DUP-04 FIELD DUPLICATE BH-309	RDL	RPD	RPD ALERT LIMITS (%)[a]
Maxxam Certificate of Analysis No.	B4N9466V1		B4N9466V1			
Maxxam Sample ID	YX3184		YX3185			
Date Sampled (yyyy/mm/dd)	2014/12/15		2014/12/15			
PARAMETERS						
Benzene	0.26	0.20	0.32	0.20	NC	80
Toluene	<0.20	0.20	<0.20	0.20	NC	80
Ethylbenzene	0.52	0.20	0.54	0.20	NC	80
Total Xylenes	<0.40	0.40	<0.40	0.40	NC	80
Petroleum Hydrocarbons F1 (C6 - C10)[b]	78	25	67	25	NC	80
Petroleum Hydrocarbons F2 (>C10 - C16)[c]	<100	100	<100	100	NC	80
Petroleum Hydrocarbons F3 (>C16 - C34)[d]	<200	200	<200	200	NC	80
Petroleum Hydrocarbons F4 (>C34 - C50)	<200	200	<200	200	NC	80
Hexane	<5.0	5.0	<5.0	5.0	NC	80
Lead	<0.50	0.50	<0.50	0.50	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
d - PAHs have not been subtracted from the fraction
NA - Not applicable
NC - Not calculated
RDL - Reportable Detection Limit
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)
"-" - Not analyzed
BOLD - Exceeds RPD alert limit
Results for all parameters are reported in micrograms per litre (µg/L)
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-8

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
SELECTED VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATIONS	BH-309	RDL	DUP-04 FIELD DUPLICATE BH-309	RDL	RPD	RPD ALERT LIMITS (%)[a]
Maxxam Certificate of Analysis No.	B4N9466V1		B4N9466V1			
Maxxam Sample ID	YX3184		YX3185			
Date Sampled (yyyy/mm/dd)	2014/12/15		2014/12/15			
PARAMETERS						
1,2-Dichloroethane	<0.20	0.20	<0.20	0.20	NC	80
Ethylene Dibromide	<0.20	0.20	<0.20	0.20	NC	80
Methyl t-butyl ether	1.0	0.20	0.98	0.20	NC	80

a - Alert limits used for field duplicate samples
NA - Not applicable
NC - Not calculated
RDL - Reportable Detection Limit
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)
"-" - Not analyzed
BOLD - Exceeds RPD alert limit
Results for all parameters are reported in micrograms per litre (µg/L)
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-9

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
SELECTED METALS

SAMPLE LOCATIONS	BH-309	RDL	DUP-04 FIELD DUPLICATE BH-309	RDL	RPD	RPD ALERT LIMITS (%)[a]
Maxxam Certificate of Analysis No.	B4N9466V1		B4N9466V1			
Maxxam Sample ID	YX3184		YX3185			
Date Sampled (yyyy/mm/dd)	2014/12/15		2014/12/15			
PARAMETERS						
Arsenic	<1.0	1.0	<1.0	1.0	NC	50
Barium	360	2.0	350	2.0	3%	50
Chromium	<5.0	5.0	<5.0	5.0	NC	50
Copper	<2.0	2.0	<2.0	2.0	NC	50
Zinc	<5.0	5.0	<5.0	5.0	NC	50

a - Alert limits used for field duplicate samples
NA - Not applicable
NC Not calculated
RDL - Reportable Detection Limit
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL)
"-" - Not analyzed
BOLD - Exceeds RPD alert limit
Results for all parameters are reported in micrograms per litre (µg/L)
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-10

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
PETROLEUM HYDROCARBON PARAMETERS, HEXANE AND LEAD

SAMPLE LOCATIONS	RDL	FIELD BLANK-02	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK-02	EXCEEDS ALERT LIMIT (yes/no)
Maxxam Certificate of Analysis No.		B4N9503V1		B4N9508V1	
Maxxam Sample ID		YX3356		YX3375	
Date Sampled (yyyy/mm/dd)		2014/12/15		2014/12/15	
PARAMETERS					
Benzene	0.20	<0.20	No	<0.20	No
Toluene	0.20	<0.20	No	<0.20	No
Ethylbenzene	0.20	<0.20	No	<0.20	No
Total Xylenes	0.40	<0.40	No	<0.40	No
Petroleum Hydrocarbons F1 (C6 - C10)[a]	25	<25	No	<25	No
Petroleum Hydrocarbons F2 (>C10 - C16)[b]	100	<100	No	<100	No
Petroleum Hydrocarbons F3 (>C16 - C34)[c]	200	<200	No	<200	No
Petroleum Hydrocarbons F4 (>C34 - C50)	200	<200	No	<200	No
Hexane	5.0	<5.0	No	<5.0	No
Lead	0.50	<0.50	No	<0.50	No

a - BTEX have been subtracted from the fraction
b - Naphthalene has not been subtracted from the fraction
c - PAHs have not been subtracted from the fraction
RDL - Reportable detection limit
"-" - Not analyzed
BOLD - Exceeds alert limit
Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX, hexane and lead; 2x RDL for petroleum hydrocarbons fractions F1 to F4.
Results for all parameters are reported in micrograms per litre (µg/L)
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-11

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
SELECTED VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATIONS	RDL	FIELD BLANK-02	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK-02	EXCEEDS ALERT LIMIT (yes/no)
Maxxam Certificate of Analysis No.		B4N9503V1		B4N9508V1	
Maxxam Sample ID		YX3356		YX3375	
Date Sampled (yyyy/mm/dd)		2014/12/15		2014/12/15	
PARAMETERS					
Dichlorodifluoromethane	0.50	<0.50	No	<0.50	No
1,1-Dichloroethane	0.10	<0.10	No	<0.10	No
1,2-Dichloroethane	0.20	<0.20	No	<0.20	No
1,1-Dichloroethylene	0.10	<0.10	No	<0.10	No
cis-1,2-Dichloroethylene	0.10	<0.10	No	<0.10	No
trans-1,2-Dichloroethylene	0.10	<0.10	No	<0.10	No
Ethylene Dibromide	0.20	<0.20	No	<0.20	No
Methyl t-butyl ether	0.20	<0.20	No	<0.20	No
Tetrachloroethylene	0.10	<0.10	No	<0.10	No
1,1,1-Trichloroethane	0.10	<0.10	No	<0.10	No
1,1,2-Trichloroethane	0.20	<0.20	No	<0.20	No
Trichloroethylene	0.10	<0.10	No	<0.10	No
Trichlorofluoromethane	0.20	<0.20	No	<0.20	No
Vinyl Chloride	0.20	<0.20	No	<0.20	No

RDL - Reportable detection limit
"-" - Not analyzed
BOLD - Exceeds alert limit
Note - Alert limits for field blanks and trip blanks are 5x RDL for VOCs.
Results for all parameters are reported in micrograms per litre (µg/L)
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.

TABLE D-12

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
SELECTED METAL

SAMPLE LOCATIONS	RDL	FIELD BLANK-02	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK-02	EXCEEDS ALERT LIMIT (yes/no)
Maxxam Certificate of Analysis No.		B4N9503V1		B4N9508V1	
Maxxam Sample ID		YX3356		YX3375	
Date Sampled (yyyy/mm/dd)		2014/12/15		2014/12/15	
PARAMETERS					
Arsenic	1.0	<1.0	No	<1.0	No
Barium	2.0	<2.0	No	<2.0	No
Chromium	5.0	<5.0	No	<5.0	No
Copper	2.0	<1.0	No	<1.0	No
Zinc	5.0	<5.0	No	<5.0	No

RDL - Reportable detection limit
"-" - Not analyzed
The specific date each sample was analyzed is presented in the laboratory Certificates of Analysis.
BOLD - Exceeds alert limit
Note - Alert limits for field blanks and trip blanks are 5x RDL for metals.
Results for all parameters are reported in micrograms per litre (µg/L)
The specific date each sample was analyzed for each parameter is presented in the laboratory Certificates of Analysis.