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LABORATORY

CALA Canadian Association for Laboratory Accreditation Inc.

PHASE II ENVIRONMENTAL SITE ASSESSMENT

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Project Name:	Phase II Environmental Site Assessment
Project Address:	851 Industrial Avenue, Ottawa, Ontario K1G 4L3
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GLOSSARY OF ACRONYMS

APEC:	Area of Potential Environmental Concern
asl:	Above Sea Level
AST:	Aboveground Storage Tank
bgs:	Below Ground Surface
BTEX:	Benzene, Toluene, Ethylbenzene and Xylenes
CPC:	Contaminants of Potential Concern
CSA:	Canadian Standards Association
DO:	Dissolved Oxygen
EC:	Electrical Conductivity
ESA:	Environmental Site Assessment
FIP:	Fire Insurance Plan
MOE:	Ministry of the Environment
MOECC:	Ministry of the Environment and Climate Change
OHSA:	Occupational Health and Safety Act
PAH:	Polycyclic Aromatic (Polyaromatic) Hydrocarbons
PCA:	Potentially Contaminating Activity
PCB:	Polychlorinated Biphenyls
pH:	potential of Hydrogen
PHC (F1-F4):	Petroleum Hydrocarbons (Fractions 1 to 4)
ppb:	Parts per Billion
ppm:	Parts per Million
RSC:	Record of Site Condition
SAR:	Sodium Absorption Ratio
UST:	Underground Storage Tank
VOC:	Volatile Organic Compounds

1.0. EXECUTIVE SUMMARY

Fisher Environmental Limited (Fisher) was commissioned by Dymon Group of Companies to carry out a Phase Two Environmental Site Assessment (Phase II ESA) of the property located at 851 Industrial Avenue, Ottawa, Ontario, hereinafter referred to as the 'Site'. The subsurface soil and groundwater investigation was carried out between July 24 and 25, 2017.

The Site is located in an industrial area of Ottawa on the east side of Industrial Avenue approximately 1,200 m south of the on ramp of St. Laurent Boulevard and Highway 417. The Site is bounded by commercial and light industrial development to the west, a works yard to the east, commercial development along Industrial Road to the south, and commercial and industrial development to the north. The Site has an area of approximately 0.9 hectares.

A Site building is located along the northeastern portion of the Site. The remaining Site areas consist of asphalt paved parking and landscaped grass and trees along the perimeter of the Site.

In 2004, Pinchin Environmental Ltd. conducted environmental work at the Site for an unknown client. The previous work at the Site included the removal of two fuel USTs from the parking lot area of the Site located immediately east of the Site building. Fisher notes, the report for the previous work conducted at the Site was not provided to Fisher. Fisher received only analytical data and photos of the tanks and surrounding soils. Based on the information gathered, observations made during this investigation, and the documents provided to Fisher, exceedances of PHC Fractions 1, 2 and 3 from two of the samples analyzed were identified and significant staining was observed in the areas surroundings the tanks. Based on these findings, Fisher recommends that a Phase II ESA to be conducted in the vicinity of the former USTs.

In the current investigation, seven (7) boreholes were advanced in the investigated property to depths of up to 7.62 m bgs., and in three (3) of them BH1, BH5, and BH7, monitoring wells were installed to facilitate groundwater level monitoring and sampling.

On the basis of the boreholes completed, the stratigraphy at the investigated areas of the Site generally consists of a layer of fill, extending up to 3.8 m bgs. The fill generally consisted of sand with some gravel. Underlying the fill is brown silty sand and clayey silt with some gravel.

Groundwater static level measurement was taken at the monitoring well locations on July 25, 2017, and it was noted at depths ranging from 1.60 m bgs in BH1 to 3.90 m bgs in BH5. Based

on the topography of the Site and surroundings, groundwater flow is likely to the north to northeast.

A total of fourteen (14) soil and four (4) groundwater samples were submitted to the laboratory for Metals, PHC(F1-F4), VOC, pH, EC and SAR analysis.

For the purpose of this Phase II ESA, the appropriate standards were identified as: Table 3 (Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition – Industrial/Commercial/Community Property Use for soil samples and All Types of Property Use for groundwater samples, coarse textured soil) as contained in the MOE Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Findings - Soil

The results of chemical analysis for four (4) of the nine (9) soil samples were found to exceed the applicable MOE Standards. The following exceedances were found:

- **BH4 (0.30 – 0.60 m bgs) - Lab ID #17-6830-4**

  Ethyl benzene: 11 ppm vs. 9.5 ppm;
  F2 (C10-C16): 425 ppm vs. 230 ppm.

- **BH4 (0.76 – 1.22) - Lab ID #17-6830-5**

  Benzene: 1.9 ppm vs. 0.32 ppm;
  F2 (C10-C16): 549 ppm vs. 230 ppm.

- **BH5 (0.30 – 0.60 bgs) - Lab ID #17-6830-6**

  F1 (C6-C10): 60 ppm vs. 55 ppm:
  F2 (C10-C16): 910 ppm vs. 230 ppm.

- **BH5 (0.76 – 1.22) - Lab ID #17-6830-7**

  Benzene: 1.7 ppm vs. 0.32 ppm;
  F1 (C6-C10) 75 ppm vs. 55 ppm:
  F2 (C10-C16): 1342 ppm vs. 230 ppm

Findings - Groundwater

The results of chemical analysis for all four (4) groundwater samples were found to be in compliance with the applicable MOE standards.

Recommendations

Based on the results of the current investigation, it is expected that the historical activities at the Site have impacted the property's soil condition.

The results suggest that all contamination associated with the former on-Site USTs has not been fully removed from the Site.

Fisher recommends further excavation activities in the vicinity of the former tanks and exceedances at the Site.

2.0. INTRODUCTION

Fisher Environmental Limited (Fisher) was commissioned by Dymon Group of Companies to carry out a Phase Two Environmental Site Assessment (Phase II ESA) of the property located at 851 Industrial Avenue, Ottawa, Ontario, hereinafter referred to as the 'Site'. The subsurface soil and groundwater investigation was carried out between July 24 and 25, 2017.

3.0. PROPERTY DESCRIPTION

The Site is located in an industrial area of Ottawa on the east side of Industrial Avenue approximately 1,200 m south of the on ramp of St. Laurent Boulevard and Highway 417. The Site is bounded by commercial and light industrial development to the west, a works yard to the east, commercial development along Industrial Road to the south, and commercial and industrial development to the north. The Site has an area of approximately 0.9 hectares. Please refer to Appendix A for a Site Location Map.

A two-storey commercial building is present along the northwestern portion of the Site. The remaining areas of the Site include asphalt paved parking areas and landscaped grass and trees along the perimeter of the Site.

4.0. EXISTING REPORTS REVIEW

The following previous report was reviewed by Fisher and used as a source of background information:

TABLE 1: PREVIOUS REPORTS

Report Title:	Phase I Environmental Site Assessment, 851 Industrial Avenue, Ottawa, Ontario
Prepared By:	Fisher Environmental Ltd.
Date:	August 2017
Findings and Conclusions	

Based on the information gathered and observations made during this investigation, the report revealed evidence of potential environmental contamination associated with the historical presence of USTs along the northern portion of the Site immediately east of the Site building and reported presence of PHC exceedances in the soil within the vicinity of the USTs. It was recommended that a Phase II ESA be conducted at the identified areas of potential environmental concern at the subject property, to determine the location and concentration of potential contaminants in the soil or water on, in or under the phase one property.

5.0. SCOPE OF WORK

The current Phase II ESA was conducted in accordance with the CAN/CSA-Z769-00 standards, as published in March 2000 and reaffirmed in 2013, by the CSA Group.

A Phase II ESA involves sampling and testing of materials considered, usually by the outcome of a Phase I ESA or other investigation, to be possible instances of environmental contamination. The project, as carried out, fulfills the scope of a 'Reconnaissance' type investigation in which conditions are previously unknown, and the aim is to establish whether any environmental contamination is present. Normal environmental assessment protocol reserves a detailed investigation for a subsequent phase if the reconnaissance survey indicates a requirement for further contaminant delineation.

The scope of this work generally consisted of the following:

- **Field Program -** Clearance of underground utilities and advancement of seven (7) boreholes to depths of up to 8.20 m or resistance, and installation of three (3) groundwater monitoring wells.
- **Laboratory Testing Program -** Recovery and analysis of selected soil and groundwater samples for Metals, PHC (F1-F4), VOC, EC, SAR, and pH.
- **Data Evaluation -** Comparison of results of chemical analyses with the applicable MOE Standards.
- **Reporting -** Provision of final engineering report detailing findings of performed works, and any further recommendations.

As conducted, the present investigation may lack information or analytical work that are specific requirements for filing a Record of Site Condition (RSC) under Part XV.1 of the EPA and Amended O. Reg. 153/04, therefore, if a RSC is necessary, the property owner or its agent should undertake complementary investigations required under the RSC filing process.

6.0. FIELD PROGRAM

The subsurface soil and groundwater investigation (Phase II ESA) was carried out between July 24 and July 26, 2017. The field work was conducted by Sean Fisher of Fisher Environmental Ltd. who directed drilling and sampling operations, and assured proper chain of custody procedures for the recovered soil and groundwater samples.

Seven (7) boreholes were advanced in the investigated property to depths of up to 8.20 m bgs., and in three (3) of them, BH1 and BH5 monitoring wells were installed to facilitate groundwater level monitoring and sampling.

6.1. Site Preparation

Site preparation included the location of public underground services by referring to the respective utilities: Ottawa Hydro, Enbridge Gas, Bell Canada, Public Works, water, sewer and light cables to avoid potential disruptions to the utilities during the drilling. Soil drilling was scheduled following receipt of clearance from all utilities for the given borehole locations.

6.2. Boreholes, Soil and Groundwater Sampling

The borehole locations were selected by an initial rationale as being the most likely locations of contamination. Refer to the attached Site Plan with Borehole and Monitoring Well Locations (Figure 1 in Appendix A) and Table 2 for description of borehole locations rationale.

Seven (7) boreholes were advanced in the investigated property. All borehole were advanced outside within the parking areas. The drilling was carried out using a Diedrich D-50 drilling rig. The boreholes were extended to depths of up to 8.20 m, at which point native material had been reached.

TABLE 2: BOREHOLE LOCATION RATIONALE

Borehole #	Borehole Location and Reason
BH1	Evaluate sub-surface soil and groundwater condition in the region of the historical on-Site USTs in relation to potential impacts that may

Borehole #	Borehole Location and Reason
	have historically and/or currently originated from potential fill materials.
BH2	Evaluate sub-surface soil condition along the northeastern corner of the Site in relation to potential impacts that may have historically and/or currently originated from on-Site from potential fill materials.
BH3	Evaluate sub-surface soil condition along the southeastern corner of the Site in relation to potential impacts that may have historically and/or currently originated from potential fill materials.
BH4	Evaluate sub-surface soil condition along the central portion of the Site in relation to potential impacts that may have historically and/or currently originated from on-Site from the current on-Site ASTs.
BH5	Evaluate sub-surface soil and groundwater condition in the region of the historical on-Site pump island in relation to potential impacts that may have historically and/or currently originated from potential fill materials.
BH6	Evaluate sub-surface soil condition along the southwestern corner of the Site in relation to potential impacts that may have historically and/or currently originated from potential fill materials.
BH7	Evaluate sub-surface soil and groundwater condition in the region of the Site building in relation to potential impacts that may have historically and/or currently originated from the auto service and maintenance operations.

Fisher Environmental retains Terra Firma Services as our drilling contractor. Terra Firma Services maintains licensure for drilling (Water Well Drillers, Environmental Protection Act, Well Contractor License No. 6946) as required by the MOECC, and conducted drilling and soil sampling works in accordance with CSA Standard Z769-00 (reaffirmed in 2013) and MOE Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario, and in compliance with Occupational Health and Safety regulations.

The intrusive subsurface investigation was conducted by means of solid stem auger boreholes advancement through the pavement and subsoil, and a 50 mm diameter spoon sampler driven 600 mm into subsoil by a 65 kg hammer, falling 760 mm, collecting soil samples at a maximum of 0.76 m interval and at stratigraphic boundaries.

Soil and groundwater samples were collected and handled in accordance with generally accepted sampling and handling procedures used by the environmental consulting industry. For guidance, these practices rely on the 1996 MOE publication “Guidance on Sampling and

Analytical Methods for Use at Contaminated Sites in Ontario". To minimize the potential for cross contamination between soil samples, the split spoon sampler used to collect soil samples from the boreholes was brushed clean of soil and then washed in municipal water containing phosphate free detergent, rinsed in municipal water and then rinsed with distilled water. As well, new disposable latex gloves and stainless steel spatula were used during each sampling event to remove the soil cores from the sampler and to transfer the samples into plastic bags and/or glass jars.

Through each soil sample, the lithology and esthetic evidence of impacts (debris, staining and odours) were recorded as part of field QC procedures. Additionally each sample was screened in the field for headspace vapour concentration (combustible soil vapour and total organic vapour) using the 10.6 eV lamp Mini Rae 2000 PID calibrated to 100 ppm Isobutylene. The samples were kept out of direct sunlight during field storage and the headspace measurements were made after at least two hours had elapsed since the sample *was bagged and the sample had reached a minimum of 15ºC temperature*. The headspace monitoring was performed on the samples as a preliminary screening for PHC (F1-F4) or VOC analysis. The headspace readings for all collected soil samples are shown in Table 4.

Selection of samples to be submitted for laboratory analysis are based on the headspace vapour concentration and/or physical evidence of odours/staining. If no odours/staining are noted in the soil samples, the samples with the highest field screening measurement (i.e. highest headspace vapour concentration) are selected for laboratory analysis. Soil samples from the boreholes selected for potential chemical analysis of organic parameters were placed directly into laboratory supplied glass jars at the time of sampling, labeled and packed with minimal headspace. Samples were kept in coolers provided with ice/cold packs during field storage and transportation to Fisher Environmental Laboratories for Metals, PHC(F1-F4), VOC, pH, EC and SAR analysis.

No field duplicate soil samples were submitted to the lab for analysis.

Following sampling, monitoring wells were installed in three (3) boreholes, in accordance to O. Reg. 903.

6.3. Monitoring Wells Program

Three (3) monitoring wells were installed on the subject property. The wells were constructed of 52 mm ID diameter PVC pipes, which were pre-cleaned at the factory and delivered to the Site

in sealed plastic bags. Further construction details of the monitoring wells are provided on the 'Log of Boreholes' attached in Appendix B.

Installed monitoring wells were sampled on July 25, 2017. Prior to sampling, three well volumes of groundwater were purged from each well to ensure the sampling of “fresh” formation water.

Pre-preserved sample containers were used to collect groundwater samples which were labeled, stored in coolers provided with ice/cold packs during field storage and transportation to Fisher Environmental Laboratories for Metals, PHC(F1-F4), VOC, pH, EC and SAR analysis.

Groundwater static level measurement was conducted prior to sampling. The groundwater static level measurements are summarized in Table 3 below.

TABLE 3: GROUNDWATER STATIC LEVEL MEASUREMENTS

Location	Well Depth, m bgs	Groundwater Static Level, m bgs (July 25, 2017)	Ground Relative Elevation, m asl	Groundwater Relative Elevation, m asl
BH1	4.60	1.60	99.62	98.02
BH5	6.10	3.20	99.53	96.33
BH7	6.25	3.90	99.87	95.97

Fisher personnel surveyed the ground surface elevations using the finished floor elevation (FFE) of Bay #4 of the existing building as a temporary benchmark (TBM). The TBM was assigned an arbitrary elevation of 100m.

Groundwater generally flows from areas of high hydraulic head towards areas of low hydraulic head. To assess the direction of groundwater movement, the hydraulic head is measured at each well location. This is accomplished by taking water level measurements and referencing them to a known benchmark to determine their elevation. Water level measurements having higher elevations suggest greater hydraulic head. Conversely, lower elevations of the water table are indicative of a lesser hydraulic head.

Based on surface topography, the local groundwater flow direction is predicted to be to the north to northeast.

The localized shallow groundwater flow direction may be influenced by the presence of underground utilities, building foundation, variations in vertical and horizontal stratigraphy, depth of wells’ screened intervals and/or well trauma.

6.4. Well Record Filed with the MOECC

The groundwater monitoring installations for this project are regulated under Regulation 903 of the Ontario Water Resources Act. The regulation reveals certain responsibilities on Fisher Environmental and the property owner. As a condition to Fisher Environmental providing groundwater monitoring installation services, our client has accepted responsibility for ensuring that the property owner accepts the following conditions:

1. The name and address of the property owner have been provided to Fisher Environmental.
2. Fisher Environmental has permission to submit well records to the Ministry and to the owner and to report multiple installations on a single well record.
3. Unless otherwise agreed to by Fisher Environmental, installations will be decommissioned by the owner within 180 days of installation. Note that installations greater than 180 days require more costly seals.
4. Well tags on installations must not be removed or destroyed.
5. The owner is responsible for future decommissioning of all installations in accordance with the regulation.
6. The owner is responsible for any expenses associated with controlling and decommissioning installations that have, or may have in the future, artesian conditions.
7. Maintenance of well installations in accordance with the regulation will be by the owner. This includes ensuring that seals remain adequate for preventing water or gas migration between formations and to/from surface, seals do not deteriorate and wells are decommissioned.
8. The client and owner accept responsibility for the inherent risk associated with industry standard installations, and acknowledge that conditions and materials do not remain constant with time nor that they can be completely quantified or predicted in advance.

6.5. Site Topography and Geology

A topographical map of the area was obtained from Natural Resources Canada - The Atlas of Canada Online Topography map. The topographical map for the Site indicates that the ground

surface elevation in the vicinity of the property is approximately 80 m asl. The Site area is generally flat and at grade with the Site surroundings. Based on surface topography, the local groundwater flow direction is predicted to be north to northwest.

According to the Ontario Geological Survey 2010. Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV the subject Site is situated in an area characterized as having fine textured glaciomarine deposits of silt and clay with minor sand and gravel.

On the basis of the boreholes completed, the stratigraphy at the investigated areas of the Site generally consists of a layer of fill, extending up to 3.8 m bgs. The fill generally consisted of brown sand with some gravel. Underlying the fill is brown silty sand and clayey silt with some gravel. A description of the subsurface conditions encountered at the boreholes locations is presented in Appendix B - Log of Boreholes.

6.6. Head Space Combustible Vapours

A 10.6 eV lamp MiniRae 2000 PID calibrated to 100 ppm Isobutylene was used to measure combustible vapours in the soil samples. Vapour concentrations were read during the soil sampling and all soil samples had concentrations of 10 ppm or less with the exception of the following; BH4 (0.00 – 0.60) 26 ppm, BH4 (0.60 – 1.22) 22 ppm, BH5 (0.00 – 0.60) 71 ppm, and BH5 (0.60 – 1.22) 190 ppm.

6.7. Visual Olfactory Soil / Groundwater Quality

During the borehole-drilling program, the following visual/olfactory observations were made:

- PHC odours were noted in BH4 in depths of 0.00 – 2.00 m and in BH5 from 0.00m – 2.00 m.

6.8. Selection of Analytical Samples and Parameters

Selection of samples for environmental analysis was based on appearance, headspace vapour concentrations, odour, expectations of Site conditions, and proximity of potential contaminant sources.

Nine (9) soil samples were submitted to the laboratory for Metals, PHC (F1-F4), VOC, and pH. Four (4) groundwater samples were collected from the three newly installed groundwater wells

and one previously installed monitoring well, and were submitted to the laboratory for Metals, PHC (F1-F4) and VOC analysis.

TABLE 5: RATIONALE FOR ANALYTICAL PARAMETER

Parameter	Description
Metals	Various metallic elements can cause adverse environmental effects at relatively low concentrations. Such metals are associated with industrial activities and/or the use of fill materials of unknown quality, both historic and current, and it is common practice to include Metals analysis in subsurface soil investigations. Nine (9) soil and four (4) groundwater samples collected at the Site were submitted for Metals analysis.
PHC(F1-F4)	PHC are components of gasoline, diesel and other petroleum products for which soil quality guidelines have been developed. These compounds are widely utilized and often included in the evaluation of a Site's overall subsurface condition. Nine (9) soil and four (4) groundwater samples collected at the Site were submitted for PHC (F1-F4) analysis.
VOC	VOC are any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds. VOC are included in gasoline, diesel, crude oil, lubricant, waste oil, adhesive, paint, stain, solvents, resin, monomer, and/or any other material containing VOC. Note that VOC analysis includes Benzene, Toluene, Ethylbenzene, Xylene (BTEX) parameters. Nine (9) soil and four (4) groundwater samples collected at the Site were submitted for VOC analysis.
pH	Soil pH is referred to as the "acidity" of the soil. When the soil pH is too "acid" (low pH) or too "alkaline" (high pH), nutrients present in the soil become locked-up or unavailable. Five (5) soil samples collected at the Site were submitted for pH analysis.
EC	Soil EC is indirectly correlated with various chemical and physical properties of soil and is the ability of any material to conduct an electrical current. Sand has a lower conductivity while clay has a higher conductivity, which is correlated with particle size, soil texture, and water-holding capacity. Five (5) soil samples collected at the Site were submitted for EC analysis.
SAR	Soil SAR is the ratio of the concentration of sodium in relation to calcium and magnesium, which can be used to assess the potential to cause dispersion in soil. Five (5) soil samples collected at the Site were submitted for SAR analysis.

7.0. LABORATORY PROGRAM

7.1. General

Recovered soil and groundwater samples were submitted to Fisher Environmental Laboratories for analysis. As CALA (Canadian Association for Laboratory Accreditation) registered analytical facility, QA/QC (Quality Assurance/Quality Control) procedures were maintained consistent with CALA requirements and standard laboratory practices. The laboratories ensured that analytical sub-samples were, by appearance, representative of the whole sample as collected in the field.

7.2. Data Evaluation

7.2.1. Soil and Groundwater Standards

The MOE presents Soil and Groundwater Standards, under the Publication “Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” April 15, 2011. These standards present soil and groundwater criteria, which have been developed with regard to toxicological data. They are levels at and below which no environmental or safety concerns, or adverse conditions, are anticipated for environments or persons with average sensitivity.

The subject property has been used for commercial purposes, and it is our understanding that the property will maintain its current commercial land use.

With regards to the potability status of the groundwater, it is understood that the surrounding area relies on municipal water as a source of drinking water. For the purpose of assessing the soil and groundwater quality at the subject site in accordance to the requirements for site assessment, under Part XV.1 of the EPA and Ontario Regulation 153/04, it is our intention to utilize a non-potable groundwater condition standard.

As specified by O. Reg. 153/04, "coarse textured soil is defined as material having more than 50 percent (by mass) of particles that are 75 μm or larger in mean diameter. Materials having more than 50 percent (by mass) of particles that are smaller than 75 μm in mean diameter are medium and fine textured soils." “When at least 1/3 of the soil at the property, measured by volume, consists of coarse textured soil, the standard for coarse textured soil shall apply. In any other case, the standard for medium and fine textured soil may be applied”.

A grain size analysis was not completed at the time of the investigation, however, considering the visually identified soil types encountered at the borehole locations, and the distribution of boreholes across the Site, the stricter site condition standards for coarse textured soil have been applied.

For the purpose of this Phase II ESA, the appropriate standards were identified as: Table 3 (Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition – Industrial/Commercial/Community Property Use for soil samples and All Types of Property Use for groundwater samples, coarse textured soil) as contained in the MOE Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

The criteria values are presented with the results of analysis in the last column of the Certificates of Analysis (Appendix C).

7.2.2. Soil and Groundwater Quality

Nine (9) soil and Four (4) groundwater samples were submitted to the laboratory for Metals, PHC (F1-F4), and VOC analysis. Copies of the Laboratory Certificates of Analysis are provided in Appendix C. Results of the chemical analyses are summarized in Table 6. Refer to the Site Plan with MOE Standards Exceedances (Figure 3 in Appendix A).

TABLE 6: EXCEEDANCES OF APPLICABLE SITE CONDITION STANDARDS

Borehole	Sample Depth	Sample #	Parameters Analyzed	Exceedances of April 15, 2011 Table 3 MOE Standards, Industrial/Commercial/ Community Property Use (I/C/C) Groundwater condition
Soil – July 25, 2017				
BH1	SS3	17-6830-1	Metals VOC PHC BTEX	No Exceedances No Exceedances No Exceedances No Exceedances
BH2	SS2	17-6830-2	Metals VOC PHC BTEX	No Exceedances No Exceedances No Exceedances No Exceedances
BH3	SS1	17-6830-3	Metals VOC PHC BTEX	No Exceedances No Exceedances No Exceedances No Exceedances

Borehole	Sample Depth	Sample #	Parameters Analyzed	Exceedances of April 15, 2011 Table 3 MOE Standards, Industrial/Commercial/ Community Property Use (I/C/C) Groundwater condition
BH4	0.30 – 0.60 m	17-6830-4	Metals VOC/BTEX PHC	No Exceedances **Ethyl benzene: 11 ppm vs. 9.5 ppm;** **F2 (C10-C16): 425 ppm vs. 230 ppm.**
BH4	0.76 – 1.22	17-6830-5	Metals VOC/BTEX PHC	No Exceedances **Benzene: 1.9 ppm vs. 0.32 ppm;** **F2 (C10-C16): 549 ppm vs. 230 ppm.**
BH5	0.30 – 0.60 m	17-6830-6	Metals VOC PHC BTEX	No Exceedances No Exceedances **F1 (C6-C10): 60 ppm vs. 55 ppm:** **F2 (C10-C16): 910 ppm vs. 230 ppm.** No Exceedances
BH5	0.76 – 1.22 m	17-6830-7	Metals VOC BTEX PHC	No Exceedances No Exceedances **Benzene: 1.7 ppm vs. 0.32 ppm;** **F1 (C6-C10) 75 ppm vs. 55 ppm:** **F2 (C10-C16): 1342 ppm vs. 230 ppm**
BH6	0.76 – 1.22 m	17-6830-8	Metals VOCs PHC	No Exceedances No Exceedances No Exceedances No Exceedances
BH7	0.76 – 1.22 m	17-6830-9	Metals VOCs	No Exceedances No Exceedances
Groundwater – July 25, 2017				
BH1	Groundwater	17-6830-11	Metals VOC PHC BTEX	No Exceedances No Exceedances No Exceedances No Exceedances
BH5	Groundwater	17-6830-12	Metals VOC PHC BTEX	No Exceedances No Exceedances No Exceedances No Exceedances
BH7	Groundwater	17-6830-13	Metals VOC PHC BTEX	No Exceedances No Exceedances No Exceedances No Exceedances

Borehole	Sample Depth	Sample #	Parameters Analyzed	Exceedances of April 15, 2011 Table 3 MOE Standards, Industrial/Commercial/ Community Property Use (I/C/C) Groundwater condition
Existing well	Groundwater	17-6830-13	Metals	No Exceedances
			VOC	No Exceedances
			PHC	No Exceedances
			BTEX	No Exceedances

NOTES: PHC (F1-F4)*: Petroleum Hydrocarbons fractions (F1-F4)
F1 (C6-C10) Gasoline less BTEX
F2 (C10-C16) Diesel
F3 (C16-C34) Diesel
F4 (C34-C50) Heavy Oil
VOC: Volatile Organic Compounds, PAH: Polycyclic Aromatic Hydrocarbons, PCB: Polychlorinated Biphenyls, pH: potential of Hydrogen, SAR: Sodium Absorption Ratio, EC: Electrical Conductivity
Bold: Exceeds the MOE Standards

Five samples were analyzed for pH, EC, and SAR. No elevated levels were reported.

7.2.3. Metals

Nine (9) soil and four (4) groundwater samples were submitted for Metals analysis.

Soil

The results of chemical analysis for Metals parameters in the submitted soil samples were found to be in compliance with the applicable MOE Standards.

Groundwater

The results of chemical analysis for Metals parameters in the submitted groundwater samples were found to be in compliance with the applicable MOE Standards.

7.2.4. Petroleum Hydrocarbons (PHC)

Nine (9) soil and four (4) groundwater samples were submitted for PHC (F1-F4) analysis.

Soil

The results of chemical analysis for PHC (F1-F4) parameters in four (4) of the nine (59 submitted soil samples were found to exceed the applicable MOE Standards. The following exceedance was found:

- **BH4 (0.30 – 0.60 m bgs) - Lab ID #17-6830-4**

  F2 (C10-C16): 425 ppm vs. 230 ppm.

- **BH4 (0.30 – 0.60 bgs) - Lab ID #17-6830-5**

  F2 (C10-C16): 549 ppm vs. 230 ppm.

- **BH5 (0.30 – 0.60 bgs) - Lab ID #17-6830-6**

  F1 (C6-C10): 60 ppm vs. 55 ppm:
  F2 (C10-C16): 910 ppm vs. 230 ppm.

- **BH5 (0.30 – 0.60 bgs) - Lab ID #17-6830-7**

  F1 (C6-C10) 75 ppm vs. 55 ppm:
  F2 (C10-C16): 1342 ppm vs. 230 ppm

Groundwater

The results of chemical analysis for PHC (F1-F4) parameters in the submitted groundwater samples were found to be in compliance with the applicable MOE Standards.

7.2.5. Volatile Organic Compounds (VOC)

Nine (9) soil and Four (4) groundwater samples were submitted for VOC analysis.

Soil

The results of chemical analysis for VOC parameters in three (3) of the nine (9) submitted soil samples were found to exceed the applicable MOE Standards. The following exceedance was found:

- **BH4 (0.30 – 0.60 m bgs) - Lab ID #17-6830-4**

  Ethyl benzene: 11 ppm vs. 9.5 ppm;

- **BH4 (0.30 – 0.60 bgs) - Lab ID #17-6830-5**

  Benzene: 1.9 ppm vs. 0.32 ppm;

- **BH5 (0.30 – 0.60 bgs) - Lab ID #17-6830-7**

  Benzene: 1.7 ppm vs. 0.32 ppm;

Groundwater

The results of chemical analysis for VOC parameters in the submitted groundwater samples were found to be in compliance with the applicable MOE Standards.

7.2.6. pH

Five (5) soil sample was submitted to the laboratory for pH analysis.

The result of pH for the submitted soil sample was found to be within the recommended range of 5 to 9 or (5 to 11).

7.2.7. Electrical Conductivity (EC)

Five (5) soil samples were submitted to the laboratory for EC analysis.

The results of chemical analysis for EC parameters in the submitted soil samples were found to be in compliance with the applicable MOE Standards.

7.2.8. Sodium Absorption Ratio (SAR)

Five (5) soil samples were submitted to the laboratory for SAR analysis.

The results of chemical analysis for SAR parameters in the submitted soil samples were found to be in compliance with the applicable MOE Standards.

7.3. Quality Assurance/Quality Control

A chain of custody form was filled out for all samples prior to submitting to the laboratory. The chain of custody documented movement from selection of the sample to receipt at the laboratory and provided sample identification, requested analysis, and condition of samples upon arrival at the laboratory.

The laboratory checks randomly selected samples for Quality Assurance. Generally, one sample for every twenty samples submitted is selected for Quality Assurance checks. For each parameter, there is an acceptable upper and lower limit for the measured concentration of the parameter. Measured concentrations of analyzed samples must fall within the upper and lower

acceptable limits in order for the sample to be valid. If the result exceeds the upper or lower acceptable limits, the sample must be re-analyzed.

Based on Quality Assurance Reports provided by 'Fisher', measured concentrations in soil samples were within the acceptable limits for quality control. Copies of the QA/QC Reports for Metals, PHC (F1-F4), VOC, pH, EC and SAR in soil and groundwater are included with the Certificates of Analysis in Appendix C.

8.0. SUMMARY AND CONCLUSIONS

- Fisher Environmental carried out a Phase II Environmental Site Assessment of the property located at 851 Industrial Avenue, Ottawa, Ontario. The subsurface soil and groundwater investigation was carried out on July 24 -25, 2017.

- Seven (7) boreholes were advanced in the investigated property to depths of up to 7.62 m bgs, and in three (3) of them, BH1, BH5, and BH7 monitoring wells were installed to facilitate groundwater level monitoring and sampling.

- On the basis of the boreholes completed, the stratigraphy at the investigated areas of the Site generally consists of a layer of fill, extending up to 3.8 m bgs. The fill generally consisted of brown sand with some gravel. Underlying the fill is brown silty sand and clayey silt with some gravel.

- Groundwater static level measurement was taken at the monitoring well locations on July 25, 2017, and it was noted at depths ranging from 1.60 m bgs in BH1 to 3.90 m bgs in BH5.

- Fourteen (14) soil and four (4) groundwater samples were submitted to the laboratory for Metals, PHC (F1-F4), VOC, PAH, pH, EC and/or SAR analysis.

- The results of chemical analysis for four (4) of the fourteen (14) soil samples were found to exceed the applicable MOE Standards. The following exceedances were found:

  - **BH4 (0.30 – 0.60 m bgs) - Lab ID #17-6830-4**

    Ethyl benzene: 11 ppm vs. 9.5 ppm;
    F2 (C10-C16): 425 ppm vs. 230 ppm.

  - **BH4 (0.30 – 0.60 m bgs - Lab ID #17-6830-5**

    Benzene: 1.9 ppm vs. 0.32 ppm;
    F2 (C10-C16): 549 ppm vs. 230 ppm.

- **BH5 (0.30 – 0.60 m bgs) - Lab ID #17-6830-6**

  F1 (C6-C10): 60 ppm vs. 55 ppm:
  F2 (C10-C16): 910 ppm vs. 230 ppm.

- **BH5 (0.30 – 0.60 m bgs) - Lab ID #17-6830-7**

  Benzene: 1.7 ppm vs. 0.32 ppm;
  F1 (C6-C10) 75 ppm vs. 55 ppm:
  F2 (C10-C16): 1342 ppm vs. 230 ppm

- The results of chemical analysis for all four (4) analyzed groundwater samples were found to be in compliance with the applicable MOE standards.

Based on the results of the current investigation, it is expected that the historical activities at the Site have impacted the property's soil condition.

The results suggest that all contamination associated with the former on-Site USTs has not been fully removed from the Site.

Fisher recommends further excavation activities in the vicinity of the former tanks and exceedances at the Site.

9.0. LIMITATIONS

This report was prepared for use by Dymon Group of Companies, and is based on the work as described in the Scope of Work. The conclusions presented in this report reflect existing Site conditions within the scope of this assignment.

No investigation method can completely eliminate the possibility of obtaining partially imprecise or incomplete information. It can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and the formulation of the conclusions and recommendations. Like all professional persons rendering advice, we do not act as absolute insurers of the conclusions reached, but commit ourselves to care and competence in reaching those conclusions. No warranty, whether expressed or implied, is included or intended in this report.

The scope of services performed may not be appropriate for the purposes of other users. This report should not be used in contexts other than pertaining to the evaluation of the property at the current time. Written authorization must be obtained from Fisher Environmental Ltd. prior to use by any other parties, or any future use of this document or its findings, conclusions, or recommendations represented herein. Any use which a third party makes of this report, or any reliance on or decisions made on the basis of it, are the responsibility of the third parties. Fisher Environmental Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Fisher Environmental notes that the work conducted at the Site may not fully satisfy the MOECC requirements for the purpose of filling a Record of Site Condition (RSC). Should a RSC be required, then additional investigations should be conducted at the Site.

10.0. QUALIFICATIONS OF ASSESSOR

The report preparation for this assessment were conducted by Ms. Lena Zdanowski. Ms. Zdanowski has been trained and has over three years' experience in conducting Phase II ESAs in accordance with the CSA Standard. Ms. Zdanowski has conducted more than 50 Phase II ESAs for commercial/industrial/residential clients and government agencies and is routinely engaged in this field.

As a Qualified Person who conducts and supervises Phase II ESAs, Mr. David Fisher, president of Fisher Environmental Ltd., is a senior Managerial and Environmental Engineering Specialist with over 30 years of progressive, innovative experience in the Petrochemical and Environmental Engineering Industry. Mr. Fisher is responsible for the development and management of a progressive environmental consulting engineering company specializing in environmental site assessments and remediation, geotechnical and hydrogeological investigations, tank removals, PCB waste treatment, land reclamation, recycling, hazardous waste disposal, and associated laboratory analytical practices.

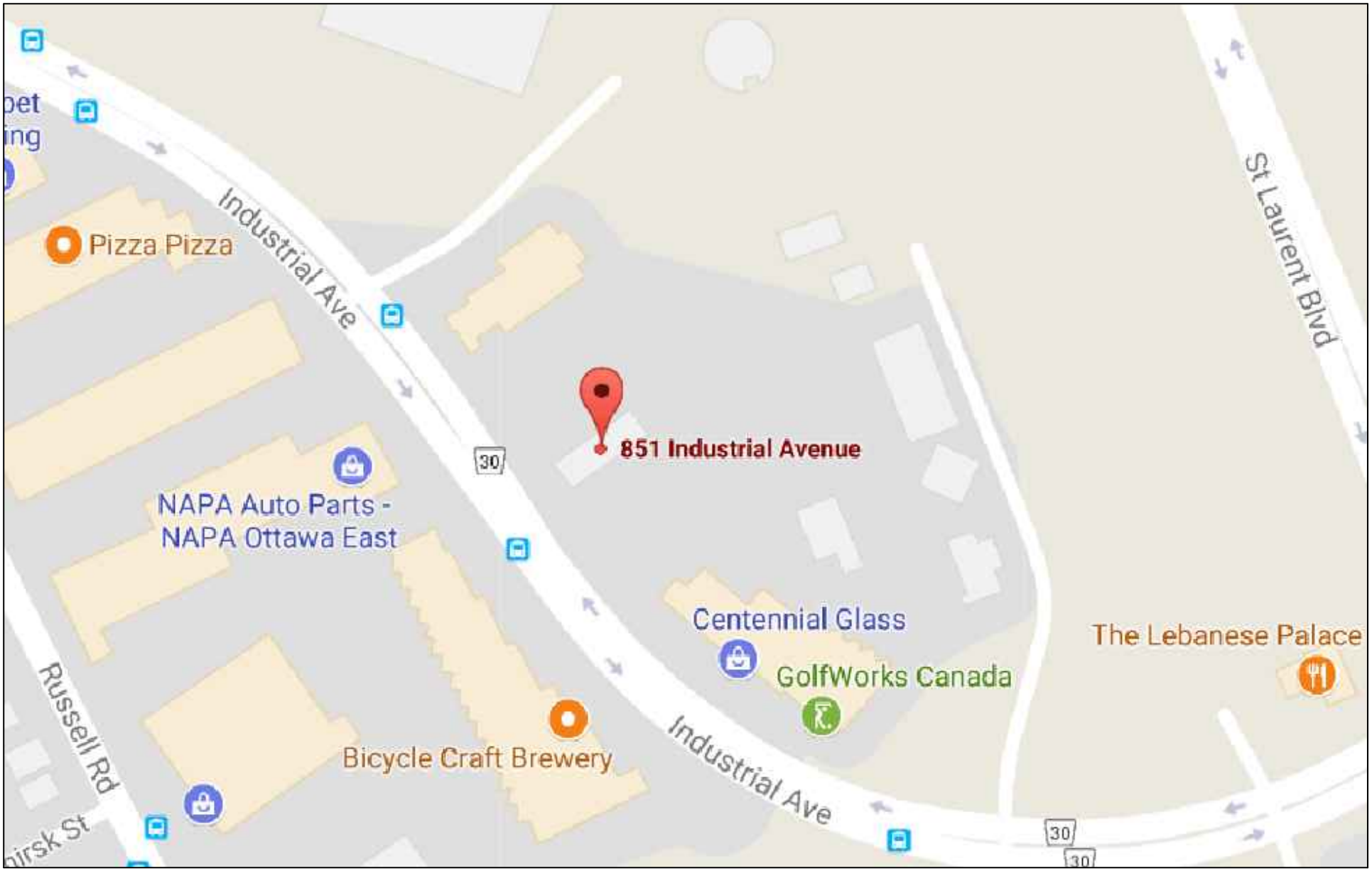
Fisher Environmental Ltd. has been established as a team of engineers and consultants since 1989, and continues to develop a strong, wide client base. The company is staffed with personnel holding graduate or postgraduate qualifications at the Markham headquarters, as well as specialist associates offering a broad range of expertise and knowledge in environmental consulting. With a background in the petroleum industry, extensive experience has been gained in the prevention and cleanup of contamination in air, water and soil.

11.0. REFERENCES

The Phase II ESA was conducted in accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives administrated by the Ontario Ministry of the Environment. Specific reference is made to the following:

- CAN/CSA Standard Z769-00 (reaffirmed in 2013), Phase II Environmental Site Assessment, A National Standard of Canada;
- "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario" Ministry of the Environment of Ontario, December 1996;
- Environmental Protection Act, RSO 1990, Charter E. 19, as amended, September 2004;
- Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, dated April 15, 2011;
- The Ontario Water Resources Act – R.R.O. 1990, Regulation 903 – Amended to O .Reg. 128.03, August 2003;
- Phase I ESA, 851 Industrial Avenue, Ottawa ON, September, 2017, prepared by Fisher Environmental Project 17-8232;
- Google Earth.

APPENDIX A – SITE SPECIFIC DRAWING



Fisher Environmental Ltd.

400 Esna Park Dr., #15
Markham, Ontario
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Tel: 905 475-7755
Fax: 905 475-7718

KEY PLAN

N

LEGEND

PROJECT NAME AND ADDRESS

PHASE 1 ESA

851 Industrial Avenue
Ottawa, ON

PROJECT NO.	FE-P 17-8323
DATE	23 August 2017
SCALE	NTS

FIGURE 1: Site Location

SHEET NO. 1

APPENDIX B – LOGS OF BORHOLES

FISHER ENVIRONMENTAL LTD.

LOG OF BOREHOLE NO. BH1(MW) SHEET. 1 of 7

PROJECT NO.: FE-P 17-8323

PROJECT NAME: Phase Two ESA

LOCATION: 851 Industrial Avenue, Ottawa, ON

DRILLING METHOD: Diedrich D-120

DRILLING DATE: July 25, 2017

DEPTH (feet)	DEPTH (metres)	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES Type	SAMPLES "N" VALUE
		GROUND SURFACE (m asl)					
0	0	FILL :			1	SS	14
2		Fine Sand Brown, moist, (some gravel 10'-21') Loose to Very loose.			2	SS	10
4	1						
6		Wet at 5'		98.15/ 1.52	3	SS	6
8	2				4	SS	2
10	3				5	SS	1
12							
14	4	SILTY SAND :			6	SS	11
		Trace Gravel, Dark Brown, Wet, Compact.					
16	5				7	SS	11
18							
20	6			93.50/ 6.10			
22							
24	7						
26	8						
28							
30	9						
32							
34	10	SANDY SILT TILL: Dark Grey, Dry, Very Dense			7	SS	100
36	11	End of Borehole at 34'					
38							
40	12						
42	13						
44							
46	14						
48							
50	15						

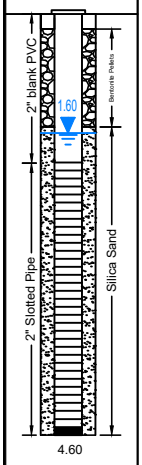
PENETRATION TESTING (SPT) ▲ 20 40 60 80

SHEAR STRENGTH (Kpa) ✚ 40 80 120 160

VAPOUR READING (ppm) □ 20 40 60 80

MOISTURE CONTENT (%) ○ 10 20 30 40

PIEZOMETER OR WELL CONSTRUCTION



Groundwater Depth (m): 6.50 m on July 16, 2015

LOGGED: ZV

CHECKED: FF

FISHER ENVIRONMENTAL LTD.

LOG OF BOREHOLE NO. BH2 SHEET. 2 of 7

PROJECT NO.: FE-P 17-8323

PROJECT NAME:

LOCATION: 851 Industrial Avenue, Ottawa, ON

DRILLING METHOD:

DRILLING DATE: 25 July, 2017

DEPTH (feet)	DEPTH (metres)	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUE	PENETRATION TESTING (SPT) ▲ 20 40 60 80 / SHEAR STRENGTH (Kpa) ✚ 40 80 120 160	VAPOUR READING (ppm) □ 20 40 60 80 / MOISTURE CONTENT (%) ○ 10 20 30 40	PIEZOMETER OR WELL CONSTRUCTION
		GROUND SURFACE (m asl)								
0	0	FILL: Sand, some gravel, brown moist, 2" Asphalt			1	SS	16			
2					2	SS	15			
4	1	FILL: Silty Sand, trace gravel, greyish brown, moist, compact		98.15/ 1.52	3	SS	5			
6	2									
8		CLAYEY SILT: some Sand, trace gravel, greyish brown, moist, loose to compact			4	SS	14			
10	3				5	SS	14			
12		Wet at13'								
14	4									
16	5	SANDY SILT TILL: dark grey, moist, dense to very dense			6	SS	37			
18										
20	6			93.50/ 6.10	7	SS	100			
22	7	End of Borehole(21.5')		93.11/ 6.56						
24										
26	8									
28										
30	9									
32	10									

Groundwater Depth (m): On Completion: 4.27m. On 02 June 2015: 1.68m.

LOGGED: ZV

CHECKED: FF

FISHER ENVIRONMENTAL LTD.

LOG OF BOREHOLE NO. BH3 SHEET. 3 of 7

PROJECT NO.: FE-P 17-8323

PROJECT NAME:

LOCATION: 851 Industrial Avenue, Ottawa, ON

DRILLING METHOD:

DRILLING DATE: 25 July, 2017

DEPTH (feet)	DEPTH (metres)	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES "N" VALUE	PENETRATION TESTING (SPT) ▲ 20 40 60 80 / SHEAR STRENGTH (Kpa) ✚ 40 80 120 160	VAPOUR READING (ppm) □ 20 40 60 80 / MOISTURE CONTENT (%) ○ 10 20 30 40	PIEZOMETER OR WELL CONSTRUCTION
		GROUND SURFACE (m asl)								
0	0	FILL: Sand, some gravel, brown moist, 3" Asphalt			1	SS	15			
2					2	SS	15			
4	1	SILTY SAND: trace gravel, greyish brown, moist, compact		98.15/ 1.52	3	SS	23			
6	2				4	SS	9			
8										
10	3	CLAYEY SILT: some sand, trace gravel, greyish brown, moist, loose			5	SS	31			
12										
14	4	SANDY SILT TILL: dark grey, moist, dense								
16	5				6	SS	48			
		End of Borehole								
18										
20	6									
22										
24	7									
26	8									
28										
30	9									
32	10									

Groundwater Depth (m): On Completion: 4.27m. On 02 June 2015: 1.68m.

LOGGED: ZV

CHECKED: FF

FISHER ENVIRONMENTAL LTD.

LOG OF BOREHOLE NO. BH4 SHEET. 4 of 7

PROJECT NO.: FE-P 17-8323

PROJECT NAME: Phase Two ESA

LOCATION: 851 Industrial Avenue, Ottawa, ON

DRILLING METHOD: Diedrich D-120

DRILLING DATE: July 26, 2017

DEPTH (feet)	DEPTH (metres)	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES: NUMBER	PID	"N" VALUE	PENETRATION TESTING (SPT) ▲ 20 40 60 80 / SHEAR STRENGTH (Kpa) ✚ 40 80 120 160	VAPOUR READING (ppm) □ 20 40 60 80 / MOISTURE CONTENT (%) ○ 10 20 30 40	PIEZOMETER OR WELL CONSTRUCTION
		GROUND SURFACE (m asl)				81				
0	0	FILL: Silty sand, trace gravel, dark grey, moist			1	7	26			
2										
4	1	SILTY SAND: trace gravel, greyish brown, wet, loose		98.15/ 1.52	2	16	22			
6	2				3	6.6	32			
8					4	2.6	11			
10	3									
12	4	CLAYEY SILT: Some sand, trace gravel, greyish brown, wet, loose			5	21	11			
14										
16	5				6	3.6	5			
18										
20	6	SANDY SILT TILL: dark grey, dry, very dense		93.50/ 6.10	7	16	100+			
22	7									
24										
26	8									
28										
30	9									
32	10									
34					8	3.1	100+			
36	11	End of Borehole at 36'								
38										
40	12									
42	13									
44										
46	14									
48										
50	15									

All type SS

Groundwater Depth (m): 6.50 m on July 16, 2015

LOGGED: ZV

CHECKED: DF

FISHER ENVIRONMENTAL LTD.

LOG OF BOREHOLE NO. BH5(MW) SHEET. 5 of 7

PROJECT NO.: FE-P 17-8323

PROJECT NAME:

LOCATION: 851 Industrial Avenue, Ottawa, ON

DRILLING METHOD:

DRILLING DATE: 26 July, 2017

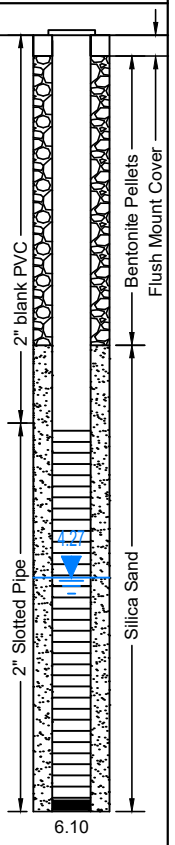
DEPTH (feet)	DEPTH (metres)	DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	SAMPLES NUMBER	SAMPLES PID	SAMPLES "N" VALUE
0	0	GROUND SURFACE (m asl)					
		FILL: sand, some gravel, greyish brown, moist				190	
2	1				1	16	21
4		FILL: silty sand/sandy silt, dark grey to dark moist, trace weathered grey shale fragments at 2.5', trace coal cinder and rootlets at 5', compact		98.15/ 1.52			
6	2				2	4.6	7
8					3	4.3	16
10	3	SILTY SAND: trace gravel, dark grey, moist, compact			4	3.5	15
12	4						
14							
16	5				5	1.9	17
18							
20	6			93.50/ 6.10	6	16	15
22	7			93.11/ 6.56			
24					7	0	71
26	8	SILTY SAND TILL: dark grey, dry, very dense					
28	9	End of Borehole(26')					
30							
32	10						

* Type SS

PENETRATION TESTING (SPT) ▲ 20 40 60 80
SHEAR STRENGTH (Kpa) ✚ 40 80 120 160

VAPOUR READING (ppm) □ 20 40 60 80
MOISTURE CONTENT (%) ○ 10 20 30 40

PIEZOMETER OR WELL CONSTRUCTION



Groundwater Depth (m): On Completion: 4.27m. On 02 June 2015: 1.68m.

LOGGED: ZV

CHECKED: FF

FISHER ENVIRONMENTAL LTD.

LOG OF BOREHOLE NO. BH6 SHEET. 6 of 7

PROJECT NO.: FE-P 17-8323

PROJECT NAME:

LOCATION: 851 Industrial Avenue, Ottawa, ON

DRILLING METHOD:

DRILLING DATE: 26 July, 2017

SOIL PROFILE			SAMPLES			PENETRATION TESTING (SPT) ▲ 20 40 60 80 / SHEAR STRENGTH (Kpa) ✚ 40 80 120 160	VAPOUR READING (ppm) □ 20 40 60 80 / MOISTURE CONTENT (%) ○ 10 20 30 40	PIEZOMETER OR WELL CONSTRUCTION
DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	PID	"N" VALUE			
GROUND SURFACE (m asl)								
FILL: Sand, some gravel, greyish brown moist, 2" Asphalt				3.2				
			1	1.5	18			
SILTY SAND: trace gravel, greyish brown, moist		98.15/ 1.52	2	3.4	32			
CLAYEY SILT: some Sand, trace gravel, greyish brown, moist, compact			3	4.3	19			
			4	2.1	11			
SANDY SILT TILL: dark grey, moist, dense			5	0.6	29			
		93.50/ 6.10	6	0	34			
End of Borehole(21.5')		93.11/ 6.56		Type SS *				

DEPTH (feet) 0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 / (metres) 0 1 2 3 4 5 6 7 8 9 10

Groundwater Depth (m): On Completion: 4.27m. On 02 June 2015: 1.68m.

LOGGED: ZV

CHECKED: FF

FISHER ENVIRONMENTAL LTD.

LOG OF BOREHOLE NO. BH7 SHEET. 7 of 7

PROJECT NO.: FE-P 17-8323

PROJECT NAME:

LOCATION: 851 Industrial Avenue, Ottawa, ON

DRILLING METHOD:

DRILLING DATE: 26 July, 2017

SOIL PROFILE			SAMPLES			PENETRATION TESTING (SPT) ▲ 20 40 60 80 / SHEAR STRENGTH (Kpa) ✚ 40 80 120 160	VAPOUR READING (ppm) □ 20 40 60 80 / MOISTURE CONTENT (%) ○ 10 20 30 40	PIEZOMETER OR WELL CONSTRUCTION
DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	PID	"N" VALUE			
GROUND SURFACE (m asl)								
FILL: Sand, some gravel, greyish brown moist,				0.2				
			1	0.2	15			
FILL: Silty Sand, dark grey to dark, moist, trace weathered grey shale fragments @3', trace coal cinder and rootlets at 5', compact		98.15/ 1.52	2	0	12			
			3	0	25			
SILTY SAND: trace gravel, dark grey, moist, compact			4	0	23			
			5	0	12			
		93.50/ 6.10	6	1.3	12			
SANDY SILT TILL: dark grey, dry, very dense		93.11/ 6.56						
			7	0	62			
SANDY SILT TILL: dark grey, moist, dense			8	0	100+			
End of Borehole(31.5')		* Type SS						

DEPTH (feet): 0, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32

DEPTH (metres): 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

Groundwater Depth (m): On Completion: 4.27m. On 02 June 2015: 1.68m.

LOGGED: ZV

CHECKED: FF

APPENDIX C – CERTIFICATES OF ANALYSIS

FISHER ENVIRONMENTAL LABORATORIES

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www.fisherenvironmental.com

Client:	Dymon Capital Corp	***F.E. Job #:***	17-6830
Address:	2-1830 Walkley Rd.	***Project Name:***	Phase II ESA
	Ottawa, Ontario	***Project ID:***	FE-P-17-8323
	K1H 8K3	***Date Sampled:***	25, 26-Jul-17
Tel.:	(613) 247-0888 ext. 222	***Date Received:***	27-Jul-17
Email:	gluckman@dymon.ca	***Date Reported:***	03-Aug-17
Attn.:	Mr. Glen Luckman	***Location:***	851 Industrial Avenue
			Toronto, ON

Certificate of Analysis

Analyses	Matrix	Quantity	Date Extracted	Date Analyzed	Lab SOP	Method Reference
Metals	Soil	9	28-Jul-17	28-Jul-17	Metals F-18	SM 3125-B
VOCs	Soil	9	28-Jul-17	31-Jul-17	VOCs F-6	SM 6200-B
PHCs (F1 & BTEX)	Soil	9	28-Jul-17	31-Jul-17	PHCs F-7	CCME CWS
PHCs (F2 - F4)	Soil	9	28-Jul-17	31-Jul-17	PHCs F-7	CCME CWS
pH	Soil	5	31-Jul-17	31-Jul-17	pH-EC-SAR F-16	SW-846, 9045D
EC	Soil	5	31-Jul-17	31-Jul-17	pH-EC-SAR F-16	SW-846, 9050A
SAR	Soil	5	31-Jul-17	31-Jul-17	pH-EC-SAR F-16	SW-846, 6010C
Moisture Content	Soil	9	N/A	01-Aug-17	Support Procedures F-99	Carter (1993)
Metals	Water	4	N/A	27-Jul-17	Metals F-1	SM 3120-B
VOCs	Water	4	N/A	28-Jul-17	VOCs F-6	SM 6200-B
PHCs (F1 & BTEX)	Water	4	N/A	28-Jul-17	PHCs F-7	CCME CWS
PHCs (F2 - F4)	Water	4	28-Jul-17	31-Jul-17	PHCs F-7	CCME CWS

Fisher Environmental Laboratories is accredited by CALA (the Canadian Association for Laboratory Accreditation Inc.) for specific parameters as required by Ontario Regulation 153/04. All analytical testing has been performed 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 published by Ontario Ministry of the Environment.

Authorized by:

Roger Lin, Ph. D., C. Chem.
Laboratory Manager

ASSOCIATION OF THE CHEMICAL PROFESSION OF ONTARIO
CHARTERED
Ronggen (Roger) Lin
CHEMIST

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-1*** BH1 SS3	***17-6830-2*** BH2 SS2	***17-6830-3*** BH3 SS1	***17-6830-4*** BH4 0.30-0.60m	***17-6830-5*** BH4 SS1	**Soil Standards [1]**
	Concentration (µg/g)					
Metals in Soil						
Antimony	<1	<1	<1	<1	<1	(50) 40
Arsenic	<1	3.8	2.4	5.1	2.9	18
Barium	17	92	51	44	85	670
Beryllium	<2	<2	<2	<2	<2	(10) 8
Boron	<5	<5	<5	<5	5.0	120
Cadmium	<1	<1	<1	<1	<1	1.9
Chromium	6.2	20	12	11	18	160
Cobalt	2.7	9.2	6.2	5.0	6.2	(100) 80
Copper	6.6	20	15	7.6	16	(300) 230
Lead	<10	30	12	16	<10	120
Molybdenum	<2	<2	<2	4.3	<2	40
Nickel	<5	22	17	12	14	(340) 270
Selenium	<1	<1	<1	<1	<1	5.5
Silver	<0.5	<0.5	<0.5	<0.5	<0.5	(50) 40
Thallium	<1	<1	<1	<1	<1	3.3
Uranium	<1	<1	<1	<1	<1	33
Vanadium	16	26	18	14	27	86
Zinc	<30	61	31	<30	<30	340

< result obtained was below RL (Reporting Limit).

[1] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.

Industrial/Commercial/Community Property use (**I/C/C**); ( ) Standard value in brackets applies to medium and fine textured soils.

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-6*** BH5 0.30-0.60m	***17-6830-7*** BH5 SS1	***17-6830-8*** BH6 SS1	***17-6830-9*** BH7 SS1		**Soil Standards** [1]
	Concentration (µg/g)					
Metals in Soil						
Antimony	<1	<1	<1	<1		(50) 40
Arsenic	1.4	2.0	4.9	2.4		18
Barium	33	86	52	145		670
Beryllium	<2	<2	<2	<2		(10) 8
Boron	<5	<5	<5	5.9		120
Cadmium	<1	<1	<1	<1		1.9
Chromium	6.4	16	13	22		160
Cobalt	3.0	6.1	7.6	6.8		(100) 80
Copper	7.0	12	27	11		(300) 230
Lead	<10	<10	13	<10		120
Molybdenum	<2	<2	<2	<2		40
Nickel	9.5	14	20	16		(340) 270
Selenium	<1	<1	<1	<1		5.5
Silver	<0.5	<0.5	<0.5	<0.5		(50) 40
Thallium	<1	<1	<1	<1		3.3
Uranium	<1	<1	<1	<1		33
Vanadium	13	21	19	35		86
Zinc	<30	31	43	44		340

< result obtained was below RL (Reporting Limit).

[1] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.

Industrial/Commercial/Community Property use (**I/C/C**); ( ) Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/g)		Recovery (%)		Recovery (%)	
Metals in Soil						
Antimony	<1	1	100	80-120	104	70-130
Arsenic	<1	1	90	80-120	101	70-130
Barium	<5	5	87	80-120	108	70-130
Beryllium	<2	2	93	80-120	93	70-130
Boron	<5	5	95	80-120	94	70-130
Cadmium	<1	1	98	80-120	99	70-130
Chromium	<5	5	95	80-120	88	70-130
Cobalt	<2	2	96	80-120	85	70-130
Copper	<5	5	103	80-120	87	70-130
Lead	<10	10	92	80-120	93	70-130
Molybdenum	<2	2	98	80-120	104	70-130
Nickel	<5	5	89	80-120	81	70-130
Selenium	<1	1	87	80-120	80	70-130
Silver	<0.5	0.5	97	80-120	96	70-130
Thallium	<1	1	89	80-120	112	70-130
Uranium	<1	1	101	80-120	90	70-130
Vanadium	<10	10	99	80-120	98	70-130
Zinc	<30	30	82	80-120	83	70-130

LEGEND:

RL - Reporting Limit
LCS - Laboratory Control Sample
MS - Matrix Spike
AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
Metals in Soil						
Antimony	0.0	0-30				
Arsenic	14	0-30				
Barium	0.0	0-30				
Beryllium	0.0	0-30				
Boron	0.0	0-30				
Cadmium	0.0	0-30				
Chromium	4.8	0-30				
Cobalt	1.9	0-30				
Copper	0.7	0-30				
Lead	0.0	0-30				
Molybdenum	0.0	0-30				
Nickel	8.7	0-30				
Selenium	0.0	0-30				
Silver	0.0	0-30				
Thallium	0.0	0-30				
Uranium	0.0	0-30				
Vanadium	0.9	0-30				
Zinc	6.8	0-30				

LEGEND:
AR - Acceptable Range
RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-1*** BH1 SS3	***17-6830-2*** BH2 SS2	***17-6830-3*** BH3 SS1	***17-6830-4*** BH4 0.30-0.60m	***17-6830-5*** BH4 SS1	**Soil Standards** [1]
	Concentration (µg/g)					
VOCs in Soil						
Acetone	<0.5	<0.5	<0.5	<0.5	<0.5	(28) 16
Benzene	<0.02	<0.02	<0.02	0.26	**1.9**	(0.4) 0.32
Bromodichloromethane	<0.05	<0.05	<0.05	<0.05	<0.05	18
Bromoform	<0.05	<0.05	<0.05	<0.05	<0.05	(1.7) 0.61
Bromomethane	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Carbon Tetrachloride	<0.05	<0.05	<0.05	<0.05	<0.05	(1.5) 0.21
Chlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	(2.7) 2.4
Chloroform	<0.05	<0.05	<0.05	<0.05	<0.05	(0.18) 0.47
Dibromochloromethane	<0.05	<0.05	<0.05	<0.05	<0.05	13
1,2-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	(8.5) 6.8
1,3-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	(12) 9.6
1,4-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05	<0.05	(0.84) 0.2
Dichlordifluoromethane	<0.05	<0.05	<0.05	<0.05	<0.05	(25) 16
1,1-Dichloroethane	<0.05	<0.05	<0.05	<0.05	<0.05	(21) 17
1,2-Dichloroethane	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
1,1-Dichloroethylene	<0.05	<0.05	<0.05	<0.05	<0.05	(0.48) 0.064
c-1,2-Dichloroethylene	<0.05	<0.05	<0.05	<0.05	<0.05	(37) 55
t-1,2-Dichloroethylene	<0.05	<0.05	<0.05	<0.05	<0.05	(9.3) 1.3
1,2-Dichloropropane	<0.05	<0.05	<0.05	<0.05	<0.05	(0.68) 0.16
1,3-Dichloropropene (cis-+trans-)	<0.05	<0.05	<0.05	<0.05	<0.05	(0.21) 0.18
Ethylbenzene	<0.05	<0.05	<0.05	**11**	6.3	(19) 9.5
Ethylene Dibromide	<0.05	<0.05	<0.05	<0.05	<0.05	0.05
Hexane (n)	<0.05	<0.05	<0.05	<0.05	<0.05	(88) 46
Methyl Ethyl Ketone	<0.5	<0.5	<0.5	<0.5	<0.5	(88) 70
Methyl Isobutyl Ketone	<0.5	<0.5	<0.5	<0.5	<0.5	(210) 31
Methyl tert-butyl Ether	<0.05	<0.05	<0.05	<0.05	<0.05	(3.2) 11
Methylene Chloride	<0.05	<0.05	<0.05	<0.05	<0.05	(2) 1.6
Styrene	<0.05	<0.05	<0.05	<0.05	<0.05	(43) 34
1,1,1,2-Tetrachloroethane	<0.05	<0.05	<0.05	<0.05	<0.05	(0.11) 0.087
1,1,2,2-Tetrachloroethane	<0.05	<0.05	<0.05	<0.05	<0.05	(0.094) 0.05
Tetrachloroethylene	<0.05	<0.05	<0.05	<0.05	<0.05	(21) 4.5
Toluene	<0.2	<0.2	<0.2	<0.2	<0.2	(78) 68
1,1,1-Trichloroethane	<0.05	<0.05	<0.05	<0.05	<0.05	(12) 6.1
1,1,2-Trichloroethane	<0.05	<0.05	<0.05	<0.05	<0.05	(0.11) 0.05
Trichloroethylene	<0.05	<0.05	<0.05	<0.05	<0.05	(0.61) 0.91
Trichlorofluoromethane	<0.05	<0.05	<0.05	<0.05	<0.05	(5.8) 4
Vinyl Chloride	<0.02	<0.02	<0.02	<0.02	<0.02	(0.25) 0.032
Xylenes	0.05	0.06	<0.05	23	6.1	(30) 26
Surrogate Recovery (%)						
1,2-Dichloroethane-d4	117	129	82	104	83	60-140
Toluene-d8	98	101	64	89	76	60-140
4-Bromofluorobenzene	103	136	83	129	114	60-140

< result obtained was below RL (Reporting Limit).

Bold: Result exceeds limit noted in Soil Standards.

[1] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition;
Industrial/Commercial/Community Property Use (**I/C/C**); ( ) Standard value in brackets applies to medium and fine textured soils.

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-6*** BH5 0.30-0.60m	***17-6830-7*** BH5 SS1	***17-6830-8*** BH6 SS1	***17-6830-9*** BH7 SS1		**Soil Standards [1]**
	Concentration (µg/g)					
VOCs in Soil						
Acetone	<0.5	<0.5	<0.5	<0.5		(28) 16
Benzene	0.13	**1.7**	<0.02	<0.02		(0.4) 0.32
Bromodichloromethane	<0.05	<0.05	<0.05	<0.05		18
Bromoform	<0.05	<0.05	<0.05	<0.05		(1.7) 0.61
Bromomethane	<0.05	<0.05	<0.05	<0.05		0.05
Carbon Tetrachloride	<0.05	<0.05	<0.05	<0.05		(1.5) 0.21
Chlorobenzene	<0.05	<0.05	<0.05	<0.05		(2.7) 2.4
Chloroform	<0.05	<0.05	<0.05	<0.05		(0.18) 0.47
Dibromochloromethane	<0.05	<0.05	<0.05	<0.05		13
1,2-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05		(8.5) 6.8
1,3-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05		(12) 9.6
1,4-Dichlorobenzene	<0.05	<0.05	<0.05	<0.05		(0.84) 0.2
Dichlordifluoromethane	<0.05	<0.05	<0.05	<0.05		(25) 16
1,1-Dichloroethane	<0.05	<0.05	<0.05	<0.05		(21) 17
1,2-Dichloroethane	<0.05	<0.05	<0.05	<0.05		0.05
1,1-Dichloroethylene	<0.05	<0.05	<0.05	<0.05		(0.48) 0.064
c-1,2-Dichloroethylene	<0.05	<0.05	<0.05	<0.05		(37) 55
t-1,2-Dichloroethylene	<0.05	<0.05	<0.05	<0.05		(9.3) 1.3
1,2-Dichloropropane	<0.05	<0.05	<0.05	<0.05		(0.68) 0.16
1,3-Dichloropropene (cis-+trans-)	<0.05	<0.05	<0.05	<0.05		(0.21) 0.18
Ethylbenzene	3.5	8.6	<0.05	<0.05		(19) 9.5
Ethylene Dibromide	<0.05	<0.05	<0.05	<0.05		0.05
Hexane (n)	<0.05	<0.05	<0.05	<0.05		(88) 46
Methyl Ethyl Ketone	<0.5	<0.5	<0.5	<0.5		(88) 70
Methyl Isobutyl Ketone	<0.5	<0.5	<0.5	<0.5		(210) 31
Methyl tert-butyl Ether	<0.05	<0.05	<0.05	<0.05		(3.2) 11
Methylene Chloride	<0.05	<0.05	<0.05	<0.05		(2) 1.6
Styrene	<0.05	<0.05	<0.05	<0.05		(43) 34
1,1,1,2-Tetrachloroethane	<0.05	<0.05	<0.05	<0.05		(0.11) 0.087
1,1,2,2-Tetrachloroethane	<0.05	<0.05	<0.05	<0.05		(0.094) 0.05
Tetrachloroethylene	<0.05	<0.05	<0.05	<0.05		(21) 4.5
Toluene	<0.2	<0.2	<0.2	<0.2		(78) 68
1,1,1-Trichloroethane	<0.05	<0.05	<0.05	<0.05		(12) 6.1
1,1,2-Trichloroethane	<0.05	<0.05	<0.05	<0.05		(0.11) 0.05
Trichloroethylene	<0.05	<0.05	<0.05	<0.05		(0.61) 0.91
Trichlorofluoromethane	<0.05	<0.05	<0.05	<0.05		(5.8) 4
Vinyl Chloride	<0.02	<0.02	<0.02	<0.02		(0.25) 0.032
Xylenes	14	24	0.10	<0.05		(30) 26
Surrogate Recovery (%)						
1,2-Dichloroethane-d4	78	88	115	77		60-140
Toluene-d8	81	85	108	65		60-140
4-Bromofluorobenzene	90	114	137	64		60-140

< result obtained was below RL (Reporting Limit).

Bold: Result exceeds limit noted in Soil Standards.

[1] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition;
Industrial/Commercial/Community Property Use (**I/C/C**); ( ) Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/g)		Recovery (%)		Recovery (%)	
VOCs in Soil						
Acetone	<0.5	0.5	81	50-140	106	50-140
Benzene	<0.02	0.02	93	60-130	93	50-140
Bromodichloromethane	<0.05	0.05	103	50-140	114	50-140
Bromoform	<0.05	0.05	90	60-130	99	50-140
Bromomethane	<0.05	0.05	89	50-140	107	50-140
Carbon Tetrachloride	<0.05	0.05	88	60-130	95	50-140
Chlorobenzene	<0.05	0.05	95	60-130	108	50-140
Chloroform	<0.05	0.05	97	60-130	118	50-140
Dibromochloromethane	<0.05	0.05	92	60-130	100	50-140
1,2-Dichlorobenzene	<0.05	0.05	102	60-130	82	50-140
1,3-Dichlorobenzene	<0.05	0.05	94	60-130	87	50-140
1,4-Dichlorobenzene	<0.05	0.05	102	60-130	87	50-140
Dichlordifluoromethane	<0.05	0.05	82	50-140	75	50-140
1,1-Dichloroethane	<0.05	0.05	94	60-130	119	50-140
1,2-Dichloroethane	<0.05	0.05	87	60-130	106	50-140
1,1-Dichloroethylene	<0.05	0.05	83	60-130	104	50-140
c-1,2-Dichloroethylene	<0.05	0.05	99	60-130	120	50-140
t-1,2-Dichloroethylene	<0.05	0.05	89	60-130	109	50-140
1,2-Dichloropropane	<0.05	0.05	99	60-130	96	50-140
1,3-Dichloropropene (cis-+trans-)	<0.05	0.05	104	60-130	100	50-140
Ethylbenzene	<0.05	0.05	98	60-130	111	50-140
Ethylene Dibromide	<0.05	0.05	89	60-130	105	50-140
Hexane (n)	<0.05	0.05	82	60-130	93	50-140
Methyl Ethyl Ketone	<0.5	0.5	79	50-140	87	50-140
Methyl Isobutyl Ketone	<0.5	0.5	96	50-140	108	50-140
Methyl tert-butyl Ether	<0.05	0.05	74	60-130	83	50-140
Methylene Chloride	<0.05	0.05	95	60-130	113	50-140
Styrene	<0.05	0.05	69	60-130	67	50-140
1,1,1,2-Tetrachloroethane	<0.05	0.05	90	60-130	109	50-140
1,1,2,2-Tetrachloroethane	<0.05	0.05	92	60-130	105	50-140
Tetrachloroethylene	<0.05	0.05	100	60-130	111	50-140
Toluene	<0.2	0.2	115	60-130	117	50-140
1,1,1-Trichloroethane	<0.05	0.05	89	60-130	105	50-140
1,1,2-Trichloroethane	<0.05	0.05	100	60-130	105	50-140
Trichloroethylene	<0.05	0.05	97	60-130	92	50-140
Trichlorofluoromethane	<0.05	0.05	70	50-140	60	50-140
Vinyl Chloride	<0.02	0.02	107	50-140	121	50-140
Xylenes	<0.05	0.05	98	60-130	107	50-140
Surrogates						
Parameter	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**
1,2-Dichloroethane-d4	127	60-140	68	60-140	63	60-140
Toluene-d8	124	60-140	85	60-140	86	60-140
4-Bromofluorobenzene	115	60-140	87	60-140	92	60-140

LEGEND:

RL - Reporting Limit
LCS - Laboratory Control Sample
MS - Matrix Spike
AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
VOCs in Soil						
Acetone	0.0	0-50				
Benzene	0.0	0-50				
Bromodichloromethane	0.0	0-50				
Bromoform	0.0	0-50				
Bromomethane	0.0	0-50				
Carbon Tetrachloride	0.0	0-50				
Chlorobenzene	0.0	0-50				
Chloroform	0.0	0-50				
Dibromochloromethane	0.0	0-50				
1,2-Dichlorobenzene	0.0	0-50				
1,3-Dichlorobenzene	0.0	0-50				
1,4-Dichlorobenzene	0.0	0-50				
Dichlordifluoromethane	0.0	0-50				
1,1-Dichloroethane	0.0	0-50				
1,2-Dichloroethane	0.0	0-50				
1,1-Dichloroethylene	0.0	0-50				
c-1,2-Dichloroethylene	0.0	0-50				
t-1,2-Dichloroethylene	0.0	0-50				
1,2-Dichloropropane	0.0	0-50				
1,3-Dichloropropene (cis-+trans-)	0.0	0-50				
Ethylbenzene	19	0-50				
Ethylene Dibromide	0.0	0-50				
Hexane (n)	0.0	0-50				
Methyl Ethyl Ketone	0.0	0-50				
Methyl Isobutyl Ketone	0.0	0-50				
Methyl tert-butyl Ether	0.0	0-50				
Methylene Chloride	0.0	0-50				
Styrene	0.0	0-50				
1,1,1,2-Tetrachloroethane	0.0	0-50				
1,1,2,2-Tetrachloroethane	0.0	0-50				
Tetrachloroethylene	0.0	0-50				
Toluene	0.0	0-50				
1,1,1-Trichloroethane	0.0	0-50				
1,1,2-Trichloroethane	0.0	0-50				
Trichloroethylene	0.0	0-50				
Trichlorofluoromethane	0.0	0-50				
Vinyl Chloride	0.0	0-50				
Xylenes	22	0-50				
Surrogates						
Parameter	**Recovery (%)**	**AR**				
1,2-Dichloroethane-d4	129	60-140				
Toluene-d8	97	60-140				
4-Bromofluorobenzene	107	60-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-1*** BH1 SS3	***17-6830-2*** BH2 SS2	***17-6830-3*** BH3 SS1	***17-6830-4*** BH4 0.30-0.60m	***17-6830-5*** BH4 SS1	**Soil Standards [1]**
	Concentration (µg/g)					
BTEX in Soil						
Benzene	<0.02	<0.02	<0.02	0.26	**1.9**	(0.4) 0.32
Toluene	<0.2	<0.2	<0.2	<0.2	<0.2	(78) 68
Ethylbenzene	<0.05	<0.05	<0.05	**11**	6.3	(19) 9.5
Xylenes	0.05	0.06	<0.05	23	6.1	(30) 26
PHCs (F_1-F_4) in Soil						
$F1_{-BTEX}$ (C_6 - C_{10})	<10	<10	<10	51	32	(65) 55
F2 (C_{10} - C_{16})	<10	<10	<10	**425**	**549**	(250) 230
F3 (C_{16} - C_{34})	<50	57	84	225	267	(2,500) 1,700
F4 (C_{34}-C_{50})	<50	<50	231	<50	<50	(6,600) 3,300
F4G (>C_{34})	-	-	3149	-	-	(6,600) 3,300
Chromatogram descends to baseline by nC50 ? (Yes/No)	Yes	Yes	No	Yes	Yes	
Surrogate Recovery (%)						
1,2-Dichloroethane-d4	117	129	82	104	83	60-140
Toluene-d8	98	101	64	89	76	60-140
4-Bromofluorobenzene	103	136	83	129	114	60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C_6 to C_{50} hydrocarbons.

< result obtained was below RL (Reporting Limit).

Bold: Result exceeds limit noted in Soil Standards.

[1] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.

Industrial/Commercial/Community Property use (**I/C/C**); ( ) Standard value in brackets applies to medium and fine textured soils.

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-6*** BH5 0.30-0.60m	***17-6830-7*** BH5 SS1	***17-6830-8*** BH6 SS1	***17-6830-9*** BH7 SS1		**Soil Standards** [1]
	Concentration (µg/g)					
BTEX in Soil						
Benzene	0.13	**1.7**	<0.02	<0.02		(0.4) 0.32
Toluene	<0.2	<0.2	<0.2	<0.2		(78) 68
Ethylbenzene	3.5	8.6	<0.05	<0.05		(19) 9.5
Xylenes	14	24	0.10	<0.05		(30) 26
PHCs (F_1-F_4) in Soil						
$F1_{-BTEX}$ (C_6 - C_{10})	**60**	**75**	<10	<10		(65) 55
F2 (C_{10} - C_{16})	**910**	**1342**	<10	36		(250) 230
F3 (C_{16} - C_{34})	606	849	<50	89		(2,500) 1,700
F4 (C_{34}-C_{50})	190	<50	<50	<50		(6,600) 3,300
F4G (>C_{34})	2727	-	-	-		(6,600) 3,300
Chromatogram descends to baseline by nC50 ? (Yes/No)	No	Yes	Yes	Yes		
Surrogate Recovery (%)						
1,2-Dichloroethane-d4	78	88	115	77		60-140
Toluene-d8	81	85	108	65		60-140
4-Bromofluorobenzene	90	114	137	64		60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C_6 to C_{50} hydrocarbons.

< result obtained was below RL (Reporting Limit).

Bold: Result exceeds limit noted in Soil Standards.

[1] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.

Industrial/Commercial/Community Property use (**I/C/C**); ( ) Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/g)		Recovery (%)		Recovery (%)	
BTEX in Soil						
Benzene	<0.02	0.02	93	60-130	93	50-140
Toluene	<0.2	0.2	115	60-130	117	50-140
Ethylbenzene	<0.05	0.05	98	60-130	111	50-140
Xylenes	<0.05	0.05	98	60-130	107	50-140
PHCs (F_1-F_4) in Soil						
$F1_{-BTEX}$ (C_6 - C_{10})	<10	10	115	80-120	117	60-140
F2 (C_{10} - C_{16})	<10	10	96	80-120	97	60-140
F3 (C_{16} - C_{34})	<50	50	95	80-120	109	60-140
F4 (C_{34}-C_{50})	<50	50	93	80-120	85	60-140
Surrogates						
Parameter	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**
1,2-Dichloroethane-d4	127	60-140	68	60-140	63	60-140
Toluene-d8	124	60-140	85	60-140	86	60-140
4-Bromofluorobenzene	115	60-140	87	60-140	92	60-140

LEGEND:

RL - Reporting Limit

LCS - Laboratory Control Sample

MS - Matrix Spike

AR - Acceptable Range

BTEX should be subtracted from F_1, Naphthalene from F_2 and selected PAHs from F_3 if BTEX/PAHs are analyzed, then report $F_{1\text{-BTEX}}$, $F_{2\text{-Naph.}}$ and $F_{3\text{-PAH}}$.

nC_{50} response factor was within 70% of nC_{10}+nC_{16}+nC_{34} average.

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
BTEX in Soil						
Benzene	0.0	0-50				
Toluene	0.0	0-50				
Ethylbenzene	19	0-50				
Xylenes	22	0-50				
PHCs (F_1-F_4) in Soil						
$F1_{-BTEX}$ (C_6 - C_{10})	7.1	0-30				
F2 (C_{10} - C_{16})	2.5	0-30				
F3 (C_{16} - C_{34})	8.6	0-30				
F4 (C_{34}-C_{50})	8.3	0-30				
Surrogates						
Parameter	**Recovery (%)**	**AR**				
1,2-Dichloroethane-d4	129	60-140				
Toluene-d8	97	60-140				
4-Bromofluorobenzene	102	60-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-1*** BH1 SS3	***17-6830-3*** BH3 SS1	***17-6830-5*** BH4 SS1	***17-6830-6*** BH5 0.30-0.60m	***17-6830-9*** BH7 SS1	**Soil Standards** *
pH *(pH unit)*	7.50	7.61	7.31	8.21	7.25	(5-11) 5-9

* Surface soil pH value from 5 - 9, Sub-surface soil pH value from 5-11.

QA/QC Report

Parameter	**LCS**	**AR**	**Duplicate**	**AR**		
			Absolute Difference *(pH Unit)*			
pH *(pH unit)*	7.18	7.00-7.40	0.06	<0.3		

LEGEND:
LCS - Laboratory Control Sample
AR - Acceptable Range

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-1*** BH1 SS3	***17-6830-3*** BH3 SS1	***17-6830-5*** BH4 SS1	***17-6830-6*** BH5 0.30-0.60m	***17-6830-9*** BH7 SS1	**Soil Standards [1]**
***EC** (mS/cm)*	0.18	0.22	0.43	0.28	1.3	1.4

[1] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.
Industrial/Commercial/Community Property use (**I/C/C**).

QA/QC Report

Parameter	**Blank**	**RL**	**LCS**	**AR**	**Duplicate**	**AR**
			Recovery (%)		**RPD (%)**	
***EC** (mS/cm)*	<0.01	0.01	108	90-110	2.7	0-10

LEGEND:
RL - Reporting Limit
LCS - Laboratory Control Sample
AR - Acceptable Range
RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-1*** BH1 SS3	***17-6830-3*** BH3 SS1	***17-6830-5*** BH4 SS1	***17-6830-6*** BH5 0.30-0.60m	***17-6830-9*** BH7 SS1	**Soil Standards [1]**
***SAR** (no unit)*	0.15	0.69	1.9	1.5	1.1	12

[1] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.
Industrial/Commercial/Community Property use (**I/C/C**).

QA/QC Report

Parameter	**LCS**	**AR**	**Duplicate**	**AR**		
			RPD (%)			
***SAR** (no unit)*	0.28	0.20-0.50	2.8	0-30		

LEGEND:
LCS - Laboratory Control Sample
AR - Acceptable Range
RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-1*** BH1 SS3	***17-6830-2*** BH2 SS2	***17-6830-3*** BH3 SS1	***17-6830-4*** BH4 0.30-0.60m	***17-6830-5*** BH4 SS1	***17-6830-6*** BH5 0.30-0.60m
Moisture Content (%)	10	11	12	13	12	13

Parameter	***17-6830-7*** BH5 SS1	***17-6830-8*** BH6 SS1	***17-6830-9*** BH7 SS1			
Moisture Content (%)	12	13	12			

QA/QC Report

Parameter	**Blank**	**RL**	**LCS**	**AR**	**Duplicate**	**AR**
			Recovery (%)		**RPD (%)**	
Moisture Content (%)	<0.1	0.1	99	70-130	4.5	0-20

LEGEND:

RL - Reporting Limit
LCS - Laboratory Control Sample
AR - Acceptable Range
RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-10*** Exist MW	***17-6830-11*** MW1	***17-6830-12*** MW5	***17-6830-13*** MW7		**Ground Water Standards** [2]
	Concentration (µg/L)					
Metals in Water						
Antimony	<0.5	<0.5	1.0	3.3		20,000
Arsenic	3.8	7.5	4.5	16		1,900
Barium	85	138	480	460		29,000
Beryllium	<0.5	<0.5	<0.5	<0.5		67
Boron	459	763	1140	585		45,000
Cadmium	<0.5	<0.5	<0.5	<0.5		2.7
Chromium	<10	<10	<10	<10		810
Cobalt	1.8	3.0	<1	<1		66
Copper	<5	<5	<5	<5		87
Lead	<1	<1	<1	<1		25
Molybdenum	16	39	3.7	15		9,200
Nickel	13	7.2	7.0	5.1		490
Selenium	<5	<5	<5	<5		63
Silver	<0.3	<0.3	<0.3	<0.3		1.5
Thallium	<0.5	<0.5	<0.5	<0.5		510
Uranium	<2	3.8	<2	4.6		420
Vanadium	0.68	1.2	2.0	1.3		250
Zinc	5.6	6.0	<5	<5		1,100

< result obtained was below RL (Reporting Limit).

[2] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.
All Types of Property Use.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(µg/L)		Recovery (%)		Recovery (%)	
Metals in Water						
Antimony	<0.5	0.5	95	80-120	110	70-130
Arsenic	<1	1	90	80-120	121	70-130
Barium	<2	2	99	80-120	121	70-130
Beryllium	<0.5	0.5	84	80-120	78	70-130
Boron	<10	10	101	80-120	82	70-130
Cadmium	<0.5	0.5	93	80-120	99	70-130
Chromium	<10	10	105	80-120	80	70-130
Cobalt	<1	1	106	80-120	85	70-130
Copper	<5	5	96	80-120	83	70-130
Lead	<1	1	84	80-120	101	70-130
Molybdenum	<0.5	0.5	94	80-120	95	70-130
Nickel	<1	1	104	80-120	83	70-130
Selenium	<5	5	97	80-120	118	70-130
Silver	<0.3	0.3	92	80-120	83	70-130
Thallium	<0.5	0.5	84	80-120	105	70-130
Uranium	<2	2	92	80-120	104	70-130
Vanadium	<0.5	0.5	104	80-120	84	70-130
Zinc	<5	5	82	80-120	107	70-130

LEGEND:

RL - Reporting Limit
LCS - Laboratory Control Sample
MS - Matrix Spike
AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
Metals in Water						
Antimony	0.0	0-20				
Arsenic	16	0-20				
Barium	2.8	0-20				
Beryllium	0.0	0-20				
Boron	3.3	0-20				
Cadmium	0.0	0-20				
Chromium	0.0	0-20				
Cobalt	6.5	0-20				
Copper	0.0	0-20				
Lead	0.0	0-20				
Molybdenum	2.9	0-20				
Nickel	3.0	0-20				
Selenium	0.0	0-20				
Silver	0.0	0-20				
Thallium	0.0	0-20				
Uranium	1.5	0-20				
Vanadium	2.5	0-20				
Zinc	9.3	0-20				

LEGEND:
AR - Acceptable Range
RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-10*** Exist MW	***17-6830-11*** MW1	***17-6830-12*** MW5	***17-6830-13*** MW7		**Ground Water Standards [2]**
	Concentration (µg/L)					
VOCs in Water						
Acetone	<30	<30	<30	<30		130000
Benzene	<0.5	<0.5	1.4	<0.5		(430) 44
Bromodichloromethane	<2	<2	<2	<2		85000
Bromoform	<5	<5	<5	<5		(770) 380
Bromomethane	<0.5	<0.5	<0.5	<0.5		(56) 5.6
Carbon Tetrachloride	<0.2	<0.2	<0.2	<0.2		(8.4) 0.79
Chlorobenzene	<0.5	<0.5	<0.5	<0.5		630
Chloroform	<1	<1	<1	<1		(22) 2.4
Dibromochloromethane	<2	<2	<2	<2		82000
1,2-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5		(9600) 4600
1,3-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5		9600
1,4-Dichlorobenzene	<0.5	<0.5	<0.5	<0.5		(67) 8
Dichlordifluoromethane	<2	<2	<2	<2		4400
1,1-Dichloroethane	<0.5	<0.5	<0.5	<0.5		(3100) 320
1,2-Dichloroethane	<0.5	<0.5	<0.5	<0.5		(12) 1.6
1,1-Dichloroethylene	<0.5	<0.5	<0.5	<0.5		(17) 1.6
c-1,2-Dichloroethylene	<0.5	<0.5	<0.5	<0.5		(17) 1.6
t-1,2-Dichloroethylene	<0.5	<0.5	<0.5	<0.5		(17) 1.6
1,2-Dichloropropane	<0.5	<0.5	<0.5	<0.5		(140) 16
1,3-Dichloropropene (cis-+trans-)	<0.5	<0.5	<0.5	<0.5		(45) 5.2
Ethylbenzene	<0.5	<0.5	<0.5	<0.5		2300
Ethylene Dibromide	<0.2	<0.2	<0.2	<0.2		(0.83) 0.25
Hexane (n)	<5	<5	<5	<5		(520) 51
Methyl Ethyl Ketone	<20	<20	<20	<20		(1500000)470000
Methyl Isobutyl Ketone	<20	<20	<20	<20		(580000)140000
Methyl tert-butyl Ether	<2	<2	<2	<2		(1400) 190
Methylene Chloride	<5	<5	<5	<5		(5500) 610
Styrene	<0.5	<0.5	<0.5	<0.5		(9100) 1300
1,1,1,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5		(28) 3.3
1,1,2,2-Tetrachloroethane	<0.5	<0.5	<0.5	<0.5		(15) 3.2
Tetrachloroethylene	<0.5	<0.5	<0.5	<0.5		(17) 1.6
Toluene	<0.5	<0.5	1.3	<0.5		18000
1,1,1-Trichloroethane	<0.5	<0.5	<0.5	<0.5		(6700) 640
1,1,2-Trichloroethane	<0.5	<0.5	<0.5	<0.5		(30) 4.7
Trichloroethylene	<0.5	<0.5	<0.5	<0.5		(17) 1.6
Trichlorofluoromethane	<5	<5	<5	<5		2500
Vinyl Chloride	<0.5	<0.5	<0.5	<0.5		(1.7) 0.5
Xylenes	<0.5	<0.5	<0.5	<0.5		4200
Surrogate Recovery (%)						
Bromochloromethane	108	97	88	106		60-140
1,4-Difluorobenzene	101	97	90	108		60-140
1,4-Dichlorobutane	106	97	90	107		60-140

< result obtained was below RL (Reporting Limit).

[2] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.
All Types of Property Use; ( ) Standard value in brackets applies to medium and fine textured soils.

QA/QC Report

Parameter	Blank	RL	LCS	AR	MS	AR
	(ug/L)		Recovery (%)		Recovery (%)	
VOCs in Water						
Acetone	<30	30	114	50-140	81	50-140
Benzene	<0.5	0.5	101	60-130	105	50-140
Bromodichloromethane	<2	2	97	50-140	108	50-140
Bromoform	<5	5	95	60-130	92	50-140
Bromomethane	<0.5	0.5	91	50-140	95	50-140
Carbon Tetrachloride	<0.2	0.2	93	60-130	100	50-140
Chlorobenzene	<0.5	0.5	92	60-130	82	69
Chloroform	<1	1	100	108	115	50-140
Dibromochloromethane	<2	2	97	60-130	106	50-140
1,2-Dichlorobenzene	<0.5	0.5	99	60-130	107	50-140
1,3-Dichlorobenzene	<0.5	0.5	89	60-130	76	50-140
1,4-Dichlorobenzene	<0.5	0.5	85	60-130	80	50-140
Dichlordifluoromethane	<2	2	69	50-140	89	50-140
1,1-Dichloroethane	<0.5	0.5	109	60-130	108	50-140
1,2-Dichloroethane	<0.5	0.5	100	60-130	109	50-140
1,1-Dichloroethylene	<0.5	0.5	99	60-130	102	50-140
c-1,2-Dichloroethylene	<0.5	0.5	110	60-130	77	50-140
t-1,2-Dichloroethylene	<0.5	0.5	92	60-130	106	50-140
1,2-Dichloropropane	<0.5	0.5	97	60-130	102	50-140
1,3-Dichloropropene (cis-+trans-)	<0.5	0.5	104	60-130	79	50-140
Ethylbenzene	<0.5	0.5	85	60-130	85	50-140
Ethylene Dibromide	<0.2	0.2	100	60-130	96	50-140
Hexane (n)	<5	5	82	60-130	91	50-140
Methyl Ethyl Ketone	<20	20	114	50-140	111	50-140
Methyl Isobutyl Ketone	<20	20	102	50-140	98	50-140
Methyl tert-butyl Ether	<2	2	74	60-130	85	50-140
Methylene Chloride	<5	5	97	60-130	106	50-140
Styrene	<0.5	0.5	87	60-130	87	50-140
1,1,1,2-Tetrachloroethane	<0.5	0.5	98	60-130	74	50-140
1,1,2,2-Tetrachloroethane	<0.5	0.5	106	60-130	131	50-140
Tetrachloroethylene	<0.5	0.5	93	60-130	99	50-140
Toluene	<0.5	0.5	86	60-130	105	50-140
1,1,1-Trichloroethane	<0.5	0.5	106	60-130	118	50-140
1,1,2-Trichloroethane	<0.5	0.5	91	60-130	123	50-140
Trichloroethylene	<0.5	0.5	98	60-130	106	50-140
Trichlorofluoromethane	<5	5	83	50-140	109	50-140
Vinyl Chloride	<0.5	0.5	114	50-140	110	50-140
Xylenes	<0.5	0.5	97	60-130	82	50-140
Surrogates						
Parameter	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**
Bromocholoromethane	109	60-140	117	60-140	112	60-140
1,4-Difluorobenzene	109	60-140	109	60-140	116	60-140
1,4-Dichlorobutane	118	60-140	114	60-140	107	60-140

LEGEND:

RL - Reporting Limit

LCS - Laboratory Control Sample

MS - Matrix Spike

AR - Acceptable Range

QA/QC Report

Parameter	Duplicate	AR				
	RPD (%)					
VOCs in Water						
Acetone	0.0	0-30				
Benzene	15	0-30				
Bromodichloromethane	0.0	0-30				
Bromoform	0.0	0-30				
Bromomethane	0.0	0-30				
Carbon Tetrachloride	0.0	0-30				
Chlorobenzene	0.0	0-30				
Chloroform	0.0	0-30				
Dibromochloromethane	0.0	0-30				
1,2-Dichlorobenzene	0.0	0-30				
1,3-Dichlorobenzene	0.0	0-30				
1,4-Dichlorobenzene	0.0	0-30				
Dichlordifluoromethane	0.0	0-30				
1,1-Dichloroethane	0.0	0-30				
1,2-Dichloroethane	0.0	0-30				
1,1-Dichloroethylene	0.0	0-30				
c-1,2-Dichloroethylene	0.0	0-30				
t-1,2-Dichloroethylene	0.0	0-30				
1,2-Dichloropropane	0.0	0-30				
1,3-Dichloropropene (cis-+trans-)	0.0	0-30				
Ethylbenzene	0.0	0-30				
Ethylene Dibromide	0.0	0-30				
Hexane (n)	0.0	0-30				
Methyl Ethyl Ketone	0.0	0-30				
Methyl Isobutyl Ketone	0.0	0-30				
Methyl tert-butyl Ether	0.0	0-30				
Methylene Chloride	0.0	0-30				
Styrene	0.0	0-30				
1,1,1,2-Tetrachloroethane	0.0	0-30				
1,1,2,2-Tetrachloroethane	0.0	0-30				
Tetrachloroethylene	0.0	0-30				
Toluene	7.4	0-30				
1,1,1-Trichloroethane	0.0	0-30				
1,1,2-Trichloroethane	0.0	0-30				
Trichloroethylene	0.0	0-30				
Trichlorofluoromethane	0.0	0-30				
Vinyl Chloride	0.0	0-30				
Xylenes	0.0	0-30				
Surrogates						
Parameter	**Recovery (%)**	**AR**				
Bromocholoromethane	93	60-140				
1,4-Difluorobenzene	92	60-140				
1,4-Dichlorobutane	93	60-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference

Certificate of Analysis

Analysis Requested:	Metals, VOCs, PHCs, pH, EC, SAR
Sample Description:	9 Soil and 4 Water Samples

Parameter	***17-6830-10*** Exist MW	***17-6830-11*** MW1	***17-6830-12*** MW5	***17-6830-13*** MW7		**Ground Water Standards** [2]
	Concentration (µg/L)					
BTEX in Water						
Benzene	<0.5	<0.5	1.4	<0.5		(430) 44
Toluene	<0.5	<0.5	1.3	<0.5		18000
Ethylbenzene	<0.5	<0.5	<0.5	<0.5		2300
Xylenes	<0.5	<0.5	<0.5	<0.5		4200
PHCs (F1-F4) in Water						
$F1_{-BTEX}$ (C_6 - C_{10})	<25	<25	<25	<25		750
F2 (C_{10} - C_{16})	<100	<100	<100	<100		150
F3 (C_{16} - C_{34})	<100	<100	<100	<100		500
F4 (>C_{34})	<100	<100	<100	<100		500
Chromatogram descends to baseline by nC50 ? (Yes/No)	Yes	Yes	Yes	Yes		
Surrogate Recovery (%)						
Bromochloromethane	108	97	88	106		60-140
1,4-Difluorobenzene	101	97	90	108		60-140
1,4-Dichlorobutane	106	97	90	107		60-140

F_{4G} (gravimetric heavy hydrocarbons) cannot be added to the C_6 to C_{50} hydrocarbons.

< result obtained was below RL (Reporting Limit).

[2] MOE - Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act, April 15, 2011.

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition.

All Types of Property Use; ( ) Standard value in brackets applies to medium and fine textured soils.

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Parameter	Blank	RL	LCS	AR	MS	AR
	(ug/L)		Recovery (%)		Recovery (%)	
BTEX in Water						
Benzene	<0.5	0.5	101	60-130	105	50-140
Toluene	<0.5	0.5	85	60-130	85	50-140
Ethylbenzene	<0.5	0.5	86	60-130	105	50-140
Xylenes	<0.5	0.5	97	60-130	82	50-140
PHC (F1-F4) in Water						
$F1_{-BTEX}$ (C_6 - C_{10})	<25	25	85	60-140	135	60-140
F2 (C_{10} - C_{16})	<100	100	96	60-140	97	60-140
F3 (C_{16} - C_{34})	<100	100	95	60-140	109	60-140
F4 (>C_{34})	<100	100	93	60-140	85	60-140
Surrogates						
Parameter	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**	**Recovery (%)**	**AR**
Bromochloromethane	109	60-140	117	60-140	112	60-140
1,4-Difluorobenzene	109	60-140	109	60-140	116	60-140
1,4-Dichlorobutane	118	60-140	114	60-140	107	60-140

LEGEND:

RL - Reporting Limit
LCS - Laboratory Control Sample
MS - Matrix Spike
AR - Acceptable Range

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Parameter	Duplicate	AR				
	RPD (%)					
BTEX in Water						
Benzene	15	0-30				
Toluene	7.4	0-30				
Ethylbenzene	0.0	0-30				
Xylenes	0.0	0-30				
PHC (F1-F4) in Water						
$F1_{-BTEX}$ (C_6 - C_{10})	1.0	0-30				
F2 (C_{10} - C_{16})	2.5	0-30				
F3 (C_{16} - C_{34})	8.6	0-30				
F4 (>C_{34})	8.3	0-30				
Surrogates						
Parameter	**Recovery (%)**	**AR**				
Bromochloromethane	93	60-140				
1,4-Difluorobenzene	92	60-140				
1,4-Dichlorobutane	93	60-140				

LEGEND:

AR - Acceptable Range

RPD - Relative Percent Difference