



**2014 GROUNDWATER MONITORING PROGRAM  
PROPERTY ASSET 97390  
P19, LEITRIM ROAD  
OTTAWA, ONTARIO**

**Submitted to:**

**National Capital Commission  
202-40 Elgin Street  
Ottawa, Ontario  
K1P 1C7**

**Submitted by:**

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**March 2015**

**TZ14024**

**Distribution**

- National Capital Commission – 1 hard copy and 1 electronic copy
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March 24, 2015

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National Capital Commission  
202-40 Elgin Street  
Ottawa, Ontario  
K1P 1C7

**Attention: Maya Moser**  
**Environmental Officer**

Dear Ms. Moser;

**RE: Final Report - Groundwater Monitoring Program**  
**NCC Property Asset 97390**  
**P19 Leitrim Road, Ottawa, Ontario**

Please find enclosed one hard copy and one electronic copy (in PDF format) of our final report entitled *"2014 Groundwater Monitoring Program, NCC Property Asset 97390, P19 Leitrim Road, Ottawa, Ontario."*

We thank you for the opportunity to be of assistance with this matter and trust the enclosed reports meet with your satisfaction. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

**Amec Foster Wheeler**  
**Environment & Infrastructure**

Kevin D. Hicks, M.Sc., P.Geo., QP<sub>ESA</sub>  
Senior Associate Hydrogeologist

Enclosure

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## EXECUTIVE SUMMARY

Amec Foster Wheeler Environment & Infrastructure (“AmecFW”) was retained by the National Capital Commission (NCC) to conduct monitoring and sampling of thirty-five (35) existing groundwater monitoring wells installed on Property Asset 97390 located on the north side of Leitrim Road, between Hawthorne and Ramsayville Roads, in Ottawa, Ontario (the “Site”). The primary objective of the monitoring program was to assess the current groundwater quality conditions with respect to impacts by chlorinated solvent compounds previously identified at the Site, which have been attributed to historical operations by the Ministry of Natural Resources (MNR) at this location. These data were required in an effort to establish temporal and spatial changes to assess the migration and evolution of the chlorinated solvent plume and to determine if any off-Site impacts are present or expected in the future.

The monitoring and sampling program was executed under NCC call-up 589983 against Standing Offer 586101 in accordance with AmecFW’s proposal number OP9162 (dated April 11, 2014), and subsequent written and verbal instructions from NCC. The monitoring program included semi-annual monitoring and sampling programs staged in the June and October of 2014.

The groundwater monitoring and sampling program included semi-annual events staged in staged during the spring (June) and fall (October). The monitoring program included all existing monitoring wells previously installed at the Site. The monitoring activities included static water level gauging, assessing the presence/absence of light (L) and dense (D) non-aqueous phase liquids (NAPL), measuring combustible hydrocarbon and total organic vapour concentrations in the monitoring well headspace, and groundwater sampling. Groundwater samples were collected using low-flow sampling methods and were submitted to an accredited laboratory for analysis of volatile organic compounds. Additional sampling was performed in September with a limited number of samples being submitted to the three laboratories historically used to provide laboratory analytical services to assess potential interlaboratory variability.

Based on the results of the investigations completed at the Site to date, the following conclusions and recommendations are offered:

- In general, the subsurface conditions beneath the Site consist of coarser textured shallow water deposits (uniform fine sand) overlying a deep water blue-grey clay/silt/silty clay unit;
- Groundwater at the Site can be divided into 3 flow zones: The first resides within the shallow overburden sand unit, the second is characterized as intermediate overburden and is located within the top portion of the clay/silty clay unit, and the last is in the deep overburden, solely in the clay layer. It is possible that the intermediate and deep flow regimes comprise a single hydrostratigraphic unit, with successively greater depths to groundwater due to moderate to strong downward vertical gradients as commonly encountered in low permeability geologic deposits.
- The inferred groundwater flow patterns within the shallow overburden are indicative of variable groundwater flow based on local permeability of this unit, which could be

attributed to variation in thickness or grain size of the sand within a small area. Flow direction in the shallow overburden is generally southeasterly;

- Flow direction in the underlying intermediate silty clay and deep clay overburden units, indicate a consistent easterly groundwater flow, however, spatial coverage of the monitoring well network within these flow regimes is limited and precludes a Site-wide interpretation of intermediate and deep groundwater flow;
- All groundwater flow direction data infer that groundwater flow is likely to result in eventual off-Site migration of the TCE plume;
- The highest concentration of TCE in 2014 was observed at MW10-17, which is located approximately 35 metres from the Site boundary and is consistent with the interpretation of this plume as being of significant age and distance from a depleted source zone;
- Groundwater samples collected from selected monitoring wells and submitted to multiple analytical laboratories historically utilized to analyze samples collected at the Site to assess interlaboratory variability reported RSDs within acceptable ranges thus inferring no significant variability between laboratories;
- The measurable concentrations of TCE and cis-1,2-DCE in intermediate depth monitor MW13-31 is new at the Site as of 2014. TCE levels at this location were observed to be in excess of the Table 2 SCS during spring and fall monitoring events at the Site. This location is within approximately 10 metres of the Site boundary;
- The Table 2 SCS for TCE is based on the human health effects via the vapour intrusion exposure pathway, and as a result, potentially unacceptable risks to human health may be realized as the plume continues to migrate;
- In accordance with the Ontario Environmental Protection Act (EPA) Notification requirements for off-Site impacts to the neighbouring property owner(s) MOECC will be triggered if and when the plume does migrate off-Site;
- The NCC should consider installation of additional monitoring wells at the Site. This should include up to four monitoring wells within the currently defined limits of the plume to sufficient depths to allow them to be screened within the intermediate silty clay unit to assess the vertical extent of the plume. Up to three monitoring wells should be installed along the southern boundary of the plume (between MW10-24 and MW13-28) to ensure lateral delineation of the plume is complete. All monitoring well construction should include suitable installation material and procedures to minimize potential preferential contaminant migration via the borehole annuli. Due to the low production of other intermediate and deep wells at the Site, the time required for development of these wells is estimated to be significant. The cost of completing such work is estimated to be on the order of [REDACTED];
- If the above additional wells are installed, the NCC should also consider collection of soil samples for testing of parameters which influence the migration and remediation of the plume, including grain size distribution, soil bulk density, natural oxidant demand, fraction

organic carbon (FOC) content, microbial characterization, etc.; cost to obtain this data and provide a brief summary thereof is estimated at [REDACTED];

- Analytical data should be collected for any new wells installed, either as part of a scheduled monitoring event or following installation and development of the additional wells; the incremental cost of sampling up to 7 additional intermediate and deep wells using a peristaltic pump, including the associated field time, is [REDACTED];
- Aquifer response testing, such as slug tests, should be undertaken in a subset of wells to ascertain the hydraulic conductivity of the hydrostratigraphic units to determine contaminant retardation factors and the rate of migration of the TCE plume toward the Site boundary. The cost of completing such work is estimated to be on the order of [REDACTED];
- Ongoing monitoring of the Site should be continued for the current monitoring well network on the existing biannual schedule. The cost of completing such work is estimated to be on the order of [REDACTED] per annum depending on the sampling methodology (i.e., peristaltic pump versus submersible bladder pump); and,
- Given the relatively high cost of the existing annual monitoring program, once the additional monitoring wells listed above are installed and soil parameters obtained, it may be appropriate to consider completion of a remedial options analysis to identify suitable remedial options and/or risk management measures to mitigate potential exposure risks at the neighboring residential properties to the south. The cost of completing such work is estimated to be on the order of [REDACTED] assuming that all the relevant data has been collected in previous phases of Site characterization.



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## 1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure (“AmecFW”) was retained by the National Capital Commission (NCC) to conduct monitoring and sampling of thirty-five (35) existing groundwater monitoring wells installed on Property Asset 97390 located on the north side of Leitrim Road, between Hawthorne and Ramsayville Roads, in Ottawa, Ontario (the “Site”). A key plan showing the location of the Site is provided on Figure 1. The monitoring and sampling program was executed under NCC call-up 589983 against Standing Offer 586101 in accordance with AmecFW’s proposal number OP9162 (dated April 11, 2014), and subsequent written and verbal instructions from NCC. The monitoring program included semi-annual monitoring and sampling programs staged in the June and October of 2014.

The primary objective of the monitoring program was to assess the current groundwater quality conditions with respect to impacts by chlorinated solvent compounds previously identified at the Site, which have been attributed to historical operations by the Ministry of Natural Resources (MNR) at this location. These data were required in an effort to establish temporal and spatial changes to assess the migration and evolution of the chlorinated solvent plume and to determine if any off-Site impacts are present or expected in the future. This report documents the results of the groundwater monitoring and sampling program events staged in June and October 2014, as well as a miniature quality assurance/quality control (QA/QC) program undertaken in September, 2014.

The chlorinated solvent plume is characterized by elevated concentrations of trichloroethene (a.k.a. trichloroethylene or TCE) and its degradation products including isomers of dichloroethene (a.k.a. dichloroethylene or DCE), and dichloroethane (a.k.a. 1,1-DCA and/or 1,2-DCA). These compounds together are collectively referred to as the “target contaminants” or “TCE Plume”. Several compounds including TCE, cis-1,2-DCE, trans-1,2-DCE, and 1,1-DCA have been detected in the overburden groundwater at concentrations exceeding the applicable regulatory guidelines (see subsequent discussion of Regulatory Framework, Section 2.1). Chlorinated solvents belong to a subset of organic compounds collectively known as volatile organic compounds (VOCs).

## 2.0 BACKGROUND INFORMATION

The Site consists of a parcel of vacant forested land located within the NCC Greenbelt. It is known colloquially as Pine Grove Forest and is accessed by the public from the on-Site parking lot ('P19') for walking and cross country skiing on a series of trails. The Site is located on the north side of Leitrim Road at the southern boundary of the Greenbelt, directly across from a series of smaller residential and/or commercial lots.

Based on the reports provided by the NCC, investigation at the Site began in 2004 with a Phase I Environmental Site Assessment (ESA) by Intera Engineering Ltd. ("Intera") and was followed by subsurface investigations in 2006 by Intera, 2008 and 2009 by Aqua Terre Solutions Inc. ("Aqua Terre"), 2010 by SNC Lavalin Environment ("SLE", formerly Aqua Terre), and 2013 by Stantec Consulting Ltd. ("Stantec"). The reports provided discuss the historic use of the Site by the MNR only. A 1977 map of the area (Belanger and Harrison) shows a parcel at the Site which includes a radio tower and 4 buildings under the jurisdiction of the National Research Council.

In addition to delineation phases of work at the Site, in 2011, a groundwater monitoring event was conducted by SLE. The 2011 report includes reference to work at the Site by ADAMAS Environmental Inc. (1992), and cited this report as being the first to identify potential for TCE contamination in groundwater. ADAMAS apparently was working at the Site on behalf of the NCC, whereas SLE's initial involvement was stated to be for the Ontario Realty Corporation (ORC); however, all SLE reports from 2008 onward relating to the Site are addressed to the NCC. SLE references Aqua Terre reports from 2000 and 2001 that related to the excavation and disposal off-Site of "approximately 900 tonnes of potentially impacted soils", following a program of test pitting and monitoring well installation to investigate the potential presence of organochlorine pesticides.

The various investigations included phased installation of the network of groundwater monitoring wells currently present at the Site, along with a large number of temporary sampling locations (drive points) during the delineation phases of work at the Site. Groundwater flow was found to be directed to the southeast toward Leitrim Road.

In general, the plume of TCE impacted groundwater has been found to be migrating southeast toward the property boundary from the assumed source zone within the former MNR building complex. Concentrations are in excess of the applicable Federal Guidelines and/or Provincial Standards at a number of wells, but do not indicate free phase product is likely to be present at the Site. (Note that the definition of free phase product is typically the compound's presence at concentrations in excess of 1% of its solubility. In the case of TCE, this concentration would be approximately 11,000 ppb.) The 2013 wells installed by Stantec were the first series to be installed in the deeper stratigraphic (silty clay/clay) unit at the Site, and sampling was conducted by low flow methods. In 2013, Stantec reported that chloroform exceeded the applicable Federal Guidelines for the Site at 3 of these new wells, but no exceedances were reported for VOCs, including TCE. Stantec elected to discuss their results in comparison to the fine grained Provincial Standards for the Site, as well as the relevant Federal Guidelines.

## 2.1 Regulatory Framework

As the Site is currently a Federal property, groundwater samples were evaluated through comparison to Federal Guidelines including the *Federal Interim Groundwater Quality Guidelines* (FIGQG) established by Environment Canada (EC; 2012). Groundwater data was compared to the Tier 1 guidelines established for residential/parkland land use. As the shallow overburden deposits are comprised of sand, and the coarse textured criteria are conservative, the Site is considered to have coarse textured soil. FIGQG Tier 1 guidelines for fine textured soil are also shown, where established, for comparative purposes.

In accordance with the FIGQG, drinking water guidelines are to be applied when evaluating groundwater quality where groundwater is used as a potable water source or where groundwater is defined as a potential potable water source by the province. As such, groundwater analytical results were evaluated through comparison with the *Guidelines for Canadian Drinking Water Quality* (GCDWQ) established by Health Canada (HC; 2012). Groundwater Data was compared to Maximum Acceptable Concentrations (MAC) established for the protection of human health as well as Aesthetic Objectives (AO) and Operational Guidelines (OG).

For information purposes, the results of the groundwater sampling event were also compared to Provincial Standards established by the Ontario Ministry of the Environment and Climate Change (MOECC) as provided in *Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act* ("EPA Standards") (MOECC, 2011) and the *Ontario Drinking Water Standards, Objectives and Guidelines* (ODWQS) (MOECC, 2006). For the EPA Standards, groundwater data was compared to the Table 2 Site Conditions Standards (SCS) for potable groundwater use, coarse soil (rationale as per the FIGQG for grain size selection). Similar to the Federal Guidelines, groundwater data were also compared to MAC, AO and OG provided under the ODWQS. These guidelines would become relevant if impacts were defined beyond Site boundaries, assuming ownership was by an entity other than the federal government.

### 3.0 WORK PROGRAM AND METHODOLOGY

Details of the investigation activities are provided in the following sections.

#### 3.1 Health and Safety Plan

Prior to conducting the field program, AmecFW established a Health and Safety Plan (HASP) in accordance with applicable Federal and Provincial codes and regulations to ensure the health and safety of personnel involved in the field activities. The HASP outlined potential hazards associated with the field activities, the relevant codes/regulations to be met, rules of behaviour, personal protective equipment (PPE), security features to be established, responsible individuals and procedures to be followed in the event of an emergency.

#### 3.2 Quality Assurance/Quality Control Program

A strict Quality Assurance/Quality Control (QA/QC) program was implemented and maintained throughout the project to ensure the Site data to be representative of the actual Site conditions. The QA/QC program provides a method of documented checks to assess the precision and accuracy of collected data. The QA/QC program includes a set of standard procedures or protocols to be followed throughout the investigations. To this end, AmecFW field and QA/QC protocols have been developed to meet or exceed those defined in the Canadian Council of Ministers of the Environment (CCME) *Guidance Manual on Sampling, Analysis, and Data Management for Contaminated Sites* (1993) and MOECC documents entitled *Guideline for Phase II Environmental Site Assessments in Ontario* (June 2011) and *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario* (1996). The field QA/QC program included the following components:

- The use of personal protective equipment (PPE) including hard hats, safety glasses, safety work boots, and chemically resistant latex/nitrile gloves for sample handling;
- The use of Standard Operating Procedures (SOP) that have been developed to meet or exceed recognized scientific and engineering practices and/or regulatory authority requirements;
- Thorough documentation of all field activities and sample handling practices including field notes, chain of custody forms, memos to file, etc.;
- The use of dedicated or disposable sampling supplies and/or thorough decontamination of all re-useable sampling equipment;
- The incorporation of blind duplicate samples into the sampling and analytical programs to assess the validity of the data received from the analytical laboratory; and,
- The use of laboratory analytical protocols and method detection limits that have been established in accordance with regulatory requirements for the province of Ontario.

### 3.3 Groundwater Monitoring and Sampling

Groundwater monitoring, including measuring the depth to the static water level, the concentrations of combustible organic vapour (COV) and total ionisable organic vapour (TOV) in the well headspace, and assessing the presence/absence of dense (D) and/or light (L) non-aqueous phase liquids (NAPL) was conducted at each of the Site monitoring wells on June 17, 2014, and October 9 and 10, 2014. The location of the monitoring well network is shown on Figure 2. Measurements of depth to groundwater and the presence/absence of LNAPL/DNAPL layering were made using a Heron Instruments electronic interface probe. The depths to groundwater were reduced to static elevations based on the monitoring well survey data. Groundwater elevations were taken throughout the Site prior to initiation of sampling. Monitoring well details supplied by previous consultants are summarized in Table 1. Groundwater elevation data for 2014 is supplied in Table 2.

Combustible organic vapour (COV) and total organic vapour (TOV) measurements in the well headspace were made using a RKL Eagle 2 calibrated to known hexane and isobutylene standards. COV measurements were made in the methane elimination mode. Measurements from the 2014 monitoring events are summarized in Table 3.

Groundwater sampling was carried out between June 17 to 19, and October 9 and 10, 2014. Groundwater samples were collected using a low-flow sampling technique to minimize potential sample biasing due to sediment entrainment at all monitoring wells. Both a peristaltic and bladder pump were used during the spring sampling event until the character of the wells, including their depths, relative positions and the nature of the Site was understood. Due to budgetary concerns around the length of time required to complete sampling with the bladder pump, the fall sampling program was modified to include use of 2 peristaltic pumps. Using this sampling method, wells were purged and sampled at a maximum flow rate of 100 ml per minute while measuring water level in order to ensure a maximum drawdown of not more than 0.3 m. Due to low yield groundwater conditions at the Site, total drawdown of less than 0.3 m could not be achieved at 27 of the Site's 35 monitoring wells (wells partially or fully screened in the intermediate overburden clay/silty clay or deep overburden clay layer). All monitoring wells which did not satisfy the maximum drawdown conditions were sampled after being purged dry and then allowed to reach 75 - 90% recovery.

The wells were purged and sampled using a low flow pump with dedicated 6-mm inside diameter low-density polyethylene (LDPE) sample tubing and disposable pump head tubing. Field parameters including temperature, pH, conductivity, dissolved oxygen (DO) and oxidation-reduction potential (ORP) were measured throughout the purging and sampling process using a YSI 556 multi-parameter water quality probe calibrated to known standards and where well yields permitted. Samples were collected upon stabilization of the field parameters. Due to the sample volume requirements and low well yield conditions, some of the wells were sampled over a period of two to three days. Wells which went dry did not have field parameters measured, as this condition represents non-equilibrium and any data would not be representative of local groundwater conditions. Field parameters measured are included in Table 3.

Deep wells (MW13-27, MW13-29, MW13-31, MW13-31 and MW13-35) sampled during the spring sampling event were sampled using a Geotech bladder pump operated by a Geotech Geocontrol Pro controller. The bladder pump was decontaminated between sampling locations by submerging the pump in Alconox solution and pumping a minimum of 2 litres of the solution through the pump. The pump interior and exterior was then rinsed using laboratory grade reverse osmosis deionized (RODI) water. New sample tubing was employed at each well location.

Groundwater samples were collected directly into laboratory supplied 40 ml sample vials with septum lined lids pre-inoculated with any necessary preservatives. Dedicated (one pair per sample), disposable nitrile gloves were used at each monitoring well location throughout the proceedings. Sample vials were inverted after filling and inspected to ensure that no head space was present in any vial. Samples were placed in a cooler and stored on ice until delivered to the analytical laboratory. Continuous chain of custody documentation was maintained and consistent labelling and nomenclature was used on chain of custody and sample containers.

All groundwater samples were submitted for laboratory analysis of VOC. Four blind duplicate samples were collected during the June and October sampling events and were submitted for analysis of the target analytes for QA/QC purposes. Trip blanks were employed during the groundwater sampling programs to assess potential cross contamination during sample storage and shipping. Analytical results of the monitoring events are summarized in Tables 4 and 5.

**Blind Duplicate Sample Key**

June 2014		October 2014	
MW08-1	Dup-1	MW08-4	Dup-1
MW10-10	Dup-3	MW09-9	Dup-4
MW10-15	Dup-2	MW10-10	Dup-2
MW13-26	Dup-4	MW13-36	Dup-3

### 3.4 Well Elevation Spot Check

As per AmecFW's proposal, in the fall of 2014, a spot check of elevations of some of the monitoring wells at the Site was performed. This activity could not occur when there are leaves on the trees, and was limited to wells in close proximity to the established benchmark which is the southeast corner of the old foundation located in the northwest portion of the parking lot. The following well elevations were included in this partial survey: MW08-1, MW08-2, MW08-4, MW08-5, MW13-26, and MW13-27.

### 3.5 Miniature QA/QC Program, September 2014

As previous groundwater sampling and monitoring had been completed by a variety of analytical laboratories, including Paracel, Maxxam, and Caduceon, as well as by various methodologies (low flow and inertial foot valve sampling), a small scale comparative sampling program was conducted at the Site on September 15 and 16, 2014. Three samples were collected at each of 3 wells (MW10-10, MW10-17, and MW13-31) using a peristaltic pump fitted with dedicated

sample tubing and submitted to each of the above listed laboratories. The results of the program are discussed in section 5.0 and tabulated in Table 6.

### **3.6 Laboratory Analyses**

Representative groundwater samples collected during the investigation were submitted for laboratory analysis of suspect parameters of concern. All laboratory chemical analyses were conducted by Caduceon Environmental Laboratories ("Caduceon") of Ottawa, Ontario. Caduceon is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) in accordance with ISO/IEC 17025:1999 – "General Requirements for the Competence of Testing and Calibration Laboratories".

## 4.0 GEOLOGY AND HYDROGEOLOGY

### 4.1 Site Geology

The Site surficial geology is mapped as shallow water deposits of the Champlain Sea (i.e., uniform fine sand). Based on a review of the borehole logs for the Site and nearby Ministry of Environment and Climate Change (MOECC) drinking water well records, the sand unit is of locally variable thickness and overlies a deep water blue-grey clay/silt/silty clay unit (Belanger and Harrison, 1977). Drift thickness at the Site was mapped at greater than 30 m in the late 1970s (Yeager and Daley). This mapping is borne out by the water well data which indicates clay at depths of up to 40 m in the vicinity of the Site.

### 4.2 Site Hydrogeology

The static groundwater elevations recorded during the monitoring events are summarized in Table 2. The results of the groundwater monitoring indicate that there are three distinct near surface groundwater flow regimes beneath the Site. The first resides within the shallow overburden sand unit, the second is characterized as intermediate overburden and is located within the top portion of the clay/silty clay unit, and the last is in the deep overburden, solely in the clay layer. It is possible that the intermediate and deep flow regimes are not decisively distinct from one another, but rather exhibit sufficiently differing groundwater elevations due to downward vertical gradients commonly encountered in low permeability soils such as silts and clays.

The shallow overburden water table elevations recorded at this subset of monitoring wells varied between 97.605 m (MW10-22) and 98.875 m (MW08-5) during the June monitoring event and between 97.421 m (MW10-22) and 98.253 m (MW08-5) during the October monitoring event. Inferred groundwater elevation contours depicting the overburden groundwater flow pattern across the Site based on groundwater elevations recorded on June 17, 2014 are presented on Figure 3a. The same information for the groundwater elevations recorded on October 9, 2014 is presented in Figure 4a.

The intermediate overburden water table elevations recorded at this subset of monitoring wells varied between 97.583 m (MW13-37) and 98.676 m (MW13-27) during the June monitoring event and between 97.343 m (MW13-37) and 98.317 m (MW13-27) during the October monitoring event. Inferred groundwater elevation contours depicting the overburden groundwater flow pattern across the Site based on groundwater elevations recorded on June 17, 2014 are presented on Figure 3b. The same information for the groundwater elevations recorded on October 9, 2014 is presented in Figure 4b.

The deep overburden water table elevations recorded at this subset of monitoring wells varied between 97.260 m (MW13-36) and 98.602 m (MW13-26) during the June monitoring event and between 97.097 m (MW13-36) and 98.289 m (MW13-26) during the October monitoring event. Inferred groundwater elevation contours depicting the overburden groundwater flow pattern across the Site based on groundwater elevations recorded on June 17, 2014 are presented on

Figure 3c. The same information for the groundwater elevations recorded on October 9, 2014 is presented in Figure 4c.

The shallow overburden groundwater flow patterns observed in 2014 are indicative of variable groundwater flow based on local permeability of this unit, which could be attributed to variation in thickness or grain size of the sand within a small area. Flow direction in the shallow overburden is generally southeasterly. Flow direction within the shallow sand is much more varied in direction than in the underlying intermediate silty clay and deep clay overburden units, which indicate a consistent easterly groundwater flow. However, it is noted that the intermediate and deep overburden monitoring well networks are substantially reduced relative to the shallow overburden and have been constructed in linear arrays parallel to the Leitrim Road which limits a Site-wide interpretation of intermediate and deep groundwater flow.

All groundwater flow direction data indicate that groundwater flow is likely to result in off-Site migration of the TCE plume.

## 5.0 LABORATORY ANALYSES

The results of the laboratory analyses, along with their respective Federal Guidelines and Provincial Standards, are presented in Table 4 (June) and Table 5 (October). The miniature QA/QC program results from September are presented in Table 6.

### 5.1 June Monitoring Event

One or more of the target contaminants were detected at 9 of the 35 monitoring wells sampled during the June monitoring event. The results of the groundwater sample analyses are summarized as follows:

- TCE was detected at nine of the monitoring wells including MW08-1, MW08-5, MW09-8, MW10-10, MW10-11, MW10-13, MW10-15, MW10-17 and MW13-31 with reported concentrations ranging from 1.1 µg/L at MW08-5 to 20.4 µg/L at MW10-17. TCE concentrations exceeded the Table 2 SCS of 1.6 µg/L at each of these wells except MW08-5. TCE exceeded the FIGQG Tier 1 guideline (20 µg/L) at MW10-17 only. TCE exceeded the GCDWQ MAC (5 µg/L) at three of the monitoring wells (MW09-8, MW10-13 and MW10-17);
- cis-1,2-DCE was detected at eight monitoring wells including MW08-1, MW09-8, MW10-10, MW10-11, MW10-13, MW10-15, MW10-17 and MW13-31 with reported cis-1,2-DCE concentrations ranging from 0.2 µg/L at MW09-9 to 5.6 µg/L at MW10-17. cis-1,2-DCE concentrations were below the Table 2 SCS and FIGQG Tier 1 guideline of 1.6 µg/L at all these wells with the exception of MW10-17. There is no GCDWQ for cis-1,2-DCE.
- Benzene was detected at MW10-17 at a concentration of 1.7 µg/L which is below the relevant Federal Guidelines and Provincial Standards.

### 5.2 October Monitoring Event

One or more of the target contaminants were detected at 12 of the 35 monitoring wells sampled. The results of the groundwater sample analyses are summarized as follows:

- TCE was detected at 11 monitoring wells including MW08-1, MW08-5, MW09-8, MW10-10, MW10-11, MW10-13, MW10-15, MW10-17, MW10-24, MW10-25 and MW13-31 with reported TCE concentrations ranging from 1.8 µg/L at MW08-5 to 21.9 µg/L at MW10-17. TCE concentrations exceeded the Table 2 SCS of 1.6 µg/L at all these wells. TCE exceeded the FIGQG Tier 1 guideline (20 µg/L) at MW10-17 only. TCE exceeded the GCDWQ MAC (5 µg/L) at seven of the monitoring wells (MW08-1, MW09-8, MW10-10, MW10-11, MW10-13, MW10-15 and MW10-17);
- cis-1,2-DCE was detected at nine monitoring wells MW08-1, MW09-8, MW10-10, MW10-11, MW10-13, MW10-15, MW10-17, MW10-25 and MW13-31 with reported cis-1,2-DCE concentrations ranging from 0.3 µg/L at several wells to 5.3 µg/L at MW10-17. cis-1,2-DCE concentrations were below the Table 2 SCS and FIGQG Tier 1 guideline of

1.6 µg/L at all these wells with the exception of MW10-11 and MW10-17. There is no GCDWQ for cis-1,2-DCE;

- trans-1,2-DCE was detected at MW10-11 and MW10-17 with reported concentrations of 0.9 µg/L and 1.4 µg/L respectively. trans-1,2-DCE concentrations were below the Table 2 SCS and FIGQG Tier 1 guideline of 1.6 µg/L at both these wells. There is no GCDWQ for trans-1,2-DCE;
- 1,1-dichloroethane (1,1-DCA) was detected at monitoring wells MW09-8, MW10-10, MW10-11, MW10-13, MW10-15, MW10-16, MW10-17, MW10-24 and MW10-25, all at concentrations below the relevant Provincial Standards;
- 1,2-dichloroethane (1,2-DCA) was detected at monitoring well MW10-17 at a concentration of 0.4 µg/L, which is below the relevant Federal Guidelines and Provincial Standards; and,
- Benzene was detected at MW10-13 and MW10-17 at a concentration below the relevant Federal Guidelines and Provincial Standards.

### 5.3 Quality Assurance/Quality Control Monitoring Event (September)

One or more of the target contaminants were detected at all 3 (MW10-10, MW10-17, and MW13-31) of the monitoring wells sampled by all 3 analytical laboratories (Paracel, Maxxam, and Caduceon). Despite the inherent challenges with collecting duplicate samples for volatile parameters (i.e., filling 1 40 mL VOC vial at a time instead of split sampling as typically done for other parameters), the results of the groundwater sample analyses did not show a significant difference between the laboratories that were compared in this test case.

Due to the comparison of results from 3 laboratories, it was necessary to generate a mean and standard deviation for the concentration of each contaminant of concern detected at each well. The relative standard deviation (RSD) was then calculated for each analyte at each of the 3 wells, to provide a percentage value which can be compared to the RPDs typically used to compare 2 data points. Only TCE was detected at a concentration sufficiently elevated with respect to the MDL (10 times or greater) in all wells by all laboratories to give RSDs which did not include one or more assumed values at the MDL for the purposes of the calculation. None of the RSDs calculated for TCE exceeded the MOECC recommended performance criterion of 30% as stipulated in the *“Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”* (the “MOECC Analytical Protocol”) dated July 2011.

For benzene, 1,1-DCA, 1,2-DCA, cis-1,2-DCE, trans-1,2-DCE, which were not detected above the 10 times MDL threshold at all wells, RSDs in excess of 30% were calculated for MW10-10 (1,2-DCA, cis-1,2-DCE), MW10-17 (benzene, 1,1-DCA), and MW13-31 (cis-1,2-DCE).

## 5.4 Laboratory Quality Assurance/Quality Control Program

### 5.4.1 Accreditation

Laboratory analytical services for the project were provided by Caduceon, Maxxam and Paracel under contract to AmecFW. Caduceon, Maxxam and Paracel are accredited by the Canadian Association for Laboratory Accreditation (CALA) and/or the Standards Council of Canada (SCC) to the International Standards Organization (ISO/IEC 17025 and ISO 9000). As part of this accreditation, each laboratory maintains an internal QA/QC System designed to ensure the precision, accuracy and reliability of data reported by the laboratory services.

### 5.4.2 Criteria

The MOECC Analytical Protocol (July, 2011) establishes performance criteria for use when assessing the reliability of data reported by analytical laboratories. These include maximum hold times for the storage of samples/sample extracts between collection and analysis, specified/approved analytical methods, required field and/or laboratory quality assurance samples such as blanks and field and laboratory duplicates, specified recovery ranges for spiked samples and surrogates (compounds added to samples in known concentrations for calibration purposes), reporting limits (RL) and specified precision required when analyzing laboratory duplicate and spike/controlled reference material samples. Although this document is intended for use under O.Reg. 153/04, it provides reasonable guidance and performance objectives for assessing analytical data that can be applied to other jurisdictions where such guidance and objectives are lacking or absent.

### 5.4.3 Data Validation

The reports of analysis prepared by Caduceon indicate the analytical methodologies used for all parameters. Laboratory results have been reported in pdf and Excel; the pdf version of those results is included in Appendix A of this report.

#### 5.4.3.1 Sample Hold Times

Sample analysis dates provided on the reports of analysis issued by Caduceon indicate that all sample analyses were performed within the required sample/extract hold times.

#### 5.4.3.2 Detection Limits

Laboratory method detection limits (MDL) were generally below the applicable RLs.

#### 5.4.3.3 Laboratory Replicates, Sample Blanks and Spiked Samples

No tested parameter was present in a detectable concentration in any laboratory Method Blank or trip blank. Field blanks and equipment blanks were not part of this analytical program. Agreement between the corresponding datasets for the reference material samples where applicable and recoveries reported for spiked samples/blanks, where applicable, is acceptable.

Agreement between the corresponding datasets for the laboratory duplicate samples is considered acceptable.

In summary, the analytical results reported for samples collected during this investigation are considered to have met the performance criteria of the MOECC Analytical Protocol.

#### *5.4.3.4 Surrogate Recoveries*

Laboratory surrogate recoveries reported as part of the laboratory reports of analysis were found to be within acceptable ranges.

#### *5.4.4 Field QA/QC Samples*

The results of the field duplicate sample analyses indicate that the sampling results are generally reproducible with relative percent differences (RPD) between the primary and duplicate samples reporting within the MOECC recommended acceptance range of 30% for water samples where concentrations of analytes were above the recommended threshold of 10 times the MDL. RPDs could not be calculated for a large number of the samples in this monitoring program as the concentrations of VOC in many wells is below the MDL.

## 6.0 DATA INTERPRETATION AND DISCUSSION

The results of the groundwater sampling and laboratory analytical programs described herein are consistent with previous findings and indicate that the shallow overburden groundwater regime remains variably impacted by TCE and its related degradation or daughter products including isomers of DCE, as well as 1,1-DCA. TCE is present at varying concentrations with exceedances of the applicable Federal Guidelines and/or Provincial Standards, including the Table 2 SCS, having been reported at eight and nine of the 35 wells sampled at the Site in the spring and fall 2014 monitoring events, respectively. Benzene was detected at a single location during the spring monitoring event and at two locations during the fall monitoring event, all at levels below the relevant Federal Guidelines and Provincial Standards.

For the purposes of this report the plume boundary is generally considered to be the extent of TCE concentrations in excess of the Table 2 SCS (1.6 µg/L). The TCE plume has been conservatively drawn to the 1.6 µg/L for TCE (see Figure 5). Non-detect concentration values were conservatively considered to be method detection limit (MDL) concentrations. The highest concentration of TCE in 2014 was observed at MW10-17, which is located approximately 35 metres from the Site boundary.

In general, the magnitude, number and location of exceedances of Table 2 SCS in 2014 were consistent with those observed in previous monitoring programs; however, detectable concentrations of TCE and cis-1,2-DCE at MW13-31 are new. TCE levels at this location were observed to be in excess of the Table 2 SCS in the spring, and this was confirmed during the fall sampling event. This location is within approximately 10 metres of the Site boundary (as defined on the City of Ottawa's online mapping tool, geoOttawa – no Site survey received from the NCC to date) and, when considered in conjunction with the groundwater flow directions obtained in 2014, suggests that off-Site migration of the plume is likely in future.

The Table 2 SCS for TCE is based on the human health effects via the vapour intrusion pathway (into enclosed spaces), and as a result, nearby residents may be at risk from these effects should the plume continues to migrate. Notification requirements for potential off-Site impacts to the MOECC will be triggered when the plume does migrate off-Site.

Of particular note is the fact that the TCE plume was not observed in the shallow sentry wells along Leitrim Road (MW10-22 through MW10-25), but was observed in the intermediate depth well (MW13-31) located between monitors MW10-24 and MW10-25. None of the existing wells from years prior to 2013 were screened exclusively in the intermediate or deep overburden units, so it cannot be determined based on the currently available monitoring well network whether or not the occurrence of TCE in the intermediate overburden is unique to this location or ubiquitous at the Site, or whether the construction of the intermediate monitoring wells may have influenced the potential downward migration of the contaminants.

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the investigations completed at the Site to date, the following conclusions and recommendations are offered:

- In general, the subsurface conditions beneath the Site consist of coarser textured shallow water deposits (uniform fine sand) overlying a deep water blue-grey clay/silt/silty clay unit;
- Groundwater at the Site can be divided into 3 flow zones: The first resides within the shallow overburden sand unit, the second is characterized as intermediate overburden and is located within the top portion of the clay/silty clay unit, and the last is in the deep overburden, solely in the clay layer. It is possible that the intermediate and deep flow regimes comprise a single hydrostratigraphic unit, with successively greater depths to groundwater due to moderate to strong downward vertical gradients as commonly encountered in low permeability geologic deposits.
- The inferred groundwater flow patterns within the shallow overburden are indicative of variable groundwater flow based on local permeability of this unit, which could be attributed to variation in thickness or grain size of the sand within a small area. Flow direction in the shallow overburden is generally southeasterly;
- Flow direction in the underlying intermediate silty clay and deep clay overburden units, indicate a consistent easterly groundwater flow, however, spatial coverage of the monitoring well network within these flow regimes is limited and precludes a Site-wide interpretation of intermediate and deep groundwater flow;
- All groundwater flow direction data infer that groundwater flow is likely to result in eventual off-Site migration of the TCE plume;
- The highest concentration of TCE in 2014 was observed at MW10-17, which is located approximately 35 metres from the Site boundary and is consistent with the interpretation of this plume as being of significant age and distance from a depleted source zone;
- Groundwater samples collected from selected monitoring wells and submitted to multiple analytical laboratories historically utilized to analyze samples collected at the Site to assess interlaboratory variability reported RSDs within acceptable ranges thus inferring no significant variability between laboratories;
- The measurable concentrations of TCE and cis-1,2-DCE in intermediate depth monitor MW13-31 is new at the Site as of 2014. TCE levels at this location were observed to be in excess of the Table 2 SCS during spring and fall monitoring events at the Site. This location is within approximately 10 metres of the Site boundary;
- The Table 2 SCS for TCE is based on the human health effects via the vapour intrusion exposure pathway, and as a result, potentially unacceptable risks to human health may be realized as the plume continues to migrate;
- In accordance with the Ontario Environmental Protection Act (EPA) Notification requirements for off-Site impacts to the neighbouring property owner(s) MOECC will be triggered if and when the plume does migrate off-Site;

- The NCC should consider installation of additional monitoring wells at the Site. This should include up to four monitoring wells within the currently defined limits of the plume to sufficient depths to allow them to be screened within the intermediate silty clay unit to assess the vertical extent of the plume. Up to three monitoring wells should be installed along the southern boundary of the plume (between MW10-24 and MW13-28) to ensure lateral delineation of the plume is complete. All monitoring well construction should include suitable installation material and procedures to minimize potential preferential contaminant migration via the borehole annuli. Due to the low production of other intermediate and deep wells at the Site, the time required for development of these wells is estimated to be significant. The cost of completing such work is estimated to be on the order of [REDACTED];
- If the above additional wells are installed, the NCC should also consider collection of soil samples for testing of parameters which influence the migration and remediation of the plume, including grain size distribution, soil bulk density, natural oxidant demand, fraction organic carbon (FOC) content, microbial characterization, etc.; cost to obtain this data and provide a brief summary thereof is estimated at [REDACTED];
- Analytical data should be collected for any new wells installed, either as part of a scheduled monitoring event or following installation and development of the additional wells; the incremental cost of sampling up to 7 additional intermediate and deep wells using a peristaltic pump, including the associated field time, is [REDACTED];
- Aquifer response testing, such as slug tests, should be undertaken in a subset of wells to ascertain the hydraulic conductivity of the hydrostratigraphic units to determine contaminant retardation factors and the rate of migration of the TCE plume toward the Site boundary. The cost of completing such work is estimated to be on the order of [REDACTED];
- Ongoing monitoring of the Site should be continued for the current monitoring well network on the existing biannual schedule. The cost of completing such work is estimated to be on the order of [REDACTED] per annum depending on the sampling methodology (i.e., peristaltic pump versus submersible bladder pump); and,
- Given the relatively high cost of the existing annual monitoring program, once the additional monitoring wells listed above are installed and soil parameters obtained, it may be appropriate to consider completion of a remedial options analysis to identify suitable remedial options and/or risk management measures to mitigate potential exposure risks at the neighboring residential properties to the south. The cost of completing such work is estimated to be on the order of [REDACTED] assuming that all the relevant data has been collected in previous phases of Site characterization.

## 8.0 REFERENCES

Aqua Terre Solutions Inc.<sup>1</sup>, 2008. Former MNR Lease Lands – Leitrim Road Ottawa, Ontario NCC Property Asset No. 97390 Limited Phase II Environmental Site Assessment. File No: 08-221

Aqua Terre Solutions Inc.<sup>1</sup>, 2009. Former MNR Lease Lands – Leitrim Road Ottawa, Ontario NCC Property Asset No. 97390 Groundwater Delineation Activities. File No: 09-525

Belanger, J.R., and J.E. Harrison, 1977. Paper 77-11, Figure 4. Drift Thickness Trend, Ottawa-Hull, Ontario and Quebec. Geological Survey of Canada, 1:50,000.

Intera Engineering Ltd, 2004. Phase I ESA – Pine Grove: Ramsayville Rd. and Leitrim Rd., Ottawa, Ontario. Ref.: 04-215-1.

Intera Engineering Ltd., 2006. Limited Phase II Environmental Site Assessment Pine Grove, Ottawa, Ontario – NCC Property Asset #97930. Ref.: 05-215-16.

SNC Lavalin Environment, 2011. National Capital Commission NCC Property Asset No. 97390, Leitrim Road, Ottawa, Ontario Supplemental Groundwater Delineation Activities. Ref.: 10-730

SNC Lavalin Environment, 2012. National Capital Commission NCC Property Asset No. 97390, Leitrim Road, Ottawa, Ontario Groundwater Monitoring Program. Ref.: 11-910

Stantec Consulting Ltd., 2013. Supplemental Soil and Groundwater Sampling NCC Property Asset 97390, Parking Lot 19 Leitrim Road between Hawthorne Road and Ramsayville Road, Ottawa, Ontario. Project No. 122510780.200

Yeager, F.S. and L.A. Daley, 1974. Surficial Materials and Terrain Features Ottawa-Hull, Ontario-Quebec. Geological Survey of Canada, Map 1425A, 1:125,000.

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<sup>1</sup> Note: Aqua Terre renamed to SNC Lavalin Environment in 2010.

## 9.0 LIMITATIONS

This report was prepared for the exclusive use of the NCC and is intended to provide an assessment of the environmental conditions of the property known as asset 97390 located at P19, north of Leitrim Road in Ottawa, Ontario at the time of the Site monitoring events. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of the third party. Should additional parties require reliance on this report, written authorization from AmecFW will be required. With respect to third parties, AmecFW has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The investigation undertaken by AmecFW with respect to this report and any conclusions or recommendations made in this report reflect AmecFW's 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 available 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. AmecFW has used its professional judgment in analysing this information and formulating these conclusions.

AmecFW makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

This Report is also subject to the further Standard Limitations contained in Appendix B.

## 10.0 CLOSURE

We trust that the information presented in this report is satisfactory. If you have any questions, please do not hesitate to contact the undersigned.

Yours truly,

**Amec Foster Wheeler**  
**Environment & Infrastructure**



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Environmental Engineer



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Senior Associate Hydrogeologist





**Table 2. Groundwater Measurement and Elevation Data**

Monitoring Well I.D.	Ground Surface Elevation (masl)	Top of Casing Elevation (masl)	June 17, 2014				October 9, 2014			
			Depth to Water (m)	Depth to DNAPL (m)	DNAPL Thickness (cm)	Static Elevation (masl)	Depth to Water (m)	Depth to DNAPL (m)	DNAPL Thickness (cm)	Static Elevation (masl)
MW08-1	99.780	100.640	1.834	ND	-	98.806	2.446	ND	-	98.194
MW08-2	99.660	100.700	1.899	ND	-	98.801	2.525	ND	-	98.175
MW08-3	99.510	100.380	1.621	ND	-	98.759	2.250	ND	-	98.130
MW08-4	99.630	100.470	1.684	ND	-	98.786	2.249	ND	-	98.221
MW08-5	99.630	100.900	2.025	ND	-	98.875	2.647	ND	-	98.253
MW09-8	99.260	100.340	1.932	ND	-	98.408	2.501	ND	-	97.839
MW09-9	99.470	100.340	1.607	ND	-	98.733	2.220	ND	-	98.120
MW10-10	99.290	100.450	1.990	ND	-	98.460	2.490	ND	-	97.960
MW10-11	99.220	100.320	1.754	ND	-	98.566	2.300	ND	-	98.020
MW10-12	99.070	100.200	1.577	ND	-	98.623	2.148	ND	-	98.052
MW10-13	99.690	100.790	2.365	ND	-	98.425	2.838	ND	-	97.952
MW10-14	99.860	100.930	2.336	ND	-	98.594	2.914	ND	-	98.016
MW10-15	99.830	100.860	2.339	ND	-	98.521	2.859	ND	-	98.001
MW10-16	99.400	100.600	2.284	ND	-	98.316	2.695	ND	-	97.905
MW10-17	99.870	100.940	2.720	ND	-	98.220	3.080	ND	-	97.860
MW10-18	99.560	100.670	2.514	ND	-	98.156	2.842	ND	-	97.828
MW10-19	99.670	100.740	2.459	ND	-	98.281	2.823	ND	-	97.917
MW10-20	99.750	100.880	2.851	ND	-	98.029	2.988	ND	-	97.892
MW10-21	98.660	99.830	2.068	ND	-	97.762	2.279	ND	-	97.551
MW10-22	98.020	99.170	1.565	ND	-	97.605	1.749	ND	-	97.421
MW10-23	98.380	99.560	1.882	ND	-	97.678	2.078	ND	-	97.482
MW10-24	99.950	101.220	3.168	ND	-	98.052	3.382	ND	-	97.838
MW10-25	99.500	100.640	2.676	ND	-	97.964	2.983	ND	-	97.657
MW13-26	99.090	99.930	1.328	ND	-	98.602	1.641	ND	-	98.289
MW13-27	99.150	99.960*	1.284	ND	-	98.676	1.643	ND	-	98.317
MW13-28	99.030	99.890	1.465	ND	-	98.425	2.014	ND	-	97.876
MW13-29	99.080	99.960	1.450	ND	-	98.510	1.778	ND	-	98.182
MW13-30	99.690	100.520	2.931	ND	-	97.589	3.122	ND	-	97.398
MW13-31	99.740	100.490	2.608	ND	-	97.882	2.768	ND	-	97.722
MW13-32	99.030	99.930	2.594	ND	-	97.336	2.689	ND	-	97.241
MW13-33	99.130	100.040	2.326	ND	-	97.714	3.464	ND	-	96.576
MW13-34	98.370	99.220	1.844	ND	-	97.376	2.029	ND	-	97.191
MW13-35	98.360	99.260	1.620	ND	-	97.640	1.964	ND	-	97.296
MW13-36	98.100	98.910	1.650	ND	-	97.260	1.813	ND	-	97.097
MW13-37	98.160	98.990	1.407	ND	-	97.583	1.647	ND	-	97.343

Notes:

ND - Not Detected.

DNAPL - Dense Non-Aqueous Phase Liquid.

masl = Metres above sea level.

Elevations referenced by others to a temporary benchmark (100.000 masl) established on southwest corner of concrete slab at east side of entrance gate.

\* Denotes top of casing elevation revised based on verification survey by Amec Foster Wheeler 10/10/14.



**Table 3. Groundwater Field Parameter Data and Observations**

Monitoring Well I.D.	Sampling Date (mm/dd/yy)	Water Level Data			Field Parameters					Laboratory Analyses	Total Organic Vapour (ppm)	General Observations
		Initial Depth to Water (m)	Final Depth to Water (m)	Total Drawdown (m)	pH (pH units)	Conductivity (mS/cm)	Dissolved Oxygen (DO) (mg/L)	Temperature (°C)	Oxidation Reduction Potential (ORP) (mV)			
MW10-22	10/10/14	1.749	Dry	-	-	-	-	-	-	VOC	1	Clear, little sediment, purged dry at 2L
MW10-23	06/18/14	1.798	1.820	0.022	6.75	0.198	0.68	12.52	-113.0	VOC	0.2	Clear
MW10-23	10/09/14	2.078	2.126	0.048	6.82	0.392	0.49	11.88	-65.0	VOC	0	Clear to slightly grey, little sediment
MW10-24	06/18/14	3.147	3.152	0.005	7.94	1.052	1.38	10.81	-60.1	VOC	0.4	Clear
MW10-24	10/09/14	3.382	3.379	0.003	7.45	1.485	2.05	9.73	-173.8	VOC	0	Clear
MW10-25	06/18/14	2.678	2.705	0.027	6.47	0.162	2.94	10.98	6.0	VOC	0	Clear, loose cap
MW10-25	10/09/14	2.983	2.980	0.003	7.62	0.549	2.00	9.77	-160.7	VOC	0	Cloudy brown
MW13-26	06/17/14	2.210	Dry	-	-	-	-	-	-	VOC, Dup-4	0.2	Grey, purged dry at 8L
MW13-26	10/10/14	1.641	Dry	-	-	-	-	-	-	VOC	0	Clear, purged dry at 5L
MW13-27	06/17/14	1.315	Dry	-	-	-	-	-	-	VOC	0	Loose cap; purged dry at 3L
MW13-27	10/10/14	1.643	Dry	-	-	-	-	-	-	VOC	0	Cloudy grey, purged dry at 2L
MW13-28	06/18/14	1.950	Dry	-	-	-	-	-	-	VOC	0	Slightly grey, purged dry at 7L
MW13-28	10/10/14	2.014	Dry	-	-	-	-	-	-	VOC	0	Cloudy grey, purged dry at 10L
MW13-29	06/17/14	1.450	Dry	-	-	-	-	-	-	VOC	0	Light brown, purged dry at 2L
MW13-29	10/10/14	1.778	Dry	-	-	-	-	-	-	VOC	0	Clear, purged dry at 2L
MW13-30	06/18/14	2.962	Dry	-	-	-	-	-	-	VOC	0	Slightly grey, purged dry at 4L
MW13-30	10/10/14	3.112	Dry	-	-	-	-	-	-	VOC	0	Cloudy, purged dry at 5L
MW13-31	06/18/14	2.708	Dry	-	-	-	-	-	-	VOC	0.1	Slightly grey, purged dry at 4L
MW13-31	10/10/14	2.768	Dry	-	-	-	-	-	-	VOC	0	Clear, purged dry at 4L
MW13-32	06/18/14	2.604	Dry	-	-	-	-	-	-	VOC	0	Grey, loose cap; purged dry at 10L
MW13-32	10/10/14	2.689	Dry	-	-	-	-	-	-	VOC	0	Cloudy grey, purged dry at 4L
MW13-33	06/18/14	2.345	Dry	-	-	-	-	-	-	VOC	0.1	Grey, purged dry at 4L
MW13-33	10/10/14	2.464	Dry	-	-	-	-	-	-	VOC	0	Cloudy grey, purged dry at 3L
MW13-34	06/18/14	1.879	Dry	-	-	-	-	-	-	VOC	0	Grey, purged dry at 9L
MW13-34	10/10/14	2.029	Dry	-	-	-	-	-	-	VOC	0	Cloudy grey, purged dry at 8L
MW13-35	06/18/14	1.622	Dry	-	-	-	-	-	-	VOC	0	Clear, purged dry at 5L
MW13-35	10/10/14	1.964	Dry	-	-	-	-	-	-	VOC	0	Cloudy grey, purged dry at 2L
MW13-36	06/18/14	1.600	Dry	-	-	-	-	-	-	VOC	3.7	Grey, Purged dry at 7L
MW13-36	10/10/14	1.813	Dry	-	-	-	-	-	-	VOC, Dup-3	0	Clear, little sediment, purged dry at 8L
MW13-37	06/18/14	1.418	Dry	-	-	-	-	-	-	VOC	0.4	Grey, purged dry at 6L
MW13-37	10/10/14	1.647	Dry	-	-	-	-	-	-	VOC	0	Clear, little sediment, purged dry at 6L

**Notes:**

Water Level Data as Recorded During Low-Flow Sampling.

Field Parameters Measured using a YSI 556 Multi-Parameter Water Quality Monitoring Instrument.

Groundwater Sampling Performed Using a Geotech Submersible Bladder Pump.

Total Organic Vapours measures using a RAE Systems MiniRAE 3000 Photoionization Detector.

Dup - QA/QC Blind Duplicate Sample.

VOC = Volatile Organic Compound.























# LEGEND



SOURCE: WWW.OPENSTREETMAP.ORG

**amec foster wheeler**



ENVIRONMENT & INFRASTRUCTURE  
300-210 COLONNADE ROAD  
OTTAWA, ONTARIO CANADA

TITLE:

**KEY PLAN**

**2014 GROUNDWATER MONITORING  
PROGRAM  
PROPERTY ASSET 97390  
LEITRIM ROAD - P19  
OTTAWA, ONTARIO**

CLIENT

**NATIONAL CAPITAL COMMISSION**

DRAWN BY:

SMP

CHECKED BY:

KDH

DATE:

JANUARY 2015

PROJECT NO:

TZ14024

SCALE:

1 : 100,000

FIGURE NO:

**1**



P:\2014\PROJECTS\TZ14024\_NCC\_LEITRIM\_ROAD\_GW\_MONITOR\11\_CAD\TZ14024 DRAWINGS.DWG



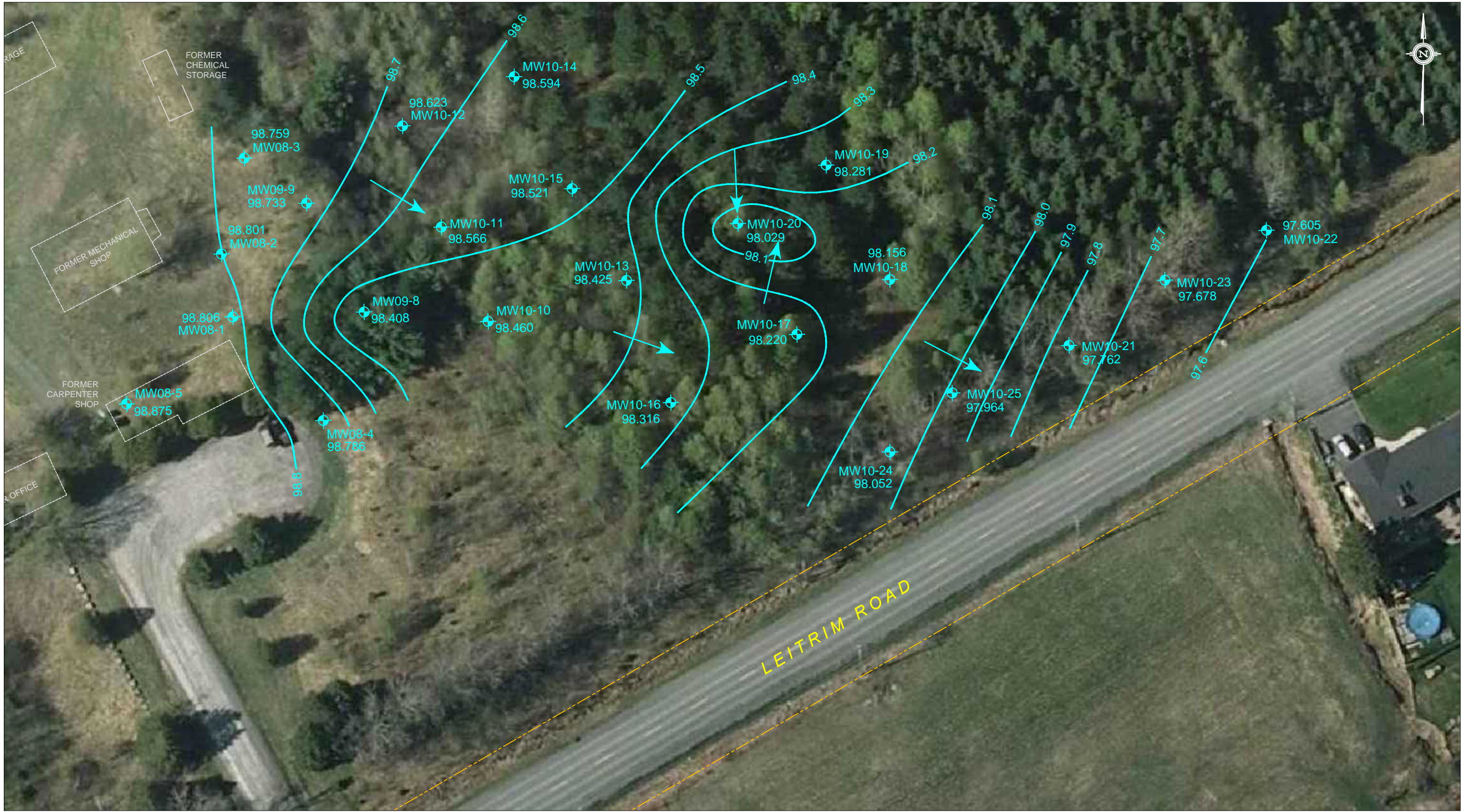
LEGEND

- PROPERTY LINE
- FORMER BUILDING
- MONITORING WELL (SHALLOW SAND)
- MONITORING WELL (INTERMEDIATE CLAY)
- MONITORING WELL (DEEP CLAY)

METRES

TITLE:  SITE PLAN	PROJECT: 2014 GROUNDWATER MONITORING PROGRAM PROPERTY ASSET 97390 LEITRIM ROAD - P19 OTTAWA, ONTARIO	CLIENT:  NATIONAL CAPITAL COMMISSION	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE 300-210 COLONNADE ROAD OTTAWA, ONTARIO CANADA
DESIGN BY: SMP	DATE: JANUARY 2015	PROJECT NO: TZ14024	FIGURE NO:  2
DRAWN BY: SMP	CHECKED BY: KDH	SCALE: 1 : 600	

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LEGEND

— PROPERTY LINE

— FORMER BUILDING

⊕ MONITORING WELL (SHALLOW SAND)

⊕ MONITORING WELL (INTERMEDIATE CLAY)

⊕ MONITORING WELL (DEEP CLAY)

— GROUNDWATER ELEVATION CONTOUR

→ INFERRED GROUNDWATER FLOW DIRECTION

TITLE: GROUNDWATER ELEVATION CONTOUR PLAN SHALLOW OVERBURDEN JUNE 17, 2014		PROJECT: 2014 GROUNDWATER MONITORING PROGRAM PROPERTY ASSET 97390 LEITRIM ROAD - P19 OTTAWA, ONTARIO		CLIENT:  NATIONAL CAPITAL COMMISSION	<div>amec foster wheeler</div> <div>ENVIRONMENT &amp; INFRASTRUCTURE 300-210 COLONNADE ROAD OTTAWA, ONTARIO CANADA</div>
DESIGN BY:	SMP	DATE:	JANUARY 2015	PROJECT NO:	
DRAWN BY:	SMP	CHECKED BY:	KDH	SCALE:	
				TZ14024	FIGURE NO:  3a
				1 : 600	

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LEGEND

— PROPERTY LINE

— FORMER BUILDING

⊕ MONITORING WELL (SHALLOW SAND)

⊕ MONITORING WELL (INTERMEDIATE CLAY)


⊕ MONITORING WELL (DEEP CLAY)

— GROUNDWATER ELEVATION CONTOUR

→ INFERRED GROUNDWATER FLOW DIRECTION

7.5 0 7.5 15 22.5

METRES

TITLE:  GROUNDWATER ELEVATION CONTOUR PLAN INTERMEDIATE OVERBURDEN JUNE 17, 2014		PROJECT:  2014 GROUNDWATER MONITORING PROGRAM PROPERTY ASSET 97390 LEITRIM ROAD - P19 OTTAWA, ONTARIO		CLIENT:  NATIONAL CAPITAL COMMISSION		<div>amec foster wheeler</div> <div>ENVIRONMENT &amp; INFRASTRUCTURE 300-210 COLONNADE ROAD OTTAWA, ONTARIO CANADA</div>	
DESIGN BY:  SMP		DATE:  JANUARY 2015		PROJECT NO:  TZ14024		FIGURE NO:  <b>3b</b>	
DRAWN BY:  SMP		CHECKED BY:  KDH		SCALE:  1 : 600			

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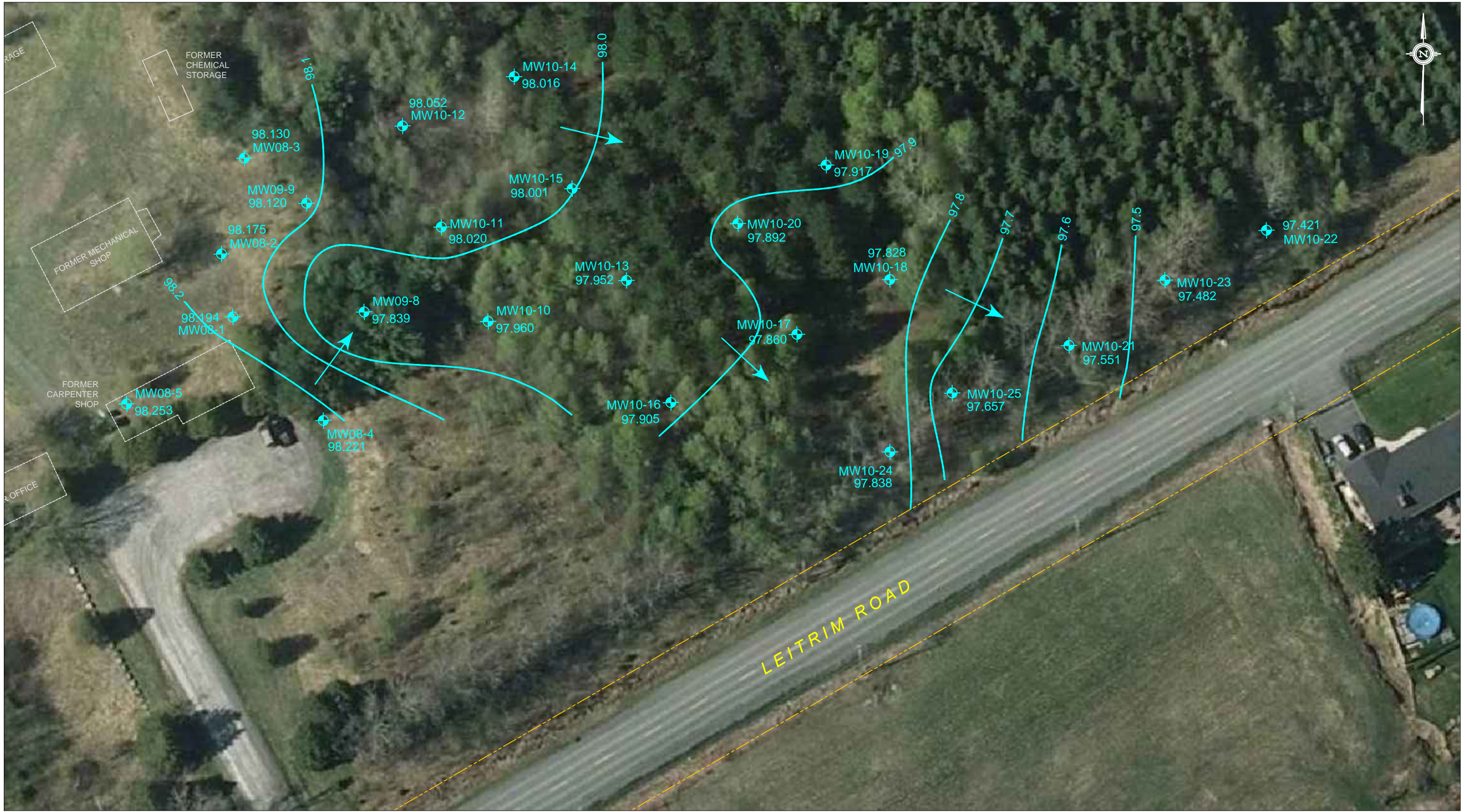
LEGEND

- PROPERTY LINE
- FORMER BUILDING
- MONITORING WELL (SHALLOW SAND)
- MONITORING WELL (INTERMEDIATE CLAY)
- MONITORING WELL (DEEP CLAY)
- GROUNDWATER ELEVATION CONTOUR
- INFERRED GROUNDWATER FLOW DIRECTION



TITLE: GROUNDWATER ELEVATION CONTOUR PLAN DEEP OVERBURDEN JUNE 17, 2014		PROJECT: 2014 GROUNDWATER MONITORING PROGRAM PROPERTY ASSET 97390 LEITRIM ROAD - P19 OTTAWA, ONTARIO		CLIENT:  NATIONAL CAPITAL COMMISSION	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE 300-210 COLONNADE ROAD OTTAWA, ONTARIO CANADA
DESIGN BY:	SMP	DATE:	JANUARY 2015	PROJECT NO:	
DRAWN BY:	SMP	CHECKED BY:	KDH	SCALE:	
				FIGURE NO:	3c

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LEGEND

PROPERTY LINE

FORMER BUILDING

MONITORING WELL (SHALLOW SAND)

MONITORING WELL (INTERMEDIATE CLAY)


MONITORING WELL (DEEP CLAY)

GROUNDWATER ELEVATION CONTOUR

INFERRED GROUNDWATER FLOW DIRECTION

7.5 0 7.5 15 22.5

METRES

TITLE:  GROUNDWATER ELEVATION CONTOUR PLAN SHALLOW OVERBURDEN OCTOBER 9, 2014		PROJECT:  2014 GROUNDWATER MONITORING PROGRAM PROPERTY ASSET 97390 LEITRIM ROAD - P19 OTTAWA, ONTARIO		CLIENT:  NATIONAL CAPITAL COMMISSION		<div>amec foster wheeler</div> <div>ENVIRONMENT &amp; INFRASTRUCTURE 300-210 COLONNADE ROAD OTTAWA, ONTARIO CANADA</div> <div></div>	
DESIGN BY: SMP		DATE: JANUARY 2015		PROJECT NO: TZ14024		FIGURE NO:  4a	
DRAWN BY: SMP		CHECKED BY: KDH		SCALE: 1 : 600			

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LEGEND

— PROPERTY LINE

— FORMER BUILDING

⊕ MONITORING WELL (SHALLOW SAND)


⊕ MONITORING WELL (INTERMEDIATE CLAY)

⊕ MONITORING WELL (DEEP CLAY)

— GROUNDWATER ELEVATION CONTOUR

→ INFERRED GROUNDWATER FLOW DIRECTION

METRES

TITLE:  GROUNDWATER ELEVATION CONTOUR PLAN INTERMEDIATE OVERBURDEN OCTOBER 9, 2014		PROJECT:  2014 GROUNDWATER MONITORING PROGRAM PROPERTY ASSET 97390 LEITRIM ROAD - P19 OTTAWA, ONTARIO		CLIENT:  NATIONAL CAPITAL COMMISSION		<div>amec foster wheeler</div> <div>ENVIRONMENT &amp; INFRASTRUCTURE 300-210 COLONNADE ROAD OTTAWA, ONTARIO CANADA</div> <div></div>	
DESIGN BY: SMP		DATE: JANUARY 2015		PROJECT NO: TZ14024		FIGURE NO:  4b	
DRAWN BY: SMP		CHECKED BY: KDH		SCALE: 1 : 600			

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**LEGEND**

— PROPERTY LINE

— FORMER BUILDING

⊕ MONITORING WELL (SHALLOW SAND)

⊕ MONITORING WELL (INTERMEDIATE CLAY)

⊕ MONITORING WELL (DEEP CLAY)

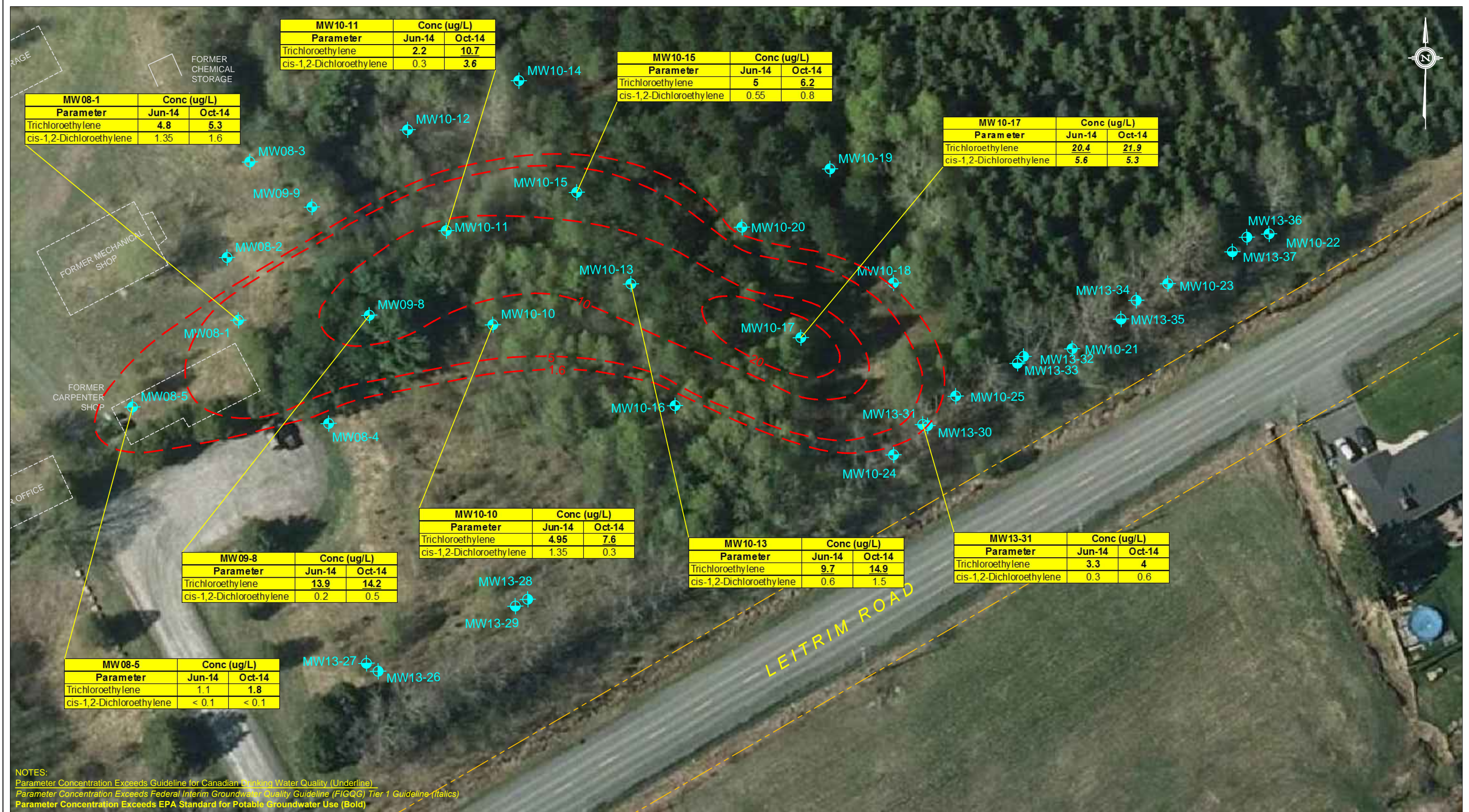
— GROUNDWATER ELEVATION CONTOUR

→ INFERRED GROUNDWATER FLOW DIRECTION

METRES

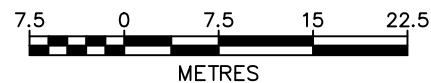
TITLE: GROUNDWATER ELEVATION CONTOUR PLAN DEEP OVERBURDEN OCTOBER 9, 2014	PROJECT: 2014 GROUNDWATER MONITORING PROGRAM PROPERTY ASSET 97390 LEITRIM ROAD - P19 OTTAWA, ONTARIO	CLIENT:  NATIONAL CAPITAL COMMISSION	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE 300-210 COLONNADE ROAD OTTAWA, ONTARIO CANADA
	DESIGN BY: SMP DRAWN BY: SMP	DATE: JANUARY 2015 CHECKED BY: KDH	
		PROJECT NO: TZ14024 SCALE: 1 : 600	FIGURE NO: <b>4c</b>

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LEGEND

- PROPERTY LINE
- MONITORING WELL (SHALLOW SAND)
- MONITORING WELL (INTERMEDIATE CLAY)
- MONITORING WELL (DEEP CLAY)
- TRICHLOROETHYLENE ISOCONCENTRATION CONTOUR (BASED ON OCTOBER 2014 DATA)



TITLE: GROUNDWATER EXCEEDANCES AND TCE ISOCONCENTRATION CONTOUR PLAN	PROJECT: 2014 GROUNDWATER MONITORING PROGRAM PROPERTY ASSET 97390 LEITRIM ROAD - P19 OTTAWA, ONTARIO	CLIENT: NATIONAL CAPITAL COMMISSION	amec foster wheeler ENVIRONMENT & INFRASTRUCTURE 300-210 COLONNADE ROAD OTTAWA, ONTARIO CANADA
DESIGN BY: SMP	DATE: JANUARY 2015	PROJECT NO: TZ14024	
DRAWN BY: SMP	CHECKED BY: KDH	SCALE: 1 : 600	
FIGURE NO: <b>5</b>			

**APPENDIX A**  
**LABORATORY CERTIFICATES OF ANALYSIS**



**C.O.C.: G36294/ 36295/ 36296**

**REPORT No. B14-14570**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

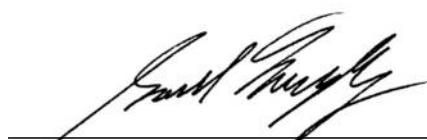
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW08-1	MW08-2	MW08-3	MW08-4
			Sample I.D.	B14-14570-1	B14-14570-2	B14-14570-3	B14-14570-4
			Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	1.4	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

**C.O.C.: G36294/ 36295/ 36296**

**REPORT No. B14-14570**

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Tel: 613-526-0123

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DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

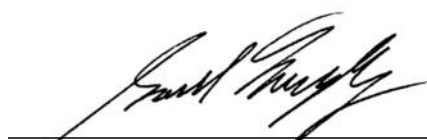
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

					Client I.D.	MW08-1	MW08-2	MW08-3	MW08-4
					Sample I.D.	B14-14570-1	B14-14570-2	B14-14570-3	B14-14570-4
					Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed					
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	4.8	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	98.6	99.9	102	100	100
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	96.8	95.3	98.9	95.7	95.7
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	100	102	102	102	102



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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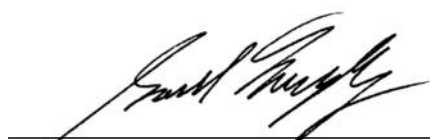
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW08-5	MW09-8	MW09-9	MW10-10
			Sample I.D.	B14-14570-5	B14-14570-6	B14-14570-7	B14-14570-8
			Date Collected	17-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	0.2	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill

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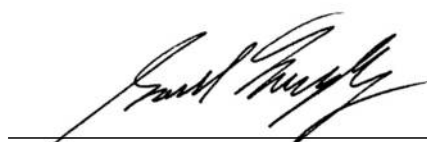
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW08-5	MW09-8	MW09-9	MW10-10
			Sample I.D.	B14-14570-5	B14-14570-6	B14-14570-7	B14-14570-8
			Date Collected	17-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	1.1	13.9	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	102	99.5	101
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	97.7	99.3	99.6
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	102	101	104



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**C.O.C.: G36294/ 36295/ 36296**

**REPORT No. B14-14570**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

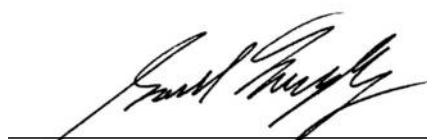
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-11	MW10-12	MW10-13	MW10-14
			Sample I.D.	B14-14570-9	B14-14570-10	B14-14570-11	B14-14570-12
			Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	0.3	< 0.1	0.6
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill

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Nepean Ontario K2E 7L5 Canada

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Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

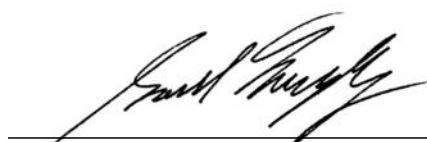
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-11	MW10-12	MW10-13	MW10-14
			Sample I.D.	B14-14570-9	B14-14570-10	B14-14570-11	B14-14570-12
			Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	2.2	< 0.1	9.7
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	91.4	101	101
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	107	100	98.7
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	84.2	104	101



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**Attention:** Susan Pfister

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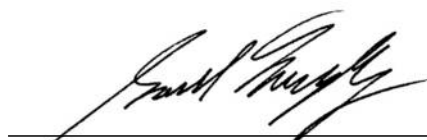
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-15	MW10-16	MW10-17	MW10-18
			Sample I.D.	B14-14570-13	B14-14570-14	B14-14570-15	B14-14570-16
			Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	0.6	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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Ottawa Ontario K1V 7P1  
Tel: 613-526-0123  
Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

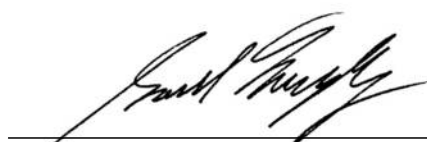
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.		MW10-15	MW10-16	MW10-17	MW10-18
			Sample I.D.		B14-14570-13	B14-14570-14	B14-14570-15	B14-14570-16
			Date Collected		18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	5.0	< 0.1	20.4	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	103	101	104	104
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	103	102	103	102
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	104	104	103	103



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-19	MW10-20	MW10-21	MW10-22
			Sample I.D.	B14-14570-17	B14-14570-18	B14-14570-19	B14-14570-20
			Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**C.O.C.: G36294/ 36295/ 36296**

**REPORT No. B14-14570**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leirim

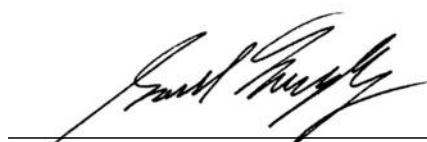
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-19	MW10-20	MW10-21	MW10-22
			Sample I.D.	B14-14570-17	B14-14570-18	B14-14570-19	B14-14570-20
			Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	103	103	102
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	101	104	102
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	102	103	103



Gord Murphy  
Lab Supervisor

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**C.O.C.: G36294/ 36295/ 36296**

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Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-23	MW10-24	MW10-25	Dup-1
			Sample I.D.	B14-14570-21	B14-14570-22	B14-14570-23	B14-14570-24
			Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**C.O.C.: G36294/ 36295/ 36296**

**REPORT No. B14-14570**

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**Attention:** Susan Pfister

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Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

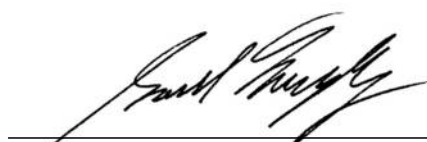
DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-23	MW10-24	MW10-25	Dup-1
			Sample I.D.	B14-14570-21	B14-14570-22	B14-14570-23	B14-14570-24
			Date Collected	18-Jun-14	18-Jun-14	18-Jun-14	18-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	100	102	100
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	99.4	97.9	99.5
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	104	101	102



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**C.O.C.: G36294/ 36295/ 36296**

**REPORT No. B14-14570**

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300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1  
Tel: 613-526-0123  
Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim


DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	Dup-2	Dup-3	Trip Blank	
			Sample I.D.	B14-14570-25	B14-14570-26	B14-14570-27	
			Date Collected	18-Jun-14	18-Jun-14	16-Jun-14	
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	0.5	2.6	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5



Gord Murphy  
Lab Supervisor

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 23-Jun-14

P.O. NUMBER: TZ14024-001

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	Dup-2	Dup-3	Trip Blank	
			Sample I.D.	B14-14570-25	B14-14570-26	B14-14570-27	
			Date Collected	18-Jun-14	18-Jun-14	16-Jun-14	
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	5.0	4.9	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	99.3	99.5	97.3
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	96.8	96.5	94.2
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	99.6	98.9	102



Gord Murphy  
Lab Supervisor

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Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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 Nepean, Ontario K2E 7L5

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
 Ottawa Ontario K1V 7P1  
 Tel: 613-526-0123  
 Fax: 613-526-1244

DATE SUBMITTED: 19-Jun-14  
 DATE REPORTED: 23-Jun-14  
 SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: NCC Leirim  
 P.O. NUMBER: TZ14024  
 WATERWORKS NO.:

Analyses	Qty.	Site Analyzed	Analyst Initials	Date Extracted	Date Analyzed	Date Approved	Lab Method	Method Reference
VOC's	27	Ottawa	ST	20-Jun-14	20-Jun-14	23-Jun-14	C-VOC-02 (o)	EPA 8260

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
 Laboratory Manager - Ottawa District

PARAMETERS	M.D.L.	QC DATA								
		LCS Sample (% Rec.)		Duplicate				Lab Blank	Matrix Spike (% Recovery)	
		Found	Limits	Result 1	Result 2	R.P.D.	Limits (%)		Found	Limits
Acetone	2	100	60-130	< MDL	< MDL	NC	30	< MDL	120	50-140
Benzene	0.5	116	60-130	< MDL	< MDL	NC	30	< MDL	113	50-140
Bromodichloromethane	0.1	110	60-130	< MDL	< MDL	NC	30	< MDL	108	50-140
Bromoform	0.1	112	60-130	< MDL	< MDL	NC	30	< MDL	111	50-140
Bromomethane	0.3	88	50-140	< MDL	< MDL	NC	30	< MDL	69	50-140
Carbon Tetrachloride	0.2	112	60-130	< MDL	< MDL	NC	30	< MDL	111	50-140
Chloroform	0.3	110	60-130	< MDL	< MDL	NC	30	< MDL	110	50-140
Dibromochloromethane	0.1	110	60-130	< MDL	< MDL	NC	30	< MDL	109	50-140
Dibromoethane, 1,2- (Ethylene Dibromide)	0.1	120	50-140	< MDL	< MDL	NC	30	< MDL	118	50-140
Dichlorobenzene, 1,2-	0.1	124	60-130	< MDL	< MDL	NC	30	< MDL	118	50-140
Dichlorobenzene, 1,3-	0.1	122	60-130	< MDL	< MDL	NC	30	< MDL	134	50-140
Dichlorobenzene, 1,4-	0.2	110	60-130	< MDL	< MDL	NC	30	< MDL	105	50-140
Dichlorodifluoromethane	1	80	50-140	< MDL	< MDL	NC	30	< MDL	80	50-140
Dichloroethane, 1,1-	0.1	116	60-130	< MDL	< MDL	NC	30	< MDL	115	50-140
Dichloroethane, 1,2-	0.1	114	60-130	< MDL	< MDL	NC	30	< MDL	118	50-140
Dichloroethene, cis-1,2-	0.1	108	60-130	< MDL	< MDL	NC	30	< MDL	113	50-140
Dichloroethene, trans-1,2-	0.1	108	60-130	< MDL	< MDL	NC	30	< MDL	108	50-140
Dichloroethylene, 1,1-	0.1	100	60-130	< MDL	< MDL	NC	30	< MDL	97	50-140
Dichloromethane (Methylene Chloride)	0.3	104	60-130	< MDL	< MDL	NC	30	< MDL	106	50-140
Dichloropropane, 1,2-	0.1	126	60-130	< MDL	< MDL	NC	30	< MDL	130	50-140
Dichloropropene, cis-1,3-	0.1	112	60-130	< MDL	< MDL	NC	30	< MDL	115	50-140
Dichloropropene, trans-1,3-	0.1	110	60-130	< MDL	< MDL	NC	30	< MDL	112	50-140
Ethylbenzene	0.5	116	60-130	0.5	0.5	NC	30	< MDL	109	50-140

All values expressed as µg/L unless stated otherwise

LCS = Laboratory Control Standard

R.P.D. = Relative Percent Difference of Duplicate Pairs at > 10 x's M.D.L.

M.D.L. = Method Detection Limit

NC = Not Calculated

- = Not Requested/Analyzed

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
Laboratory Manager - Ottawa District

PARAMETERS	M.D.L.	QC DATA								
		LCS Sample (% Rec.)		Duplicate				Lab Blank	Matrix Spike (% Recovery)	
		Found	Limits	Result 1	Result 2	R.P.D.	Limits (%)		Found	Limits
Hexane	1	80	60-130	< MDL	< MDL	NC	30	< MDL	100	50-140
Methyl Ethyl Ketone	2	120	60-130	< MDL	< MDL	NC	30	< MDL	110	50-140
Methyl Isobutyl Ketone	1	120	60-130	< MDL	< MDL	NC	30	< MDL	120	50-140
Methyl-t-butyl Ether	1	120	60-130	< MDL	< MDL	NC	30	< MDL	110	50-140
Monochlorobenzene (Chlorobenzene)	0.2	126	60-130	< MDL	< MDL	NC	30	< MDL	119	50-140
Styrene	0.5	114	60-130	< MDL	< MDL	NC	30	< MDL	101	50-140
Tetrachloroethane, 1,1,1,2-	0.1	128	60-130	< MDL	< MDL	NC	30	< MDL	140	50-140
Tetrachloroethane, 1,1,2,2-	0.4	116	60-130	< MDL	< MDL	NC	30	< MDL	112	50-140
Tetrachloroethylene	0.2	112	60-130	< MDL	< MDL	NC	30	< MDL	107	50-140
Toluene	0.5	118	60-130	< MDL	< MDL	NC	30	< MDL	120	50-140
Trichloroethane, 1,1,1-	0.1	112	60-130	< MDL	< MDL	NC	30	< MDL	110	50-140
Trichloroethane, 1,1,2-	0.1	118	60-130	< MDL	< MDL	NC	30	< MDL	117	50-140
Trichloroethylene	0.1	112	60-130	< MDL	< MDL	NC	30	< MDL	105	50-140
Trichlorofluoromethane	0.1	98	60-130	< MDL	< MDL	NC	30	< MDL	92	50-140
Vinyl Chloride	0.2	100	50-140	< MDL	< MDL	NC	30	< MDL	94	50-140
Xylene, m,p-	0.4	118	60-130	< MDL	< MDL	NC	30	< MDL	116	50-140
Xylene, o-	0.1	122	60-130	< MDL	< MDL	NC	30	< MDL	122	50-140

All values expressed as µg/L unless stated otherwise

LCS = Laboratory Control Standard

R.P.D. = Relative Percent Difference of Duplicate Pairs at > 10 x's M.D.L.

M.D.L. = Method Detection Limit

NC = Not Calculated

- = Not Requested/Analyzed

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
Laboratory Manager - Ottawa District







**C.O.C.: G36297/36298**

**REPORT No. B14-14648**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leirim

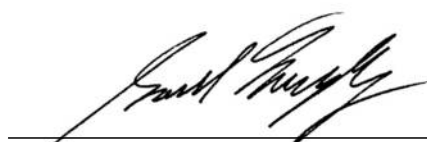
DATE REPORTED: 23-Jun-14

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-26	MW13-27	MW13-28	MW13-29
			Sample I.D.	B14-14648-1	B14-14648-2	B14-14648-3	B14-14648-4
			Date Collected	19-Jun-14	19-Jun-14	19-Jun-14	19-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill

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**C.O.C.: G36297/36298**

**REPORT No. B14-14648**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1  
Tel: 613-526-0123  
Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leirim

DATE REPORTED: 23-Jun-14

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-26	MW13-27	MW13-28	MW13-29
			Sample I.D.	B14-14648-1	B14-14648-2	B14-14648-3	B14-14648-4
			Date Collected	19-Jun-14	19-Jun-14	19-Jun-14	19-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	102	100	99.2
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	98.6	99.1	97.6
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	99.2	103	102



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**C.O.C.: G36297/36298**

**REPORT No. B14-14648**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

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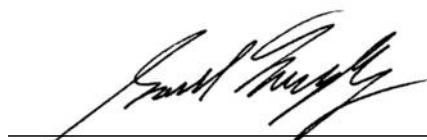
DATE REPORTED: 23-Jun-14

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-30	MW13-31	MW13-32	MW13-33
			Sample I.D.	B14-14648-5	B14-14648-6	B14-14648-7	B14-14648-8
			Date Collected	19-Jun-14	19-Jun-14	19-Jun-14	19-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	0.3	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill

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**C.O.C.: G36297/36298**

**REPORT No. B14-14648**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leirim

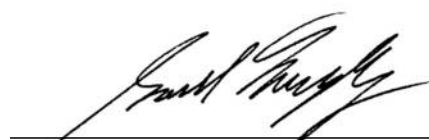
DATE REPORTED: 23-Jun-14

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-30	MW13-31	MW13-32	MW13-33
			Sample I.D.	B14-14648-5	B14-14648-6	B14-14648-7	B14-14648-8
			Date Collected	19-Jun-14	19-Jun-14	19-Jun-14	19-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	3.3	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	100	99.0	104
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	98.6	100.0	103
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	104	104	103



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**C.O.C.: G36297/36298**

**REPORT No. B14-14648**

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300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1  
Tel: 613-526-0123  
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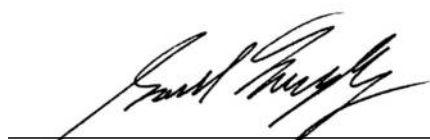
DATE REPORTED: 23-Jun-14

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-34	MW13-35	MW13-36	MW13-37
			Sample I.D.	B14-14648-9	B14-14648-10	B14-14648-11	B14-14648-12
			Date Collected	19-Jun-14	19-Jun-14	19-Jun-14	19-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill

The analytical results reported herein refer to the samples as received. Reproduction of this analytical report in full or in part is prohibited without prior consent from Caduceon Environmental Laboratories.

**C.O.C.: G36297/36298**

**REPORT No. B14-14648**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1  
Tel: 613-526-0123  
Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

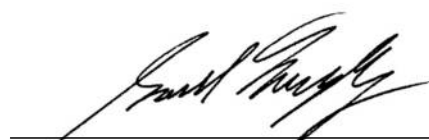
DATE REPORTED: 23-Jun-14

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.		MW13-34	MW13-35	MW13-36	MW13-37
			Sample I.D.		B14-14648-9	B14-14648-10	B14-14648-11	B14-14648-12
			Date Collected		19-Jun-14	19-Jun-14	19-Jun-14	19-Jun-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	96.9	102	98.7	100
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	97.2	103	101	103
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	98.9	100	104	105



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**C.O.C.: G36297/36298**

**REPORT No. B14-14648**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1  
Tel: 613-526-0123  
Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leirim

DATE REPORTED: 23-Jun-14

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	Dup-4	Trip Blank		
			Sample I.D.	B14-14648-13	B14-14648-14		
			Date Collected	19-Jun-14	16-Jun-14		
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	20-Jun-14/O	< 2	< 2	
Benzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	
Bromodichloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Bromoform	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Bromomethane	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	
Carbon Tetrachloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	
Chloroform	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	
Dibromochloromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	
Dichlorodifluoromethane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	20-Jun-14/O	< 0.3	< 0.3	
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Ethylbenzene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**C.O.C.: G36297/36298**

**REPORT No. B14-14648**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1  
Tel: 613-526-0123  
Fax: 613-526-1244

DATE RECEIVED: 19-Jun-14

JOB/PROJECT NO.: NCC Leitrim

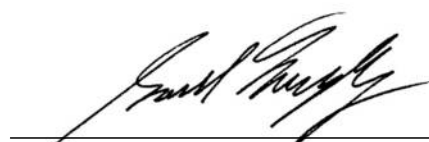
DATE REPORTED: 23-Jun-14

P.O. NUMBER:

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	Dup-4	Trip Blank		
			Sample I.D.	B14-14648-13	B14-14648-14		
			Date Collected	19-Jun-14	16-Jun-14		
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Hexane	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	
Methyl Ethyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	
Methyl-t-butyl Ether	µg/L	1	EPA 8260	20-Jun-14/O	< 1	< 1	
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	
Styrene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	
Tetrachloroethylene	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	
Toluene	µg/L	0.5	EPA 8260	20-Jun-14/O	< 0.5	< 0.5	
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Trichloroethylene	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Trichlorofluoromethane	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Vinyl Chloride	µg/L	0.2	EPA 8260	20-Jun-14/O	< 0.2	< 0.2	
Xylene, m,p-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	
Xylene, m,p,o-	µg/L	0.4	EPA 8260	20-Jun-14/O	< 0.4	< 0.4	
Xylene, o-	µg/L	0.1	EPA 8260	20-Jun-14/O	< 0.1	< 0.1	
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	20-Jun-14/O	102	101	
Toluene-d8 (SS)	%		EPA 8260	20-Jun-14/O	104	101	
Bromofluorobenzene,4(SS)	%		EPA 8260	20-Jun-14/O	103	102	



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

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**Report To:**

**AMEC**

300 - 210 Colonnade Road South  
 Nepean, Ontario K2E 7L5

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
 Ottawa Ontario K1V 7P1  
 Tel: 613-526-0123  
 Fax: 613-526-1244

DATE SUBMITTED: 19-Jun-14  
 DATE REPORTED: 23-Jun-14  
 SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: NCC Leirim  
 P.O. NUMBER: TZ14024  
 WATERWORKS NO.:

Analyses	Qty.	Site Analyzed	Analyst Initials	Date Extracted	Date Analyzed	Date Approved	Lab Method	Method Reference
VOC's	14	Ottawa	ST	20-Jun-14	20-Jun-14	23-Jun-14	C-VOC-02 (o)	EPA 8260

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
 Laboratory Manager - Ottawa District

PARAMETERS	M.D.L.	QC DATA								
		LCS Sample (% Rec.)		Duplicate				Lab Blank	Matrix Spike (% Recovery)	
		Found	Limits	Result 1	Result 2	R.P.D.	Limits (%)		Found	Limits
Acetone	2	100	60-130	< MDL	< MDL	NC	30	< MDL	120	50-140
Benzene	0.5	116	60-130	< MDL	< MDL	NC	30	< MDL	113	50-140
Bromodichloromethane	0.1	110	60-130	< MDL	< MDL	NC	30	< MDL	108	50-140
Bromoform	0.1	112	60-130	< MDL	< MDL	NC	30	< MDL	111	50-140
Bromomethane	0.3	88	50-140	< MDL	< MDL	NC	30	< MDL	69	50-140
Carbon Tetrachloride	0.2	112	60-130	< MDL	< MDL	NC	30	< MDL	111	50-140
Chloroform	0.3	110	60-130	< MDL	< MDL	NC	30	< MDL	110	50-140
Dibromochloromethane	0.1	110	60-130	< MDL	< MDL	NC	30	< MDL	109	50-140
Dibromoethane, 1,2- (Ethylene Dibromide)	0.1	120	50-140	< MDL	< MDL	NC	30	< MDL	118	50-140
Dichlorobenzene, 1,2-	0.1	124	60-130	< MDL	< MDL	NC	30	< MDL	118	50-140
Dichlorobenzene, 1,3-	0.1	122	60-130	< MDL	< MDL	NC	30	< MDL	134	50-140
Dichlorobenzene, 1,4-	0.2	110	60-130	< MDL	< MDL	NC	30	< MDL	105	50-140
Dichlorodifluoromethane	1	80	50-140	< MDL	< MDL	NC	30	< MDL	80	50-140
Dichloroethane, 1,1-	0.1	116	60-130	< MDL	< MDL	NC	30	< MDL	115	50-140
Dichloroethane, 1,2-	0.1	114	60-130	< MDL	< MDL	NC	30	< MDL	118	50-140
Dichloroethene, cis-1,2-	0.1	108	60-130	< MDL	< MDL	NC	30	< MDL	113	50-140
Dichloroethene, trans-1,2-	0.1	108	60-130	< MDL	< MDL	NC	30	< MDL	108	50-140
Dichloroethylene, 1,1-	0.1	100	60-130	< MDL	< MDL	NC	30	< MDL	97	50-140
Dichloromethane (Methylene Chloride)	0.3	104	60-130	< MDL	< MDL	NC	30	< MDL	106	50-140
Dichloropropane, 1,2-	0.1	126	60-130	< MDL	< MDL	NC	30	< MDL	130	50-140
Dichloropropene, cis-1,3-	0.1	112	60-130	< MDL	< MDL	NC	30	< MDL	115	50-140
Dichloropropene, trans-1,3-	0.1	110	60-130	< MDL	< MDL	NC	30	< MDL	112	50-140
Ethylbenzene	0.5	116	60-130	0.5	0.5	NC	30	< MDL	109	50-140

All values expressed as µg/L unless stated otherwise

LCS = Laboratory Control Standard

R.P.D. = Relative Percent Difference of Duplicate Pairs at > 10 x's M.D.L.

M.D.L. = Method Detection Limit

NC = Not Calculated

- = Not Requested/Analyzed

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
Laboratory Manager - Ottawa District

PARAMETERS	M.D.L.	QC DATA								
		LCS Sample (% Rec.)		Duplicate				Lab Blank	Matrix Spike (% Recovery)	
		Found	Limits	Result 1	Result 2	R.P.D.	Limits (%)		Found	Limits
Hexane	1	80	60-130	< MDL	< MDL	NC	30	< MDL	100	50-140
Methyl Ethyl Ketone	2	120	60-130	< MDL	< MDL	NC	30	< MDL	110	50-140
Methyl Isobutyl Ketone	1	120	60-130	< MDL	< MDL	NC	30	< MDL	120	50-140
Methyl-t-butyl Ether	1	120	60-130	< MDL	< MDL	NC	30	< MDL	110	50-140
Monochlorobenzene (Chlorobenzene)	0.2	126	60-130	< MDL	< MDL	NC	30	< MDL	119	50-140
Styrene	0.5	114	60-130	< MDL	< MDL	NC	30	< MDL	101	50-140
Tetrachloroethane, 1,1,1,2-	0.1	128	60-130	< MDL	< MDL	NC	30	< MDL	140	50-140
Tetrachloroethane, 1,1,2,2-	0.4	116	60-130	< MDL	< MDL	NC	30	< MDL	112	50-140
Tetrachloroethylene	0.2	112	60-130	< MDL	< MDL	NC	30	< MDL	107	50-140
Toluene	0.5	118	60-130	< MDL	< MDL	NC	30	< MDL	120	50-140
Trichloroethane, 1,1,1-	0.1	112	60-130	< MDL	< MDL	NC	30	< MDL	110	50-140
Trichloroethane, 1,1,2-	0.1	118	60-130	< MDL	< MDL	NC	30	< MDL	117	50-140
Trichloroethylene	0.1	112	60-130	< MDL	< MDL	NC	30	< MDL	105	50-140
Trichlorofluoromethane	0.1	98	60-130	< MDL	< MDL	NC	30	< MDL	92	50-140
Vinyl Chloride	0.2	100	50-140	< MDL	< MDL	NC	30	< MDL	94	50-140
Xylene, m,p-	0.4	118	60-130	< MDL	< MDL	NC	30	< MDL	116	50-140
Xylene, o-	0.1	122	60-130	< MDL	< MDL	NC	30	< MDL	122	50-140

All values expressed as µg/L unless stated otherwise

LCS = Laboratory Control Standard

R.P.D. = Relative Percent Difference of Duplicate Pairs at > 10 x's M.D.L.

M.D.L. = Method Detection Limit

NC = Not Calculated

- = Not Requested/Analyzed

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
Laboratory Manager - Ottawa District







**C.O.C.: G40304**

**REPORT No. B14-23910**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 16-Sep-14

JOB/PROJECT NO.: NCC Leitrim

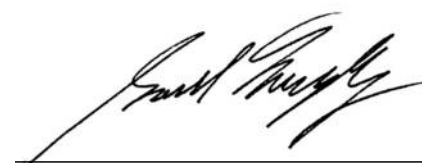
DATE REPORTED: 23-Sep-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-10	MW10-17	MW13-31	
			Sample I.D.	B14-23910-1	B14-23910-2	B14-23910-3	
			Date Collected	15-Sep-14	15-Sep-14	16-Sep-14	
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	16-Sep-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	16-Sep-14/O	< 0.5	0.8	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	16-Sep-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	16-Sep-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	16-Sep-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	16-Sep-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	16-Sep-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	0.2	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	16-Sep-14/O	0.2	0.4	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	2.7	0.4
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	0.8	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	16-Sep-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	16-Sep-14/O	< 0.5	< 0.5	< 0.5
Hexane	µg/L	1	EPA 8260	16-Sep-14/O	< 1	< 1	< 1



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston, W-Windsor, O-Ottawa, R-Richmond Hill

**C.O.C.: G40304**

**REPORT No. B14-23910**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1  
Tel: 613-526-0123  
Fax: 613-526-1244

DATE RECEIVED: 16-Sep-14

JOB/PROJECT NO.: NCC Leitrim

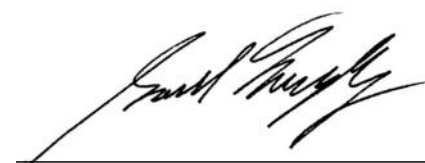
DATE REPORTED: 23-Sep-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-10	MW10-17	MW13-31	
			Sample I.D.	B14-23910-1	B14-23910-2	B14-23910-3	
			Date Collected	15-Sep-14	15-Sep-14	16-Sep-14	
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	16-Sep-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	16-Sep-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	16-Sep-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	16-Sep-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	16-Sep-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	16-Sep-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	16-Sep-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	16-Sep-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	16-Sep-14/O	4.6	13.5	2.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	16-Sep-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	16-Sep-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	16-Sep-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	16-Sep-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	16-Sep-14/O	115	113	120
Toluene-d8 (SS)	%		EPA 8260	16-Sep-14/O	98.0	95.0	98.0
Bromofluorobenzene,4(SS)	%		EPA 8260	16-Sep-14/O	127	125	127



Gord Murphy  
Lab Supervisor

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

**Report To:**

**AMEC**

300 - 210 Colonnade Road South  
 Nepean, Ontario K2E 7L5

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
 Ottawa Ontario K1V 7P1  
 Tel: 613-526-0123  
 Fax: 613-526-1244

DATE SUBMITTED: 16-Sep-14  
 DATE REPORTED: 23-Sep-14  
 SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: NCC Leirim  
 P.O. NUMBER: TZ14024  
 WATERWORKS NO.:

Analyses	Qty.	Site Analyzed	Analyst Initials	Date Extracted	Date Analyzed	Date Approved	Lab Method	Method Reference
VOC's	3	Ottawa	ST	16-Sep-14	16-Sep-14	23-Sep-14	C-VOC-02 (o)	EPA 8260

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
 Laboratory Manager - Ottawa District

PARAMETERS	M.D.L.	QC DATA								
		LCS Sample (% Rec.)		Duplicate				Lab Blank	Matrix Spike (% Recovery)	
		Found	Limits	Result 1	Result 2	R.P.D.	Limits (%)		Found	Limits
Acetone	2	80	60-130	< MDL	< MDL	NC	30	< MDL	86	50-140
Benzene	0.5	74	60-130	< MDL	< MDL	NC	30	< MDL	83	50-140
Bromodichloromethane	0.1	95	60-130	0.3	0.3	NC	30	< MDL	96	50-140
Bromoform	0.1	104	60-130	1.0	1.0	NC	30	< MDL	105	50-140
Bromomethane	0.3	99	50-140	< MDL	< MDL	NC	30	< MDL	69	50-140
Carbon Tetrachloride	0.2	92	60-130	< MDL	< MDL	NC	30	< MDL	88	50-140
Chloroform	0.3	95	60-130	< MDL	< MDL	NC	30	< MDL	91	50-140
Dibromochloromethane	0.1	94	60-130	< MDL	< MDL	NC	30	< MDL	102	50-140
Dibromoethane, 1,2- (Ethylene Dibromide)	0.1	82	50-140	< MDL	< MDL	NC	30	< MDL	92	50-140
Dichlorobenzene, 1,2-	0.1	122	60-130	< MDL	< MDL	NC	30	< MDL	124	50-140
Dichlorobenzene, 1,3-	0.1	118	60-130	< MDL	< MDL	NC	30	< MDL	108	50-140
Dichlorobenzene, 1,4-	0.2	106	60-130	< MDL	< MDL	NC	30	< MDL	101	50-140
Dichlorodifluoromethane	1	50	50-140	< MDL	< MDL	NC	30	< MDL	62	50-140
Dichloroethane, 1,1-	0.1	83	60-130	< MDL	< MDL	NC	30	< MDL	83	50-140
Dichloroethane, 1,2-	0.1	106	60-130	< MDL	< MDL	NC	30	< MDL	102	50-140
Dichloroethene, cis-1,2-	0.1	68	60-130	0.4	0.3	NC	30	< MDL	67	50-140
Dichloroethene, trans-1,2-	0.1	73	60-130	< MDL	< MDL	NC	30	< MDL	64	50-140
Dichloroethylene, 1,1-	0.1	61	60-130	< MDL	< MDL	NC	30	< MDL	60	50-140
Dichloromethane (Methylene Chloride)	0.3	90	60-130	< MDL	< MDL	NC	30	< MDL	77	50-140
Dichloropropane, 1,2-	0.1	78	60-130	< MDL	< MDL	NC	30	< MDL	85	50-140
Dichloropropene, cis-1,3-	0.1	68	60-130	< MDL	< MDL	NC	30	< MDL	71	50-140
Dichloropropene, trans-1,3-	0.1	85	60-130	< MDL	< MDL	NC	30	< MDL	87	50-140
Ethylbenzene	0.5	87	60-130	0.5	0.5	NC	30	< MDL	80	50-140

All values expressed as µg/L unless stated otherwise

LCS = Laboratory Control Standard

R.P.D. = Relative Percent Difference of Duplicate Pairs at > 10 x's M.D.L.

M.D.L. = Method Detection Limit

NC = Not Calculated

- = Not Requested/Analyzed

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
Laboratory Manager - Ottawa District

PARAMETERS	M.D.L.	QC DATA								
		LCS Sample (% Rec.)		Duplicate				Lab Blank	Matrix Spike (% Recovery)	
		Found	Limits	Result 1	Result 2	R.P.D.	Limits (%)		Found	Limits
Hexane	1	60	60-130	< MDL	< MDL	NC	30	< MDL	60	50-140
Methyl Ethyl Ketone	2	100	60-130	< MDL	< MDL	NC	30	< MDL	112	50-140
Methyl Isobutyl Ketone	1	90	60-130	< MDL	< MDL	NC	30	< MDL	82	50-140
Methyl-t-butyl Ether	1	80	60-130	< MDL	< MDL	NC	30	< MDL	78	50-140
Monochlorobenzene (Chlorobenzene)	0.2	110	60-130	< MDL	< MDL	NC	30	< MDL	98	50-140
Styrene	0.5	83	60-130	< MDL	< MDL	NC	30	< MDL	94	50-140
Tetrachloroethane, 1,1,1,2-	0.1	99	60-130	< MDL	< MDL	NC	30	< MDL	92	50-140
Tetrachloroethane, 1,1,2,2-	0.4	95	60-130	< MDL	< MDL	NC	30	< MDL	76	50-140
Tetrachloroethylene	0.2	76	60-130	< MDL	< MDL	NC	30	< MDL	82	50-140
Toluene	0.5	90	60-130	< MDL	< MDL	NC	30	< MDL	87	50-140
Trichloroethane, 1,1,1-	0.1	85	60-130	< MDL	< MDL	NC	30	< MDL	83	50-140
Trichloroethane, 1,1,2-	0.1	94	60-130	< MDL	< MDL	NC	30	< MDL	97	50-140
Trichloroethylene	0.1	70	60-130	2.1	2.1	NC	30	< MDL	87	50-140
Trichlorofluoromethane	0.1	110	60-130	< MDL	< MDL	NC	30	< MDL	98	50-140
Vinyl Chloride	0.2	68	50-140	< MDL	< MDL	NC	30	< MDL	62	50-140
Xylene, m,p-	0.4	109	60-130	< MDL	< MDL	NC	30	< MDL	87	50-140
Xylene, o-	0.1	84	60-130	0.3	0.2	NC	30	< MDL	88	50-140

All values expressed as µg/L unless stated otherwise

LCS = Laboratory Control Standard

R.P.D. = Relative Percent Difference of Duplicate Pairs at > 10 x's M.D.L.

M.D.L. = Method Detection Limit

NC = Not Calculated

- = Not Requested/Analyzed

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
Laboratory Manager - Ottawa District



Your P.O. #: T214024  
Your Project #: NCC LEITRIM

**Attention:susan pfister**

AMEC Environment & Infrastructure  
Ottawa - Standing Offer  
210 Colonnade Rd S  
Suite 300  
Ottawa, ON  
K2E 7L5

**Report Date: 2014/09/22**  
Report #: R3164425  
Version: 1

**CERTIFICATE OF ANALYSIS**

**MAXXAM JOB #: B4H0056**

**Received: 2014/09/16, 11:10**

Sample Matrix: Water  
# Samples Received: 3

Analyses	Date		Laboratory Method	Reference
	Quantity	Extracted	Analyzed	
1,3-Dichloropropene Sum	3	N/A	2014/09/22 CAM SOP-00226	EPA 8260
Volatile Organic Compounds in Water	3	N/A	2014/09/18 OTT SOP-00005	EPA 8260 modified

**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. The extraction date for samples field preserved with methanol for F1 and Volatile Organic Compounds is considered to be the date sampled.

Maxxam Analytics is accredited for all specific parameters as required by Ontario Regulation 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.

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

Encryption Key



Parnian Baber

22 Sep 2014 15:30:27 -04:00

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

Parnian Baber, Project Manager

Email: pbaber@maxxam.ca

Phone# (613) 274-0573

=====

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 Job #: B4H0056  
Report Date: 2014/09/22

AMEC Environment & Infrastructure  
Client Project #: NCC LEITRIM  
Your P.O. #: T214024  
Sampler Initials: BJ

### VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		XO6142	XO6143	XO6144		
Sampling Date		2014/09/15	2014/09/15	2014/09/16		
	Units	MW10-10	MW10-17	MW13-31	RDL	QC Batch
<b>Calculated Parameters</b>						
1,3-Dichloropropene (cis+trans)	ug/L	<0.28	<0.28	<0.28	0.28	3749836
<b>Volatile Organics</b>						
Dichlorodifluoromethane (FREON 12)	ug/L	<0.50	<0.50	<0.50	0.50	3750992
Hexane	ug/L	<0.50	<0.50	<0.50	0.50	3750992
Acetone (2-Propanone)	ug/L	<10	<10	<10	10	3750992
Benzene	ug/L	<0.10	1.8	<0.10	0.10	3750992
Bromodichloromethane	ug/L	<0.10	<0.10	<0.10	0.10	3750992
Bromoform	ug/L	<0.20	<0.20	<0.20	0.20	3750992
Bromomethane	ug/L	<0.50	<0.50	<0.50	0.50	3750992
Carbon Tetrachloride	ug/L	<0.10	<0.10	<0.10	0.10	3750992
Chlorobenzene	ug/L	<0.10	<0.10	<0.10	0.10	3750992
Chloroform	ug/L	<0.10	<0.10	<0.10	0.10	3750992
Dibromochloromethane	ug/L	<0.20	<0.20	<0.20	0.20	3750992
1,2-Dichlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	3750992
1,3-Dichlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	3750992
1,4-Dichlorobenzene	ug/L	<0.20	<0.20	<0.20	0.20	3750992
1,1-Dichloroethane	ug/L	<0.10	0.13	<0.10	0.10	3750992
1,2-Dichloroethane	ug/L	<0.20	0.54	<0.20	0.20	3750992
1,1-Dichloroethylene	ug/L	<0.10	<0.10	<0.10	0.10	3750992
cis-1,2-Dichloroethylene	ug/L	0.61	7.2	1.0	0.10	3750992
trans-1,2-Dichloroethylene	ug/L	<0.10	1.6	<0.10	0.10	3750992
1,2-Dichloropropane	ug/L	<0.10	<0.10	<0.10	0.10	3750992
cis-1,3-Dichloropropene	ug/L	<0.20	<0.20	<0.20	0.20	3750992
trans-1,3-Dichloropropene	ug/L	<0.20	<0.20	<0.20	0.20	3750992
Ethylbenzene	ug/L	<0.10	<0.10	<0.10	0.10	3750992
Ethylene Dibromide	ug/L	<0.20	<0.20	<0.20	0.20	3750992
Methylene Chloride(Dichloromethane)	ug/L	<0.50	<0.50	<0.50	0.50	3750992
Methyl Isobutyl Ketone	ug/L	<5.0	<5.0	<5.0	5.0	3750992
Methyl Ethyl Ketone (2-Butanone)	ug/L	<5.0	<5.0	<5.0	5.0	3750992
Methyl t-butyl ether (MTBE)	ug/L	<0.20	<0.20	<0.20	0.20	3750992
Styrene	ug/L	<0.20	<0.20	<0.20	0.20	3750992
1,1,1,2-Tetrachloroethane	ug/L	<0.10	<0.10	<0.10	0.10	3750992
1,1,2,2-Tetrachloroethane	ug/L	<0.20	<0.20	<0.20	0.20	3750992
Tetrachloroethylene	ug/L	<0.10	<0.10	<0.10	0.10	3750992
Toluene	ug/L	<0.20	<0.20	<0.20	0.20	3750992
1,1,1-Trichloroethane	ug/L	<0.10	<0.10	<0.10	0.10	3750992
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

Maxxam Job #: B4H0056  
Report Date: 2014/09/22

AMEC Environment & Infrastructure  
Client Project #: NCC LEITRIM  
Your P.O. #: T214024  
Sampler Initials: BJ

### VOLATILE ORGANICS BY GC/MS (WATER)

Maxxam ID		XO6142	XO6143	XO6144		
Sampling Date		2014/09/15	2014/09/15	2014/09/16		
	Units	MW10-10	MW10-17	MW13-31	RDL	QC Batch
1,1,2-Trichloroethane	ug/L	<0.20	<0.20	<0.20	0.20	3750992
Trichloroethylene	ug/L	6.2	19	2.9	0.10	3750992
Vinyl Chloride	ug/L	<0.20	<0.20	<0.20	0.20	3750992
p+m-Xylene	ug/L	<0.10	<0.10	<0.10	0.10	3750992
o-Xylene	ug/L	<0.10	<0.10	<0.10	0.10	3750992
Xylene (Total)	ug/L	<0.10	<0.10	<0.10	0.10	3750992
Trichlorofluoromethane (FREON 11)	ug/L	<0.20	<0.20	<0.20	0.20	3750992
<b>Surrogate Recovery (%)</b>						
4-Bromofluorobenzene	%	85	94	90		3750992
D4-1,2-Dichloroethane	%	91	98	97		3750992
D8-Toluene	%	78	92	88		3750992
RDL = Reportable Detection Limit						
QC Batch = Quality Control Batch						

Maxxam Job #: B4H0056  
Report Date: 2014/09/22

AMEC Environment & Infrastructure  
Client Project #: NCC LEITRIM  
Your P.O. #: T214024  
Sampler Initials: BJ

## TEST SUMMARY

**Maxxam ID:** XO6142  
**Sample ID:** MW10-10  
**Matrix:** Water

**Collected:** 2014/09/15  
**Shipped:**  
**Received:** 2014/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3749836	N/A	2014/09/22	Automated Statchk
Volatile Organic Compounds in Water	P&T/MS	3750992	N/A	2014/09/18	Paul Rubinato

**Maxxam ID:** XO6143  
**Sample ID:** MW10-17  
**Matrix:** Water

**Collected:** 2014/09/15  
**Shipped:**  
**Received:** 2014/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3749836	N/A	2014/09/22	Automated Statchk
Volatile Organic Compounds in Water	P&T/MS	3750992	N/A	2014/09/18	Paul Rubinato

**Maxxam ID:** XO6144  
**Sample ID:** MW13-31  
**Matrix:** Water

**Collected:** 2014/09/16  
**Shipped:**  
**Received:** 2014/09/16

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	3749836	N/A	2014/09/22	Automated Statchk
Volatile Organic Compounds in Water	P&T/MS	3750992	N/A	2014/09/18	Paul Rubinato

Maxxam Job #: B4H0056  
Report Date: 2014/09/22

AMEC Environment & Infrastructure  
Client Project #: NCC LEITRIM  
Your P.O. #: T214024  
Sampler Initials: BJ

### GENERAL COMMENTS

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

Package 1	9.7°C
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Custody seal was not present on the cooler.

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



Maxxam Job #: B4H0056  
Report Date: 2014/09/22

## QUALITY ASSURANCE REPORT

AMEC Environment & Infrastructure  
Client Project #: NCC LEITRIM  
Your P.O. #: T214024  
Sampler Initials: BJ

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3750992	4-Bromofluorobenzene	2014/09/18	91	70 - 130	100	70 - 130	89	%		
3750992	D4-1,2-Dichloroethane	2014/09/18	81	70 - 130	83	70 - 130	92	%		
3750992	D8-Toluene	2014/09/18	104	70 - 130	107	70 - 130	92	%		
3750992	1,1,1,2-Tetrachloroethane	2014/09/18	98	70 - 130	102	70 - 130	<0.10	ug/L	NC	40
3750992	1,1,1-Trichloroethane	2014/09/18	93	70 - 130	96	70 - 130	<0.10	ug/L	NC	40
3750992	1,1,2,2-Tetrachloroethane	2014/09/18	117	70 - 130	111	70 - 130	<0.20	ug/L	NC	40
3750992	1,1,2-Trichloroethane	2014/09/18	113	70 - 130	119	70 - 130	<0.20	ug/L	NC	40
3750992	1,1-Dichloroethane	2014/09/18	83	70 - 130	87	70 - 130	<0.10	ug/L	NC	40
3750992	1,1-Dichloroethylene	2014/09/18	110	70 - 130	84	70 - 130	<0.10	ug/L	NC	40
3750992	1,2-Dichlorobenzene	2014/09/18	108	70 - 130	109	70 - 130	<0.20	ug/L	NC	40
3750992	1,2-Dichloroethane	2014/09/18	72	70 - 130	74	70 - 130	<0.20	ug/L	NC	40
3750992	1,2-Dichloropropane	2014/09/18	97	70 - 130	95	70 - 130	<0.10	ug/L	NC	40
3750992	1,3-Dichlorobenzene	2014/09/18	110	70 - 130	106	70 - 130	<0.20	ug/L	NC	40
3750992	1,4-Dichlorobenzene	2014/09/18	100	70 - 130	96	70 - 130	<0.20	ug/L	NC	40
3750992	Acetone (2-Propanone)	2014/09/18	82	60 - 140	62	60 - 140	<10	ug/L	NC	40
3750992	Benzene	2014/09/18	102	70 - 130	107	70 - 130	<0.10	ug/L	NC	40
3750992	Bromodichloromethane	2014/09/18	100	70 - 130	111	70 - 130	<0.10	ug/L	NC	40
3750992	Bromoform	2014/09/18	94	70 - 130	98	70 - 130	<0.20	ug/L	NC	40
3750992	Bromomethane	2014/09/18	65	60 - 140	72	60 - 140	<0.50	ug/L	NC	40
3750992	Carbon Tetrachloride	2014/09/18	108	70 - 130	116	70 - 130	<0.10	ug/L	NC	40
3750992	Chlorobenzene	2014/09/18	102	70 - 130	99	70 - 130	<0.10	ug/L	NC	40
3750992	Chloroform	2014/09/18	91	70 - 130	97	70 - 130	<0.10	ug/L	NC	40
3750992	cis-1,2-Dichloroethylene	2014/09/18	88	70 - 130	111	70 - 130	<0.10	ug/L	5.4	40
3750992	cis-1,3-Dichloropropene	2014/09/18	93	70 - 130	100	70 - 130	<0.20	ug/L	NC	40
3750992	Dibromochloromethane	2014/09/18	115	70 - 130	121	70 - 130	<0.20	ug/L	NC	40
3750992	Dichlorodifluoromethane (FREON 12)	2014/09/18	87	60 - 140	92	60 - 140	<0.50	ug/L	NC	40
3750992	Ethylbenzene	2014/09/18	94	70 - 130	99	70 - 130	<0.10	ug/L	NC	40
3750992	Ethylene Dibromide	2014/09/18	107	70 - 130	116	70 - 130	<0.20	ug/L	NC	40
3750992	Hexane	2014/09/18	78	70 - 130	80	70 - 130	<0.50	ug/L	NC	40
3750992	Methyl Ethyl Ketone (2-Butanone)	2014/09/18	79	60 - 140	84	60 - 140	<5.0	ug/L	NC	40
3750992	Methyl Isobutyl Ketone	2014/09/18	76	70 - 130	82	70 - 130	<5.0	ug/L	NC	40

Maxxam Job #: B4H0056  
Report Date: 2014/09/22

## QUALITY ASSURANCE REPORT(CONT'D)

AMEC Environment & Infrastructure  
Client Project #: NCC LEITRIM  
Your P.O. #: T214024  
Sampler Initials: BJ

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
3750992	Methyl t-butyl ether (MTBE)	2014/09/18	78	70 - 130	88	70 - 130	<0.20	ug/L	NC	40
3750992	Methylene Chloride(Dichloromethane)	2014/09/18	97	70 - 130	101	70 - 130	<0.50	ug/L	NC	40
3750992	o-Xylene	2014/09/18	96	70 - 130	92	70 - 130	<0.10	ug/L	NC	40
3750992	p+m-Xylene	2014/09/18	96	70 - 130	97	70 - 130	<0.10	ug/L	NC	40
3750992	Styrene	2014/09/18	117	70 - 130	118	70 - 130	<0.20	ug/L	NC	40
3750992	Tetrachloroethylene	2014/09/18	97	70 - 130	96	70 - 130	<0.10	ug/L	NC	40
3750992	Toluene	2014/09/18	101	70 - 130	101	70 - 130	<0.20	ug/L	NC	40
3750992	trans-1,2-Dichloroethylene	2014/09/18	92	70 - 130	98	70 - 130	<0.10	ug/L	NC	40
3750992	trans-1,3-Dichloropropene	2014/09/18	95	70 - 130	110	70 - 130	<0.20	ug/L	NC	40
3750992	Trichloroethylene	2014/09/18	100	70 - 130	109	70 - 130	<0.10	ug/L	5.5	40
3750992	Trichlorofluoromethane (FREON 11)	2014/09/18	78	70 - 130	85	70 - 130	<0.20	ug/L		
3750992	Vinyl Chloride	2014/09/18	71	70 - 130	73	70 - 130	<0.20	ug/L	NC	40
3750992	Xylene (Total)	2014/09/18					<0.10	ug/L	NC	40

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

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

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

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

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

NC (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 Job #: B4H0056  
Report Date: 2014/09/22

AMEC Environment & Infrastructure  
Client Project #: NCC LEITRIM  
Your P.O. #: T214024  
Sampler Initials: BJ

### VALIDATION SIGNATURE PAGE

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

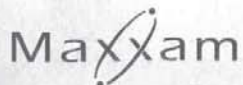


Paul Rubinato, Analyst, Maxxam Analytics

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





6740 Campobello Road, Mississauga, Ontario L5N 2L8 www.maxxam.ca

Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

## CHAIN OF CUSTODY RECORD

37467

Page 1 of 1

INVOICE INFORMATION		REPORT INFORMATION (if differs from invoice)		PROJECT INFORMATION		TURNAROUND TIME (TAT) REQUIRED	
Company Name: <u>AMEC</u>	Company Name:	Quotation #:	<input checked="" type="checkbox"/> Regular TAT (5-7 days)		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS		
Contact Name: <u>SUSAN PFISTER</u>	Contact Name:	P.O. #:	<u>T214024</u>		Rush TAT (Applicable Surcharge)		
Address: <u>300-210 Colonnade Rd South</u>	Address:	Project #:	<u>NCC LEITRIM</u>		<input type="checkbox"/> 1 Day (100%)		
<u>OTTAWA, ON K2E 7L5</u>		Site Location:			<input type="checkbox"/> 2 Days (50%)		
Phone: <u>613-727-0658</u> Fax: <u>613-727-9465</u>	Phone: Fax:	Site #:			<input type="checkbox"/> 3-4 Days (25%)		
Email: <u>SUSAN.PFISTER@AMEC.COM</u>	Email:	Sampled By: <u>BRYANT JELLY</u>					
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE MAXXAM DRINKING WATER CHAIN OF CUSTODY				ANALYSIS REQUESTED		Rush Confirmation #:	
REGULATION 153 (2011)		OTHER REGULATIONS		FIELD FILTERED (PLEASE CIRCLE) Metals / Mg / Cvi <u>VOC</u>		Date Required:	
<input type="checkbox"/> Table 1 <input type="checkbox"/> Res/Park <input type="checkbox"/> Med/Fine	<input type="checkbox"/> CCME <input type="checkbox"/> Sanitary Sewer Bylaw	LABORATORY USE ONLY					
<input checked="" type="checkbox"/> Table 2 <input type="checkbox"/> Ind/Comm <input type="checkbox"/> Coarse	<input type="checkbox"/> MISA <input type="checkbox"/> Storm Sewer Bylaw	CUSTODY SEAL (Y/N)					
<input type="checkbox"/> Table 3 <input type="checkbox"/> Agri/Other	<input type="checkbox"/> PWQO Municipality:	Temperature (°C) on Receipt					
FOR RSC (PLEASE CIRCLE) YES / NO		<input type="checkbox"/> Other (Specify):				Present <u>N</u>	
<input type="checkbox"/> REG 558 (MINIMUM 3 DAY TAT REQUIRED)						Intact <u>N</u>	
Include Criteria on Certificate of Analysis (Y/N)?						COOLING MEDIA PRESENT (Y/N)	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO MAXXAM						<u>Yes</u>	
SAMPLE IDENTIFICATION		DATE SAMPLED	TIME SAMPLED	MATRIX	# OF CONT.	COMMENTS / TAT COMMENTS	
1	<u>MW10-10</u>	<u>09/15/14</u>		<u>GW</u>	<u>3</u>		
2	<u>MW10-17</u>	<u>09/15/14</u>		<u>GW</u>	<u>3</u>		
3	<u>MW13-31</u>	<u>09/16/14</u>		<u>GW</u>	<u>3</u>		
4							
5							
6							
7							
8							
9							
10							
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME:	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME:
<u>Bryant Jelly / BRYANT JELLY</u>		<u>2014/09/16</u>	<u>11:12am</u>	<u>Scott Simpson</u>		<u>2014/09/16</u>	<u>11:10</u>
						# JARS USED AND NOT SUBMITTED	MAXXAM JOB #

COC-1004 (11/13) - ENV. ENG.

Maxxam Analytics International Corporation o/a Maxxam Analytics

White: Maxxam ~ Yellow: Client



## Certificate of Analysis

### AMEC Environment & Infrastructure (Ottawa)

300-210 Colonnade Rd. S  
Ottawa, ON K2E 7E5  
Attn: Suan Pfister

Phone: (613) 727-0658  
Fax: (613) 727-9465

Client PO: TZ14024  
Project: NCC Leitrim  
Custody: 102868

Report Date: 18-Sep-2014  
Order Date: 16-Sep-2014

**Order #: 1438100**

This Certificate of Analysis contains analytical data applicable to the following samples as submitted:

Paracel ID	Client ID
1438100-01	MW10-10
1438100-02	MW10-17
1438100-03	MW13-31

Approved By:



Mark Foto, M.Sc. For Dale Robertson, BSc  
Laboratory Director

Any use of these results implies your agreement that our total liability in connection with this work, however arising shall be limited to the amount paid by you for this work, and that our employees or agents shall not under circumstances be liable to you in connection with this work

**Certificate of Analysis**

Client: AMEC Environment &amp; Infrastructure (Ottawa)

Client PO: TZ14024

Project Description: NCC Leitrim

Report Date: 18-Sep-2014

Order Date: 16-Sep-2014

**Analysis Summary Table**

Analysis	Method Reference/Description	Extraction Date	Analysis Date
REG 153 - VOCs by P&T GC/MS	EPA 624 - P&T GC-MS	16-Sep-14	17-Sep-14

P: 1-800-749-1947  
E: PARACEL@PARACELLABS.COM

WWW.PARACELLABS.COM

**OTTAWA - EAST**  
300-2319 St. Laurent Blvd.  
Ottawa, ON K1G 4J8

**OTTAWA - WEST**  
104-195 Stafford Rd. W.  
Nepean, ON K2H 9C1

**MISSISSAUGA**  
6645 Kitimat Rd. Unit #27  
Mississauga, ON L5N 6J3

**SARNIA**  
218-704 Mara St.  
Point Edward, ON N7V 1X4

**NIAGARA**  
360 York Rd. Unit 16B  
Niagara-on-the-Lake, ON L0S 1J0

**KINGSTON**  
1058 Gardiners Rd.  
Kingston, ON K7P 1R7



**Certificate of Analysis**

Client: **AMEC Environment & Infrastructure (Ottawa)**

Report Date: 18-Sep-2014

Client PO: TZ14024

Project Description: NCC Leitrim

Order Date: 16-Sep-2014

	MDL/Units	Client ID:	MW10-10	MW10-17	MW13-31	
		Sample Date:	15-Sep-14	15-Sep-14	15-Sep-14	
		Sample ID:	1438100-01	1438100-02	1438100-03	
			Water	Water	Water	
Toluene	0.5 ug/L		<0.5	<0.5	<0.5	-
1,1,1-Trichloroethane	0.5 ug/L		<0.5	<0.5	<0.5	-
1,1,2-Trichloroethane	0.5 ug/L		<0.5	<0.5	<0.5	-
Trichloroethylene	0.5 ug/L		5.2	14.5	2.1	-
Trichlorofluoromethane	1.0 ug/L		<1.0	<1.0	<1.0	-
Vinyl chloride	0.5 ug/L		<0.5	<0.5	<0.5	-
m,p-Xylenes	0.5 ug/L		<0.5	<0.5	<0.5	-
o-Xylene	0.5 ug/L		<0.5	<0.5	<0.5	-
Xylenes, total	0.5 ug/L		<0.5	<0.5	<0.5	-
4-Bromofluorobenzene	Surrogate		120%	119%	119%	-
Dibromofluoromethane	Surrogate		97.2%	92.1%	93.0%	-
Toluene-d8	Surrogate		105%	103%	106%	-

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360 York Rd. Unit 16B  
Niagara-on-the-Lake, ON L0S 1J0

**KINGSTON**  
1058 Gardiners Rd.  
Kingston, ON K7P 1R7







## Certificate of Analysis

Client: AMEC Environment & Infrastructure (Ottawa)

Client PO: TZ14024

Project Description: NCC Leitrim

Report Date: 18-Sep-2014

Order Date: 16-Sep-2014

### Qualifier Notes:

None

### Sample Data Revisions

None

### Work Order Revisions / Comments:

None

### Other Report Notes:

n/a: not applicable

ND: Not Detected

MDL: Method Detection Limit

Source Result: Data used as source for matrix and duplicate samples

%REC: Percent recovery.

RPD: Relative percent difference.

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KINGSTON  
1058 Gardiners Rd.  
Kingston, ON K7P 1R7





**C.O.C.: G23704, 705, 706, 707**

**REPORT No. B14-26525**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 10-Oct-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 20-Oct-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.		MW08-1	MW08-2	MW08-3	MW08-4
			Sample I.D.		B14-26525-1	B14-26525-2	B14-26525-3	B14-26525-4
			Date Collected		10-Oct-14	10-Oct-14	10-Oct-14	09-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	5.3	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	17-Oct-14/O	100	102	99.5	101
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	112	115	114	112
Bromofluorobenzene,4(SS)	%		EPA 8260	17-Oct-14/O	117	121	113	118

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



Greg Clarkin , BSc., C. Chem  
Lab Manager - Ottawa District



**C.O.C.: G23704, 705, 706, 707**

**REPORT No. B14-26525**

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**Attention:** Susan Pfister

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Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 10-Oct-14

JOB/PROJECT NO.: NCC Leirim

DATE REPORTED: 20-Oct-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW08-5	MW09-8	MW09-9	MW10-10
			Sample I.D.	B14-26525-5	B14-26525-6	B14-26525-7	B14-26525-8
			Date Collected	09-Oct-14	09-Oct-14	10-Oct-14	09-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane,1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane,1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane,1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	1.8	14.2	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4,1,2-(SS)	%		EPA 8260	17-Oct-14/O	102	99.5	101
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	112	112	113
Bromofluorobenzene,4(SS)	%		EPA 8260	17-Oct-14/O	116	122	115

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



Greg Clarkin, BSc., C. Chem

Lab Manager - Ottawa District



**C.O.C.: G23704, 705, 706, 707**

**REPORT No. B14-26525**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 10-Oct-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 20-Oct-14

P.O. NUMBER: TZ14024

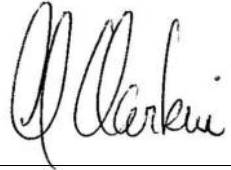
SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-11	MW10-12	MW10-13	MW10-14
			Sample I.D.	B14-26525-9	B14-26525-10	B14-26525-11	B14-26525-12
			Date Collected	09-Oct-14	09-Oct-14	09-Oct-14	09-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane, 1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane, 1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	10.7	< 0.1	14.9
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4, 1,2-(SS)	%		EPA 8260	17-Oct-14/O	102	99.2	100
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	113	113	113
Bromofluorobenzene, 4(SS)	%		EPA 8260	17-Oct-14/O	115	116	118

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

  
Greg Clarkin, BSc., C. Chem  
Lab Manager - Ottawa District



**C.O.C.: G23704, 705, 706, 707**

**REPORT No. B14-26525**

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Nepean Ontario K2E 7L5 Canada

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SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-15	MW10-16	MW10-17	MW10-18
			Sample I.D.	B14-26525-13	B14-26525-14	B14-26525-15	B14-26525-16
			Date Collected	09-Oct-14	09-Oct-14	09-Oct-14	10-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane, 1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane, 1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	6.2	< 0.1	21.9
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4, 1,2-(SS)	%		EPA 8260	17-Oct-14/O	98.5	102	101
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	115	114	115
Bromofluorobenzene, 4(SS)	%		EPA 8260	17-Oct-14/O	116	113	116

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



Greg Clarkin, BSc., C. Chem  
Lab Manager - Ottawa District



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SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-19	MW10-20	MW10-21	MW10-22
			Sample I.D.	B14-26525-17	B14-26525-18	B14-26525-19	B14-26525-20
			Date Collected	09-Oct-14	10-Oct-14	09-Oct-14	10-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane, 1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane, 1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4, 1,2-(SS)	%		EPA 8260	17-Oct-14/O	102	103	105
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	115	114	114
Bromofluorobenzene, 4(SS)	%		EPA 8260	17-Oct-14/O	113	109	110

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



Greg Clarkin, BSc., C. Chem  
Lab Manager - Ottawa District



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SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW10-23	MW10-24	MW10-25	MW13-26
			Sample I.D.	B14-26525-21	B14-26525-22	B14-26525-23	B14-26525-24
			Date Collected	09-Oct-14	10-Oct-14	10-Oct-14	10-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane, 1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane, 1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4, 1,2-(SS)	%		EPA 8260	17-Oct-14/O	104	100	103
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	116	113	117
Bromofluorobenzene, 4(SS)	%		EPA 8260	17-Oct-14/O	108	109	111

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



Greg Clarkin , BSc., C. Chem  
Lab Manager - Ottawa District



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SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-27	MW13-28	MW13-29	MW13-30
			Sample I.D.	B14-26525-25	B14-26525-26	B14-26525-27	B14-26525-28
			Date Collected	10-Oct-14	10-Oct-14	10-Oct-14	10-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane, 1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane, 1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4, 1,2-(SS)	%		EPA 8260	17-Oct-14/O	99.3	98.4	97.8
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	109	104	111
Bromofluorobenzene, 4(SS)	%		EPA 8260	17-Oct-14/O	106	103	108

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



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SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-31	MW13-32	MW13-33	MW13-34
			Sample I.D.	B14-26525-29	B14-26525-30	B14-26525-31	B14-26525-32
			Date Collected	10-Oct-14	10-Oct-14	10-Oct-14	10-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	17-Oct-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	0.3	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	0.6	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Hexane	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1



M.D.L. = Method Detection Limit  
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

Greg Clarkin , BSc., C. Chem  
Lab Manager - Ottawa District

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JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 20-Oct-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-31	MW13-32	MW13-33	MW13-34
			Sample I.D.	B14-26525-29	B14-26525-30	B14-26525-31	B14-26525-32
			Date Collected	10-Oct-14	10-Oct-14	10-Oct-14	10-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane, 1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane, 1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	4.0	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4, 1,2-(SS)	%		EPA 8260	17-Oct-14/O	99.2	96.0	94.7
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	109	106	104
Bromofluorobenzene, 4(SS)	%		EPA 8260	17-Oct-14/O	104	108	107

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



Greg Clarkin, BSc., C. Chem  
Lab Manager - Ottawa District

**C.O.C.: G23704, 705, 706, 707**

**REPORT No. B14-26525**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 10-Oct-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 20-Oct-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-35	MW13-36	MW13-37	Dup-1
			Sample I.D.	B14-26525-33	B14-26525-34	B14-26525-35	B14-26525-36
			Date Collected	10-Oct-14	10-Oct-14	10-Oct-14	09-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Acetone	µg/L	2	EPA 8260	17-Oct-14/O	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Hexane	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1



M.D.L. = Method Detection Limit  
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

Greg Clarkin , BSc., C. Chem  
Lab Manager - Ottawa District

**C.O.C.: G23704, 705, 706, 707**

**REPORT No. B14-26525**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 10-Oct-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 20-Oct-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	MW13-35	MW13-36	MW13-37	Dup-1
			Sample I.D.	B14-26525-33	B14-26525-34	B14-26525-35	B14-26525-36
			Date Collected	10-Oct-14	10-Oct-14	10-Oct-14	09-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane, 1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane, 1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4, 1,2-(SS)	%		EPA 8260	17-Oct-14/O	96.6	96.7	99.9
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	107	106	106
Bromofluorobenzene, 4(SS)	%		EPA 8260	17-Oct-14/O	108	105	105

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



Greg Clarkin, BSc., C. Chem  
Lab Manager - Ottawa District

**C.O.C.: G23704, 705, 706, 707**

**REPORT No. B14-26525**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 10-Oct-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 20-Oct-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

Client I.D.					Dup-2	Dup-3	Dup-4	Trip Blank
Sample I.D.					B14-26525-37	B14-26525-38	B14-26525-39	B14-26525-40
Date Collected					09-Oct-14	10-Oct-14	10-Oct-14	09-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed				
Acetone	µg/L	2	EPA 8260	17-Oct-14/O	< 2	< 2	< 2	< 2
Benzene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5	< 0.5
Bromodichloromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Bromomethane	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3	< 0.3
Carbon Tetrachloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Chloroform	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3	< 0.3
Dibromochloromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dibromoethane, 1,2- (Ethylene Dibromide)	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichlorobenzene, 1,4-	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2	< 0.2
Dichlorodifluoromethane	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1	< 1
Dichloroethane, 1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	0.3	< 0.1	< 0.1	< 0.1
Dichloroethane, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, 1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloroethene, cis-1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	0.3	< 0.1	< 0.1	< 0.1
Dichloroethene, trans-1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloromethane (Methylene Chloride)	µg/L	0.3	EPA 8260	17-Oct-14/O	< 0.3	< 0.3	< 0.3	< 0.3
Dichloropropane, 1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene 1,3- cis+trans	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, cis-1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Dichloropropene, trans-1,3-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5	< 0.5
Hexane	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1	< 1



M.D.L. = Method Detection Limit  
Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill

Greg Clarkin , BSc., C. Chem  
Lab Manager - Ottawa District

**C.O.C.: G23704, 705, 706, 707**

**REPORT No. B14-26525**

**Report To:**

**AMEC**

300 - 210 Colonnade Road South,  
Nepean Ontario K2E 7L5 Canada

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
Ottawa Ontario K1V 7P1

Tel: 613-526-0123

Fax: 613-526-1244

DATE RECEIVED: 10-Oct-14

JOB/PROJECT NO.: NCC Leitrim

DATE REPORTED: 20-Oct-14

P.O. NUMBER: TZ14024

SAMPLE MATRIX: Groundwater

WATERWORKS NO.

			Client I.D.	Dup-2	Dup-3	Dup-4	Trip Blank
			Sample I.D.	B14-26525-37	B14-26525-38	B14-26525-39	B14-26525-40
			Date Collected	09-Oct-14	10-Oct-14	10-Oct-14	09-Oct-14
Parameter	Units	M.D.L.	Reference Method	Date/Site Analyzed			
Methyl Ethyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl Isobutyl Ketone	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Methyl-t-butyl Ether	µg/L	1	EPA 8260	17-Oct-14/O	< 1	< 1	< 1
Monochlorobenzene (Chlorobenzene)	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Styrene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Tetrachloroethane, 1,1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Tetrachloroethane, 1,1,2,2-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Tetrachloroethylene	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Toluene	µg/L	0.5	EPA 8260	17-Oct-14/O	< 0.5	< 0.5	< 0.5
Trichloroethane, 1,1,1-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethane, 1,1,2-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Trichloroethylene	µg/L	0.1	EPA 8260	17-Oct-14/O	8.2	< 0.1	< 0.1
Trichlorofluoromethane	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Vinyl Chloride	µg/L	0.2	EPA 8260	17-Oct-14/O	< 0.2	< 0.2	< 0.2
Xylene, m,p-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, m,p,o-	µg/L	0.4	EPA 8260	17-Oct-14/O	< 0.4	< 0.4	< 0.4
Xylene, o-	µg/L	0.1	EPA 8260	17-Oct-14/O	< 0.1	< 0.1	< 0.1
Dichloroethane-d4, 1,2-(SS)	%		EPA 8260	17-Oct-14/O	98.5	96.6	101
Toluene-d8 (SS)	%		EPA 8260	17-Oct-14/O	111	108	110
Bromofluorobenzene, 4(SS)	%		EPA 8260	17-Oct-14/O	105	108	106

M.D.L. = Method Detection Limit

Site Analyzed=K-Kingston,W-Windsor,O-Ottawa,R-Richmond Hill



Greg Clarkin, BSc., C. Chem  
Lab Manager - Ottawa District



**Report To:**

**AMEC**

300 - 210 Colonnade Road South  
 Nepean, Ontario K2E 7L5

**Attention:** Susan Pfister

**Caduceon Environmental Laboratories**

2378 Holly Lane  
 Ottawa Ontario K1V 7P1  
 Tel: 613-526-0123  
 Fax: 613-526-1244

DATE SUBMITTED: 10-Oct-14  
 DATE REPORTED: 20-Oct-14  
 SAMPLE MATRIX: Groundwater

JOB/PROJECT NO.: NCC Leirim  
 P.O. NUMBER: TZ14024  
 WATERWORKS NO.:

Analyses	Qty.	Site Analyzed	Analyst Initials	Date Extracted	Date Analyzed	Date Approved	Lab Method	Method Reference
VOC's	40	Ottawa	ST	17-Oct-14	17-Oct-14	20-Oct-14	C-VOC-02 (o)	EPA 8260

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
 Laboratory Manager - Ottawa District

PARAMETERS	M.D.L.	QC DATA								
		LCS Sample (% Rec.)		Duplicate				Lab Blank	Matrix Spike (% Recovery)	
		Found	Limits	Result 1	Result 2	R.P.D.	Limits (%)		Found	Limits
Acetone	2	78	60-130	< MDL	< MDL	NC	30	< MDL	82	50-140
Benzene	0.5	100	60-130	< MDL	< MDL	NC	30	< MDL	100	50-140
Bromodichloromethane	0.1	84	60-130	0.3	0.3	NC	30	< MDL	84	50-140
Bromoform	0.1	68	60-130	1.0	1.0	NC	30	< MDL	72	50-140
Bromomethane	0.3	68	50-140	< MDL	< MDL	NC	30	< MDL	82	50-140
Carbon Tetrachloride	0.2	98	60-130	< MDL	< MDL	NC	30	< MDL	107	50-140
Chloroform	0.3	90	60-130	< MDL	< MDL	NC	30	< MDL	104	50-140
Dibromochloromethane	0.1	76	60-130	0.5	0.5	NC	30	< MDL	75	50-140
Dibromoethane, 1,2- (Ethylene Dibromide)	0.1	82	50-140	< MDL	< MDL	NC	30	< MDL	79	50-140
Dichlorobenzene, 1,2-	0.1	80	60-130	< MDL	< MDL	NC	30	< MDL	79	50-140
Dichlorobenzene, 1,3-	0.1	80	60-130	< MDL	< MDL	NC	30	< MDL	85	50-140
Dichlorobenzene, 1,4-	0.2	76	60-130	< MDL	< MDL	NC	30	< MDL	73	50-140
Dichlorodifluoromethane	1	80	50-140	< MDL	< MDL	NC	30	< MDL	90	50-140
Dichloroethane, 1,1-	0.1	90	60-130	< MDL	< MDL	NC	30	< MDL	92	50-140
Dichloroethane, 1,2-	0.1	88	60-130	< MDL	< MDL	NC	30	< MDL	91	50-140
Dichloroethene, cis-1,2-	0.1	88	60-130	< MDL	< MDL	NC	30	< MDL	88	50-140
Dichloroethene, trans-1,2-	0.1	86	60-130	< MDL	< MDL	NC	30	< MDL	93	50-140
Dichloroethylene, 1,1-	0.1	90	60-130	< MDL	< MDL	NC	30	< MDL	98	50-140
Dichloromethane (Methylene Chloride)	0.3	78	60-130	< MDL	< MDL	NC	30	< MDL	81	50-140
Dichloropropane, 1,2-	0.1	88	60-130	< MDL	< MDL	NC	30	< MDL	87	50-140
Dichloropropene, cis-1,3-	0.1	86	60-130	< MDL	< MDL	NC	30	< MDL	83	50-140
Dichloropropene, trans-1,3-	0.1	84	60-130	< MDL	< MDL	NC	30	< MDL	81	50-140
Ethylbenzene	0.5	74	60-130	0.5	0.5	NC	30	< MDL	76	50-140

All values expressed as µg/L unless stated otherwise

LCS = Laboratory Control Standard

R.P.D. = Relative Percent Difference of Duplicate Pairs at > 10 x's M.D.L.

M.D.L. = Method Detection Limit

NC = Not Calculated

- = Not Requested/Analyzed

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
Laboratory Manager - Ottawa District

PARAMETERS	M.D.L.	QC DATA								
		LCS Sample (% Rec.)		Duplicate				Lab Blank	Matrix Spike (% Recovery)	
		Found	Limits	Result 1	Result 2	R.P.D.	Limits (%)		Found	Limits
Hexane	1	120	60-130	< MDL	< MDL	NC	30	< MDL	138	50-140
Methyl Ethyl Ketone	2	80	60-130	< MDL	< MDL	NC	30	< MDL	90	50-140
Methyl Isobutyl Ketone	1	80	60-130	< MDL	< MDL	NC	30	< MDL	70	50-140
Methyl-t-butyl Ether	1	80	60-130	< MDL	< MDL	NC	30	< MDL	90	50-140
Monochlorobenzene (Chlorobenzene)	0.2	76	60-130	< MDL	< MDL	NC	30	< MDL	77	50-140
Styrene	0.5	78	60-130	< MDL	< MDL	NC	30	< MDL	75	50-140
Tetrachloroethane, 1,1,1,2-	0.1	66	60-130	< MDL	< MDL	NC	30	< MDL	75	50-140
Tetrachloroethane, 1,1,2,2-	0.4	67	60-130	< MDL	< MDL	NC	30	< MDL	63	50-140
Tetrachloroethylene	0.2	102	60-130	< MDL	< MDL	NC	30	< MDL	107	50-140
Toluene	0.5	96	60-130	< MDL	< MDL	NC	30	< MDL	103	50-140
Trichloroethane, 1,1,1-	0.1	102	60-130	< MDL	< MDL	NC	30	< MDL	107	50-140
Trichloroethane, 1,1,2-	0.1	86	60-130	< MDL	< MDL	NC	30	< MDL	87	50-140
Trichloroethylene	0.1	98	60-130	< MDL	< MDL	NC	30	< MDL	99	50-140
Trichlorofluoromethane	0.1	98	60-130	< MDL	< MDL	NC	30	< MDL	104	50-140
Vinyl Chloride	0.2	78	50-140	< MDL	< MDL	NC	30	< MDL	89	50-140
Xylene, m,p-	0.4	84	60-130	< MDL	< MDL	NC	30	< MDL	84	50-140
Xylene, o-	0.1	84	60-130	0.3	0.2	NC	30	< MDL	84	50-140

All values expressed as µg/L unless stated otherwise

LCS = Laboratory Control Standard

R.P.D. = Relative Percent Difference of Duplicate Pairs at > 10 x's M.D.L.

M.D.L. = Method Detection Limit

NC = Not Calculated

- = Not Requested/Analyzed

NA = Not Applicable



Greg Clarkin, B.Sc., C.Chem  
Laboratory Manager - Ottawa District

TESTING REQUIREMENTS

- ☐ O.Reg 153/09 ☐ O.Reg 153/04 Table ☐ MISA Guidelines  
☐ Surface Soil ☐ Sub Surface Soil (O.Reg 153/09) ☐ O.Reg 558 Leachate Analysis  
☐ Yes ☐ No Record of Site Condition (O.Reg 153/09) Disposal Site: \_\_\_\_\_  
☐ Provincial Water Quality Objectives ☐ Landfill Monitoring  
☐ Sewer Use By-Law: ☒ Other: CCME Res/Parkland

REPORT NUMBER (Lab Use)

Oct. 10.14  
B4-26525

Indicate Laboratory Samples are submitted to: ☐ Kingston ☒ Ottawa ☐ Richmond Hill ☐ Windsor

Organization: <b>AMEC</b>	Address and Invoicing Address (if different): <b>300-210 Colonnade Rd. South Ottawa, ON K2E 7L5</b>		ANALYSES REQUESTED (Print Test in Boxes)										TURNAROUND SERVICE REQUESTED (see back page)	
Contact: <b>Susan Pfister</b>			Suspected Highly Contaminated										<input type="checkbox"/> Platinum 200% Surcharge** <input type="checkbox"/> Gold 100% Surcharge <input type="checkbox"/> Silver 50% Surcharge <input type="checkbox"/> Bronze 25% Surcharge <input checked="" type="checkbox"/> Standard 5-7 days <input type="checkbox"/> Specific Date: _____	
Tel: <b>613-727-0658</b>														
Fax: <b>613-727-9465</b>	Quote No.:	Project Name: <b>NCC Lectrum</b>												
Email: <b>Susan.pfister@amec.com</b>	P.O. No.: <b>TZ14024</b>	Additional Info:												

Are any samples to be submitted intended for Human Consumption? ☐ Yes ☒ No (If yes, submit all drinking water samples on a drinking water Chain of Custody)

\* Sample Matrix Legend: WW=Waste Water SW=Surface Water GW=Groundwater LS=Liquid Sludge SS=Solid Sludge S=Soil Sed=Sediment PC=Paint Chips F=Filter Oil = Oil

Lab No.	Sample Identification	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided										Field pH	Field Temp.	# Bottles Sample	Field Filtered(Y/N)
1	MW08-1	GW	14/10/10		X												2	N
2	MW08-2																	
3	MW08-3																	
4	MW08-4		14/10/9															
5	MW08-5																	
6	MW09-8																	
7	MW09-9		14/10/10															
8	MW10-10		14/10/9															
9	MW10-11																	
10	MW10-12																	
11	MW10-13																	
12	MW10-14																	

SAMPLE SUBMISSION INFORMATION		SHIPPING INFORMATION		REPORTING / INVOICING		SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)	
Sampled By (print): <b>Brian Clark</b>	Courier (Client account) <input type="checkbox"/>	# of Pieces	Report by Fax <input type="checkbox"/>	Received By (print): <b>Valina</b>	Signature: <b>2</b>		
Submitted By (print): <b>Brian Clark</b>	Courier (Caduceon account) <input type="checkbox"/>	Shipped	Report by Email <input checked="" type="checkbox"/>	Date Received (yy-mm-dd): <b>Oct. 10.14</b>	Time Received: <b>11:18</b>		
Signature: <b>[Signature]</b>	Drop Off <input checked="" type="checkbox"/>		Invoice by Email <input type="checkbox"/>	Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Date(yy-mm-dd): <b>14/10/10</b> Time: <b>11:15am</b>	Caduceon (Pick-up) <input type="checkbox"/>		Invoice by Mail <input type="checkbox"/>	Sample Temperature °C:	Labeled by:		

**Laboratory Locations/Shipping Addresses**  
 Kingston Lab - 285 Dalton Ave., Kingston, ON K7K 6Z1, Tel: (613) 544-2001 Fax: (613) 544-2770 Email: contactkingston@caduceonlabs.com  
 Ottawa Lab - 2378 Holly Lane, Ottawa, ON K1V 7P1, Tel: (613) 526-0123 Fax: (613) 526-1244 Email: contactottawa@caduceonlabs.com  
 Richmond Hill Lab - #14-110 West Beaver Creek Rd., ON L4B 1J9, Tel: (289) 475-5442 Fax: (866) 562-1963 Email: contactrichmondhill@caduceonlabs.com  
 Windsor Lab - #5-3201 Marentette Ave., Windsor, ON N8X 4G3, Tel: (519) 966-9541 Fax: (519) 966-9567 Email: contactwindsor@caduceonlabs.com

Comments: **BOVOC**  
 Page **1** of **4**

TESTING REQUIREMENTS

REPORT NUMBER (Lab Use)

- ☐ O.Reg 153/09 ☐ O.Reg 153/04 Table ☐ MISA Guidelines  
☐ Surface Soil ☐ Sub Surface Soil (O.Reg 153/09) ☐ O.Reg 558 Leachate Analysis  
☐ Yes ☐ No Record of Site Condition (O.Reg 153/09) Disposal Site:  
☐ Provincial Water Quality Objectives ☐ Landfill Monitoring  
☐ Sewer Use By-Law: ☒ Other: CCME Res/Parkland

**B14-26525**

Indicate Laboratory Samples are submitted to: ☐ Kingston ☒ Ottawa ☐ Richmond Hill ☐ Windsor

Organization: **AmeC**  
 Contact: **Susan Pfister**  
 Tel: **613-727-0658**  
 Fax: **613-727-9465**  
 Email: **susan.pfister@amec.com**  
 Address and Invoicing Address (if different):  
**300-210 Colonnade Rd. South**  
**Ottawa, ON**  
**K2E 7L5**  
 Quote No.:  
 Project Name: **NCC Lectrum**  
 P.O. No.: **TZ14024**  
 Additional Info:

ANALYSES REQUESTED (Print Test in Boxes)

TURNAROUND SERVICE  
REQUESTED (see back page)

- ☐ Platinum 200% Surcharge\*\*  
☐ Gold 100% Surcharge  
☐ Silver 50% Surcharge  
☐ Bronze 25% Surcharge  
☒ Standard 5-7 days  
☐ Specific Date: \_\_\_\_\_

Suspected Highly Contaminated

Are any samples to be submitted intended for Human Consumption? ☐ Yes ☒ No (If yes, submit all drinking water samples on a drinking water Chain of Custody)

\* Sample Matrix Legend: WW=Waste Water SW=Surface Water GW=Groundwater LS=Liquid Sludge SS=Solid Sludge S=Soil Sed=Sediment PC=Paint Chips F=Filter Oil=Oil

Lab No.	Sample Identification	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided	Field pH	Field Temp.	# Bottles Sample	Field Filtered(Y/N)
13	MW10-15	GW	14/10/9		X			2	N
14	MW10-16								
15	MW10-17								
16	MW10-18								
17	MW10-19								
18	MW10-20		14/10/10						
19	MW10-21		14/10/9						
20	MW10-22		14/10/10						
21	MW10-23		14/10/9						
22	MW10-24								
23	MW10-25								
24	MW13-26		14/10/10						

SAMPLE SUBMISSION INFORMATION	SHIPPING INFORMATION	REPORTING / INVOICING	SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)
Sampled By (print): <b>Brian Clark</b>	Courier (Client account) <input type="checkbox"/>	Report by Fax <input type="checkbox"/>	Received By (print): <b>Valina</b> Signature: <b>[Signature]</b>
Submitted By (print): <b>Brian Clark</b>	Courier (Caduceon account) <input type="checkbox"/>	Report by Email <input checked="" type="checkbox"/>	Date Received (yy-mm-dd): <b>Oct. 10.14</b> Time Received: <b>11:18</b>
Signature: <b>[Signature]</b>	Drop Off <input checked="" type="checkbox"/>	Invoice by Email <input type="checkbox"/>	Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Date(yy-mm-dd): <b>14/10/10</b> Time: <b>11:15am</b>	Caduceon (Pick-up) <input type="checkbox"/>	Invoice by Mail <input type="checkbox"/>	Sample Temperature °C: <b>[Blank]</b> Labeled by: <b>[Blank]</b>

Laboratory Locations/Shipping Addresses

Kingston Lab - 285 Dalton Ave., Kingston, ON K7K 6Z1, Tel: (613) 544-2001 Fax: (613) 544-2770 Email: contactkingston@caduceonlabs.com  
 Ottawa Lab - 2378 Holly Lane, Ottawa, ON K1V 7P1, Tel: (613) 526-0123 Fax: (613) 526-1244 Email: contactottawa@caduceonlabs.com  
 Richmond Hill Lab - #14-110 West Beaver Creek Rd., ON L4B 1J9, Tel: (289) 475-5442 Fax: (866) 562-1963 Email: contactrichmondhill@caduceonlabs.com  
 Windsor Lab - #5-3201 Marentette Ave., Windsor, ON N8X 4G3, Tel: (519) 966-9541 Fax: (519) 966-9567 Email: contactwindsor@caduceonlabs.com

Comments:

TESTING REQUIREMENTS

- ☐ O.Reg 153/09 ☐ O.Reg 153/04 Table ☐ MISA Guidelines  
☐ Surface Soil ☐ Sub Surface Soil (O.Reg 153/09) ☐ O.Reg 558 Leachate Analysis  
☐ Yes ☐ No Record of Site Condition (O.Reg 153/09) Disposal Site: \_\_\_\_\_  
☐ Provincial Water Quality Objectives ☐ Landfill Monitoring  
☐ Sewer Use By-Law: \_\_\_\_\_ ☒ Other: CCME Res/Parkland

REPORT NUMBER (Lab Use)

**BN-26525**

Indicate Laboratory Samples are submitted to: ☐ Kingston ☒ Ottawa ☐ Richmond Hill ☐ Windsor

Organization: **Amec**

Address and Invoicing Address (if different)

**300-210 Colonnade Rd South  
Ottawa, ON  
K2E 7L5**

Contact: **Susan Pfister**

Tel: **613-727-0658**

Fax: **613-727-9465**

Email: **susan.pfister@amec.com**

Quote No.:

P.O. No.:

**TZ14024**

Project Name:

**NCC Centrum**

Additional Info:

ANALYSES REQUESTED (Print Test in Boxes)

Suspected Highly Contaminated

TURNAROUND SERVICE  
REQUESTED (see back page)

- ☐ Platinum 200% Surcharge\*\*  
☐ Gold 100% Surcharge  
☐ Silver 50% Surcharge  
☐ Bronze 25% Surcharge  
☒ Standard 5-7 days  
☐ Specific Date: \_\_\_\_\_

Are any samples to be submitted intended for Human Consumption? ☐ Yes ☒ No (If yes, submit all drinking water samples on a drinking water Chain of Custody)

\* Sample Matrix Legend: WW=Waste Water SW=Surface Water GW=Groundwater LS=Liquid Sludge SS=Solid Sludge S=Soil Sed=Sediment PC=Paint Chips F=Filter Oil=Oil

Lab No.	Sample Identification	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided										Field pH	Field Temp.	# Bottles/ Sample	Field Filtered(Y/N)
25	MW13-27	GW	14/10/10		X												2	N
26	MW13-28																	
27	MW13-29																	
28	MW13-30																	
29	MW13-31																	
30	MW13-32																	
31	MW13-33																	
32	MW13-34																	
33	MW13-35																	
34	MW13-36																	
35	MW13-37																	
36	Dup-1		14/10/9															

SAMPLE SUBMISSION INFORMATION		SHIPPING INFORMATION		REPORTING / INVOICING		SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)	
Sampled By (print): <b>Brian Clark</b>	Courier (Client account) <input type="checkbox"/>	# of Pieces	Report by Fax <input type="checkbox"/>	Received By (print): <b>Jabina</b>	Signature: <b>[Signature]</b>		
Submitted By (print): <b>Brian Clark</b>	Courier (Caduceon account) <input type="checkbox"/>	Shipped	Report by Email <input checked="" type="checkbox"/>	Date Received (yy-mm-dd): <b>Oct-10</b>	Time Received: <b>9:15 11:18</b>		
Signature: <b>[Signature]</b>	Drop Off <input checked="" type="checkbox"/>		Invoice by Email <input type="checkbox"/>	Laboratory Prepared Bottles: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Date(yy-mm-dd): <b>14/10/10</b> Time: <b>11:15am</b>	Caduceon (Pick-up) <input type="checkbox"/>		Invoice by Mail <input type="checkbox"/>	Sample Temperature °C: _____	Labeled by: _____		
<b>Laboratory Locations/Shipping Addresses</b> Kingston Lab - 285 Dalton Ave., Kingston, ON K7K 6Z1, Tel: (613) 544-2001 Fax: (613) 544-2770 Email: contactkingston@caduceonlabs.com Ottawa Lab - 2378 Holly Lane, Ottawa, ON K1V 7P1, Tel: (613) 526-0123 Fax: (613) 526-1244 Email: contactottawa@caduceonlabs.com Richmond Hill Lab - #14-110 West Beaver Creek Rd., ON L4B 1J9, Tel: (289) 475-5442 Fax: (866) 562-1963 Email: contactrichmondhill@caduceonlabs.com Windsor Lab - #5-3201 Marentette Ave., Windsor, ON N8X 4G3, Tel: (519) 966-9541 Fax: (519) 966-9567 Email: contactwindsor@caduceonlabs.com				<b>Comments:</b> <div></div>			

TESTING REQUIREMENTS

REPORT NUMBER (Lab Use)

- ☐ O.Reg 153/09 ☐ O.Reg 153/04 Table ☐ MISA Guidelines  
☐ Surface Soil ☐ Sub Surface Soil (O.Reg 153/09) ☐ O.Reg 558 Leachate Analysis  
☐ Yes ☐ No Record of Site Condition (O.Reg 153/09) Disposal Site:  
☐ Provincial Water Quality Objectives ☐ Landfill Monitoring  
☐ Sewer Use By-Law: ☒ Other: CCME Res/Parkland

**B14-26525**

Indicate Laboratory Samples are submitted to: ☐ Kingston ☒ Ottawa ☐ Richmond Hill ☐ Windsor

Organization: **Amec**  
 Contact: **Susan Pfister**  
 Tel: **613-727-0658**  
 Fax: **613-727-9465**  
 Email: **susan.pfister@amec.com**

Address and Invoicing Address (if different)  
**300-210 Colonnade Rd. South**  
**Ottawa, ON**  
**K2E 7L5**

Quote No.: **7214024**  
 Project Name: **NCC Leirum**  
 P.O. No.:  
 Additional Info:

ANALYSES REQUESTED (Print Test in Boxes)

VOC

Suspected Highly Contaminated

TURNAROUND SERVICE  
REQUESTED (see back page)

- ☐ Platinum 200% Surcharge\*\*  
☐ Gold 100% Surcharge  
☐ Silver 50% Surcharge  
☐ Bronze 25% Surcharge  
☒ Standard 5-7 days  
☐ Specific Date:

Are any samples to be submitted intended for Human Consumption? ☐ Yes ☒ No (If yes, submit all drinking water samples on a drinking water Chain of Custody)

\* Sample Matrix Legend: WW=Waste Water SW=Surface Water GW=Groundwater LS=Liquid Sludge SS=Solid Sludge S=Soil Sed=Sediment PC=Paint Chips F=Filter Oil=Oil

Lab No.	Sample Identification	Sample Matrix *	Date Collected (yy-mm-dd)	Time Collected	Indicate Test For Each Sample By Using A Check Mark In The Box Provided										Field pH	Field Temp.	# Bottles Sample	Field Filtered(Y/N)
37	Dup-2	GW	14/10/9		X												2	N
38	Dup-3	GW	14/10/10		X												2	N
39	Dup-4	GW	14/10/10		X												2	N
40	Trip Blank		14/10/9		X												2	N

SAMPLE SUBMISSION INFORMATION		SHIPPING INFORMATION		REPORTING / INVOICING		SAMPLE RECEIVING INFORMATION (LABORATORY USE ONLY)	
Sampled By (print): <b>Brian Clark</b>	Courier (Client account) <input type="checkbox"/>	# of Pieces	Report by Fax <input type="checkbox"/>	Received By (print): <b>Jabina</b>	Signature: <b>[Signature]</b>		
Submitted By (print): <b>Brian Clark</b>	Courier (Caduceon account) <input type="checkbox"/>	Shipped	Report by Email <input checked="" type="checkbox"/>	Date Received (yy-mm-dd): <b>Oct-10</b>	Time Received: <b>11:18</b>		
Signature: <b>[Signature]</b>	Drop Off <input checked="" type="checkbox"/>		Invoice by Email <input type="checkbox"/>	Laboratory Prepared Bottles: <b>[Signature]</b>	Yes <input type="checkbox"/> No <input type="checkbox"/>		
Date(yy-mm-dd): <b>14/10/10</b>	Time: <b>11:55am</b>	Caduceon (Pick-up) <input type="checkbox"/>	Invoice by Mail <input type="checkbox"/>	Sample Temperature °C:	Labeled by:		
Laboratory Locations/Shipping Addresses Kingston Lab - 285 Dalton Ave., Kingston, ON K7K 6Z1, Tel: (613) 544-2001 Fax: (613) 544-2770 Email: contactkingston@caduceonlabs.com Ottawa Lab - 2378 Holly Lane, Ottawa, ON K1V 7P1, Tel: (613) 526-0123 Fax: (613) 526-1244 Email: contactottawa@caduceonlabs.com Richmond Hill Lab - #14-110 West Beaver Creek Rd., ON L4B 1J9, Tel: (289) 475-5442 Fax: (866) 562-1963 Email: contactrichmondhill@caduceonlabs.com Windsor Lab - #5-3201 Marentette Ave., Windsor, ON N8X 4G3, Tel: (519) 966-9541 Fax: (519) 966-9567 Email: contactwindsor@caduceonlabs.com				Comments: <b>[Signature]</b>			



## **APPENDIX B**

### **LIMITATIONS**



## LIMITATIONS

1. The work performed in the preparation of this report and the conclusions presented are subject to the following:
  - a) The Standard Terms and Conditions which form a part of our Contract;
  - b) The Scope of Services;
  - c) Time and Budgetary limitations as described in our Contract; and,
  - d) The Limitations stated herein.
2. No other warranties or representations, either expressed or implied, are made as to the professional services provided under the terms of our Contract, or the conclusions presented.
3. The conclusions presented in this report were based, in part, on visual observations of the site and attendant structures. Our conclusions cannot and are not extended to include those portions of the site or structures, which were not reasonably available, in AmecFW's opinion, for direct observation.
4. The environmental conditions at the site were assessed, within the limitations set out above, having due regard for applicable environmental regulations as of the date of the inspection. A review of compliance by past owners or occupants of the site with any applicable local, provincial or federal by-laws, orders-in- council, legislative enactments and regulations was not performed.
5. The site history research included obtaining information from third parties and employees or agents of the owner. No attempt has been made to verify the accuracy of any information provided, unless specifically noted in our report.
6. Where testing was performed, it was carried out in accordance with the terms of our contract providing for testing. Other substances, or different quantities of substances testing for, may be present on site and may be revealed by different or other testing not provided for in our contract.
7. Because of the limitations referred to above, different environmental conditions from those stated in our report may exist. Should such different conditions be encountered, AMEC must be notified in order that it may determine if modifications to the conclusions in the report are necessary.
8. The utilization of AmecFW's services during the implementation of any remedial measures will allow AmecFW to observe compliance with the conclusions and recommendations contained in the report. AmecFW's involvement will also allow for changes to be made as necessary to suit field conditions as they are encountered.
9. This report is for the sole use of the party to whom it is addressed unless expressly stated otherwise in the report or contract. Any use which any third party makes of the report, in whole or the part, or any reliance thereon or decisions made based on any information or conclusions in the report, is the sole responsibility of such third party. AMEC accepts no responsibility whatsoever for damages or loss of any nature or kind suffered by any such third party as a result of actions taken or not taken or decisions made in reliance on the report or anything set out therein.
10. Provided that the report is still reliable, and less than 12 months old, AMEC will issue a third-party reliance letter to parties client identifies in writing, upon payment of the then current fee for such letters. All third parties relying on AmecFW's report, by such reliance agree to be bound by our proposal and AmecFW's standard reliance letter. AmecFW's standard reliance letter indicates that in no event shall AMEC be liable for any damages, howsoever arising, relating to third-party reliance on AmecFW's report. No reliance by any party is permitted without such agreement.