



August 2013

HISTORICAL WASTE SITE INVESTIGATION - FINAL REPORT

Snow Dump Fill Area (40 Kitchener Street), Orillia, Ontario

Submitted to:

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Distribution:

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1 Copy - Golder Associates Ltd.





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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) was retained by the City of Orillia (the City) to complete assessments of a number of historical waste disposal sites identified by the Ministry of Environment (MOE) within the limits of the City of Orillia. The primary objective of the assessments was to confirm and delineate waste disposal sites identified within the City's Official Plan and to determine if, and by how much, the 500 metre "Waste Disposal Site Assessment Areas" (WDA) for the sites could be reduced, or if some of these sites could be delisted by the MOE. Authorization to proceed with this investigation was received from the City on December 12, 2011.

The MOE Waste Disposal Inventory identified six closed waste disposal sites within the City. These sites are contained within a "Waste Disposal Inventory" initially prepared for the MOE by York University in 1979, and updated by the MOE as recently as 1991. There is generally little information provided on many of these sites included in the inventory, and a copy of the original 1979 York University report, which provided a brief description of the site indicating why it was identified, was not available from the MOE. These waste disposal sites were reported to have been operated from approximately 1940 to 1971; a seventh site, the Kitchener Street Waste Diversion Site, has been active since 1967. The Snow Dump fill area located at 40 Kitchener Street was included in the D-4 Assessment Study in addition to the seven sites identified by the MOE Waste Disposal Inventory. The exact limits of waste disposed of at the six closed sites are not known. It is further noted that residential, commercial, and industrial development has encroached on the areas formerly used as waste fill sites and as these waste sites were largely "unorganized"; there are no records of types or methods of waste placement.

The impact of waste sites is a factor of the type and age of the material deposited, the depth of waste, the cover material and the local hydrogeology and (if present) surface water body characteristics. As a result, investigations of areas where waste is known to have been deposited must assess these factors in order to determine the potential for impact. Older waste fill areas containing little putrescible material and pre-dating the use of industrial organics may be relatively innocuous, whereas those containing large amounts of organic material or liquid waste can continue to generate landfill gas or leachate despite more than twenty-five (25) years having passed since site closure.

The identified sites are as follows:

- Industrial Street: Reported to be located in the area surrounded by Elgin Street to the north, Front Street to the west, the City's Lightfoot Trail to the east and Industrial Street to the south and located within 1, 15 and 25 Industrial Street. The site, which is owned by private individuals, was closed in 1958 and is referred to in the MOE Waste Site Inventory as Site No. X 4108. It is considered that this site was identified on the basis of wood waste disposal on the property;
- Cochrane and West Street: Reported to be located on the east side of West Street South, between Queen Street and Cochrane Street. Described by the City as being located within 174 West Street South, 250 West Street South, 45 Cochrane Street, and 55 Queen Street East. The site, which is owned by private individuals, was closed in 1945 and is referred to in the MOE Waste Site Inventory as Site No. X 4109;
- Kitchener Park Landfill: Located on the south side of Kitchener Street extending to Lake Simcoe. Described by the City as located at 25 Kitchener Street. The site, which is owned by the City, was closed in 1967 and is referred to in the MOE Waste Site Inventory as Site No. X 4110;



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- West Street near Queen Street: Reported to be located in the area west of West Street South, south of Queen Street, and west of Norweld Drive (MURF Property). Described by the City as located within 255 and 325 West Street South. The 255 West Street South portion of the site is owned by the City; 325 West Street South is owned by private individuals. The site was closed in the 1980s and is referred to in the MOE Waste Site Inventory as Site No. X 4129. A Certificate of Property Use has been issued for this property;
- Industrial and Moffat: Reported to be located at the intersection of Atherley Road and Millard Street, but described in Appendix "C" of the RFP for this work program as Industrial and Moffat Street. The property, which is owned by private individuals was closed 1971 and is referred to in the MOE Waste Site Inventory as Site No. X 4130;
- Kitchener Street Waste Diversion Site: The site is located in the area south of Highway 12, east of the former CN Railway, north of Lake Simcoe, and west of Kitchener Street. The site address is 100 Kitchener Street and is owned by the City. The site has been active since 1967 and is operated under MOE Certificate of Approval No. A250601; and,
- Snow Dump Fill Area: This Site is located on the north side of Kitchener Street. Described by the City as located at 40 Kitchener Street. The Site, which is owned by the City, is currently a wastewater treatment centre (WWTC) and snow dump. The scope involved only the snow dump fill area on the property and excluded any work near the WWTC. The presence of waste has not been confirmed; however fill was reportedly placed at this location.

Based on an aerial photograph review, discussions with City staff and people familiar with the sites, it was determined that a seventh site, Site X4130 was erroneously included in the MOE's Waste Disposal Inventory. The MOE has agreed verbally that this Site may be delisted following their review of signed affidavits confirming this is not a waste disposal site. This property is not included within these investigations.

This report pertains to the Snow Dump Fill Area as described above (see Figure 2). Separate reports were prepared for the remaining Sites.



2.0 SCOPE OF WORK

2.1 Historical Review

An initial assessment carried out by Golder was in general accordance with Canadian Standards Association (CSA) Z768-01 requirements for Phase I ESAs and included the following scope of work:

- a review of reasonably accessible historical and regulatory records relating to the Site and adjacent properties;
- interviews with relevant persons;
- visual Site reconnaissance; and,
- the preparation of a Phase I ESA report.

The Phase I ESA was completed using available information to assist in evaluating whether issues of potential environmental concern may be present at the Site. It should be noted that a Phase I ESA cannot confirm the presence or absence of contaminants at the Site. This can only be confirmed through a program of intrusive testing including sampling and analysis of soil and groundwater. This assessment included a cursory overview of neighbouring land uses from the Site or from publically accessible areas and does not constitute an assessment of the adjacent facilities.

2.2 Subsurface Investigation

Golder retained the services of Geo-Environmental Drilling Inc. of Milton, Ontario for borehole drilling and monitoring well installation, completed on July 25, 2012. Geo-Environmental Drilling Inc. is licensed as a well contractor by the MOE (license number 6607). The boreholes were advanced using a M75-2 track mounted auger rig. Soil samples were obtained at regular depth intervals using 35 mm split spoon soil sampling equipment. All sampling equipment was cleaned between sampling intervals. The subsurface investigation consisted of the following:

- Supervision of the drilling of four boreholes (BH12-1 through BH12-3 and BH12-14), advanced to depths ranging from 3.66 m (12 feet) to 5.94 m (19.5 feet) below grade;
- Installation of one multi-level monitoring well nest (within BH12-2) in the borehole. The deepest well at each well nest location was installed to intersect the water table. A shallow landfill gas probe was installed within the unsaturated zone at the same location;
- Installation of two additional gas probes (within BH12-1 and BH12-3);
- Collection of soil samples during drilling and retention of the samples for visual characterization, headspace screening of organic compounds and possible submission to the analytical laboratory;
- Development, purging, and sampling of the two monitoring wells upon completion;
- Selection of soil samples for analysis of select parameters. A minimum of one soil sample was submitted for each borehole for analysis of volatile organic compounds (VOC), polynuclear aromatic hydrocarbons (PAH), metals, and/or inorganics. One soil sample was also selected and submitted for O. Reg. 558 waste classification;



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- Submission of groundwater samples from the monitoring well for analysis of landfill leachate parameters including VOC, petroleum hydrocarbon fraction F1 to F4 (PHC F1 to F4), PAH, metals, and/or inorganics;
- Measurement of headspace vapour concentrations in the monitoring well using an RKI Eagle II combustible gas meter operated in the combustible vapour mode (for detection of hydrocarbons) and the photoionization mode (for detection of volatile organic compounds);
- Measurement of methane, carbon dioxide and oxygen concentrations in the three gas probes using a GEM 2000 gas meter;
- Arrangement for the survey of the elevation and location of all borehole/monitoring well locations by the City's surveyor; and,
- Completion of rising head tests in the monitoring well to estimate hydraulic conductivity.

2.3 Impact Assessment Using D-4 Guidelines

The available information was reviewed in the context of D-4 Guidelines to determine the extent of impact of the waste Site. Factors to be considered when land use is proposed on or within 500 metres of a non-operating site include: ground and surface water contamination by leachate, surface runoff, ground settlement, visual impact, soil contamination and hazardous waste, and in particular, landfill-generated gases. The focus of the current study completed by Golder includes groundwater, leachate and landfill gas (i.e., methane) migration from the Site to adjacent properties. Visual impacts are commented on only for sites where an elevated waste mound is present. Comments are provided on general direction of runoff from the Site, where possible. The scope of the current study completed by Golder does not include assessment of ground settlement or contaminated soils and impacts on private sites, other than to comment on available historical information.



3.0 HISTORICAL REVIEW FINDINGS

3.1 Information Review

In order to research the historical conditions at the Site, a review of information from the following sources was conducted:

- Aerial photographs were obtained from the National Air Photo Library and reviewed by Golder for the years 1945, 1965, 1967, 1968, 1976 and 1984, as well as Google Earth Images from 2011;
- City directory review completed by LGI Copy Services Canada on behalf of Golder;
- Fire insurance plans and other plans/reports obtained by Risk Management Services formerly CGI Information Systems and Management Consultants;
- Technical Standards and Safety Authority (TSSA), Fuels Safety Division;
- A Standard EcoLog ERIS Report issued on March 30, 2012 for the Site and surrounding properties within 250 m of the Site;
- Various MOE databases were searched by and reported in the EcoLog ERIS Database Report, including:
 - “Waste Disposal Site Inventory” (June 1991);
 - “Waste Disposal Sites” (1970 – Mar 2012);
 - “Ontario Regulation 347 Waste Generators Summary” (1986 to Oct 2012);
 - “Ontario Spills” (1988 – 2011);
 - List of TSSA Expired Facilities” (current to February 2012);
 - “Compliance and Convictions” (1989 – Feb 2012);
 - “TSSA Fuel Storage Tank” (current to June 2011);
 - “Ontario Inventory of PCB Storage Sites” (1987 – Oct 2004);
 - “Private and Retail Fuel Storage Tanks” (1989 – 1996); and,
 - “Ontario Regulation 347 Waste Receivers Summary” (1986 – 2008);
- The MOE database Publications “Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario” (November 1988), and “Coal Gasification Plant Waste Sites in Ontario” (April 1987) were reviewed in-house for the Site by Golder on February 28, 2012. On-line databases for Hazardous Waste Information Network (HWIN), the Environmental Bill of Rights (EBR; on-line registry of approval applications, orders and decisions), and the Brownfields Environmental Site Registry (registry of sites for which a Record of Site Condition has been filed with the MOE under Ontario Regulation 153/04) was reviewed for the Site by Golder on June 5, 2012;
- Previous Environmental Reports;
- City of Orillia – Public Works Department;



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- Published geological maps and reports;
- Interviews with persons familiar with the Site (see Section 4.0); and,
- Visual Site reconnaissance (see Section 4.0).

3.1.1 Aerial Photograph Review

Aerial photographs of the Site and vicinity for the years 1930, 1945, 1965, 1967, 1968, 1976 and 1984, as well as Google Earth Images from 2002 were reviewed. Copies of the aerial photographs are provided in Appendix A (Figures A-1 through A-8).

Changes in the presence or absence of structures on the Site and surrounding areas were noted. Based on the review of aerial photographs, the following was noted:

Table 3.1: Aerial Photograph Review

Year	Site	Surrounding Area
1930	The west and southwest portion of the Site is not visible on the 1930 aerial photograph. The east and north portions of the Site are undeveloped with potential fill in the central portion of the Site.	North: Primarily vacant land with scattered trees. East: Two buildings present are adjacent to the Site along Kitchener Street. The remaining area is not visible on the 1930 aerial photograph.
1945	The Site is undeveloped, and appears to consist of vacant land with trees. One pond is present in the eastern portion of the Site.	North: Primarily vacant land with scattered trees. East: Two buildings present are adjacent to the Site along Kitchener Street. South: Undeveloped land with Lake Simcoe beyond. West: Undeveloped land with dense tree cover.
1965	The wastewater treatment centre has been constructed. The pond is no longer present on-Site; however two wastewater ponds are visible. The northern portion of the Site appears to be cleared.	Highway 12 has been constructed to the north and a portion of the land has been cleared to the south. The remainder of the surrounding area appears similar to the 1945 aerial photograph.
1967	The northern portion of the Site has been cleared with possible fill material present where the current day snow dump is located. A linear feature leading from Highway 12 to Ben's Ditch in the northeast corner may represent a drainage feature.	Buildings have been constructed to the east and south. The adjacent land to the east appears to be disturbed. Kitchener Street has been extended westerly to the current day Kitchener Street Waste Diversion Site.
1968	A total of six wastewater ponds are visible on-Site. The remainder of the Site appears similar to the 1967 aerial photograph.	The remainder of the surrounding area appears similar to the 1967 aerial photograph



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Year	Site	Surrounding Area
1976	The WWTC has expanded with more wastewater treatment ponds. The remainder of the Site appears similar to the 1968 aerial photograph.	North: Highway 12 followed by undeveloped land. East: Additional buildings have been constructed in the disturbed area. South: Kitchener Street with undeveloped land and Lake Simcoe beyond. West: The area has been cleared of all trees.
1984	No significant changes, as per the 1976 aerial photograph.	Properties to the east of the Site appear to consist of industrial operations and the Kitchener Street Waste Diversion Site is active. The area to the southeast has been developed into a park.
2002 (Google Earth Image)	No significant changes, as per the 1984 aerial photograph.	No significant changes as per the 1984 aerial photograph.

The City of Orillia indicates that the WWTC and first two wastewater treatment ponds were constructed around 1947. Waste fill material was reported to have been possibly imported onto the Site before 1930 on the WWTC portion of the Site and before 1967 on the Snow Dump portion of the Site. The Kitchener Street Waste Diversion Site became active in 1967. The anticipated southerly direction of groundwater flow at the Site suggests that groundwater impacts, originating on-Site relating to former waste placement would not migrate toward the adjacent industrial properties along Kitchener Street to the east of the Site.

3.1.2 Risk Management Services

RMS was contacted by Golder and requested to obtain copies of Fire Insurance Plans (FIP) related to the Site, as well as Site Specific Plans and Property Underwriters' Reports (PUR) and Property Underwriters' Plans (PUP) for the Site. A response was received from RMS dated April 3, 2012, indicating that no FIP, PUP or PUR were available for review for the Site. A copy of the RMS report is provided in Appendix B.

3.1.3 City Directory Review

A review of available historical city directories for the years 1961, 1966, 1976, 1982, 1986, 1996/1997 and 1998/1999 was completed by LGI on behalf of Golder for the Site, as well as for surrounding properties along Kitchener Street, Memorial Avenue, Olive Crescent, Shannon Street, Highway 12, United Drive, and West Street South. Based on Golder's review of the information provided by LGI, the following was noteworthy:

On-Site

- The Site address (40 Kitchener Street) was listed as Waste Management Advisory Council in the 1996/1997 and 1998/1999 city directories. This address was not listed in any of the other reviewed city directories;



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Off-Site

Based on the review of surrounding properties, the following was of note:

East:

- 24 Kitchener Street, located approximately 120 m east of the Site, was listed in the 1976 and 1982 city directories as Simcoe Truck Centre, and in the 1986, 1996/1997 and 1998/1999 city directories this address was listed as Roe Gravel. This address was not listed in any of the other reviewed city directories;
- 32 Kitchener Street, located approximately 10 m east of the Site, was listed in the 1986 city directories as Huronia Fuels. In the 1996/1997 and 1998/1999 city directories this address was listed as SA Machine & Tool. This address was not listed in any of the other reviewed city directories;
- 30 Kitchener Street, located approximately 70 m east of the Site, was listed in the 1976 city directories as Maber Manufacturing, in the 1982 city directories as Littlejohn Athletic Products, and in the 1996/1997 and 1998/1999 city directories as Ontario Recyclers. This address was not listed in any of the other reviewed city directories;

A copy of the city directory search is provided in Appendix C.

3.1.4 Technical Standards and Safety Authority, Fuel Safety Division Records

The TSSA maintains records related to registered underground storage tanks (UST) for petroleum-related products. The TSSA was contacted to establish the status of the Site and to identify outstanding instructions, incident reports, fuel oil spills or contamination records. On March 23, 2012, the TSSA reported via e-mail that there were no records on file pertaining to the Site. A copy of the TSSA response is provided in Appendix C.

3.1.5 Lake Simcoe Conservation Authority

The Lake Simcoe Region Conservation Authority (LSRCA) mapping indicates that the Site is under LSRCA jurisdiction, but is not within a regulated area. A copy of the LSRCA mapping is provided in Appendix C.

3.1.6 EcoLog ERIS Report

An EcoLog Environmental Risk Information Services Ltd. (EcoLog ERIS) report is a site-specific summary of historical environmental information for properties in Canada. The report provides a summary of research, tabulation and identification of key federal, provincial and private sector databases to identify environmental elements within a 250 m radius of the Site. This is used to aid in the identification of possible environmental concerns or risks for commercial, industrial and residential sites.

Golder retained EcoLog ERIS to complete a Standard search for the Site and surrounding properties within 250 m from the Site. Based on Golder's review of the information provided, the following information pertaining to the Site was noteworthy:

On-Site

- The Site was listed as The Corporation of the City of Orillia in the Environmental Registry for approval for a waste disposal site under Environmental Brownfield Regulation (EBR) Number 011-3199 for the year 2011. This address was also listed in the TSSA Historic Incidents database with one record of a vapour release of gaseous fuel in the year 2008, under external file number FS INC 0802-00635. This incident was described



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as completed, with no action required. Further, this property was listed as a water pollution control plant in the Ontario Regulation 347 Waste Receivers Summary database under receiver number W120569. Further, this property was listed with 12 records in the Ontario Spills database with various reported release including releases of un-chlorinated raw sewage and sludge between the years 2008 to 2011.

Off-Site

East

- The property located at 18 Kitchener Street, approximately 15 m east of the Site, was listed as FM Recycling in the Automobile Wrecking & Supplies database. No further information was provided;
- The property located at 30 Kitchener Street, approximately 70 m east of the Site, was listed as Capital Environmental Resources Inc. in the Environmental Registry database with one record for approval for a waste disposal site under EBR Registry number IA9E0503 for the year 1999. Further, this property was listed in the Waste Disposal Sites – MOE CA Inventory database under certificate number A74013 as a processing facility;
- The property located at 24 Kitchener Street, approximately 120 m east of the Site, was listed as Doug Roe Enterprises Limited in the Environmental Registry for approval for a waste disposal site under EBR Number IA9E0313 for the year 1999. This property was also listed in the Waste Disposal Sites – MOE CA Inventory database under certificate number A252604; and,
- The property located at 32 Kitchener Street, approximately 10 m north of the Site, was listed as Texaco Canada Inc. in the Ontario Regulation 347 Waste Generators Summary database under generator number ON0005228 as a generator of light fuels (code 221) for the years 1986-1990, and 1992-1998,

West

- The property located approximately 50 m west of the Site (Orillia PUC) was listed in the Ontario Spills database with numerous spills. Noteworthy spills included a spill reported to have occurred on July 31, 1996 under reference number 38538. This spill reportedly consisted of 90 L of diesel fuel to the ground from a storage tank hose rupture. Environmental impact was reportedly confirmed. Other spills present at this property included sewage and wastewater to land and water from 1989-2002;
- The property located at 100 Kitchener Street, approximately 100 m west of the Site, was listed as the Orillia Waste Diversion Site in the Ontario Regulation 347 Waste Generators Summary under generator number ON0906901 as a generator of various wastes including halogenated solvents, heavy fuels and halogenated pesticides for the years 1990, 1992-2008, and as of 2010. Further, this property was listed in the Waste Disposal Sites – MOE CA Inventory database under certificate numbers A252603, A252601 and A252606 as a processing facility;

A copy of the EcoLog ERIS report is provided in Appendix D.

3.1.7 MOE Databases

The MOE Publications “Ontario Inventory of PCB Storage Sites” (1987 – Oct 2004), “Waste Disposal Site Inventory” (June 1991), “Ontario Regulation 347 Waste Generators Summary” (1986 to Oct 2012), “Ontario Regulation 347 Waste Receivers Summary” (1986 – 2008) (updated to reflect standard select report), were



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searched by and reported in the EcoLog ERIS Database Report. The MOE database Publications “Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario” (November 1988), and “Coal Gasification Plant Waste Sites in Ontario” (April 1987) were reviewed in-house for the Site by Golder on February 28, 2012. The on-line databases for HWIN, EBR Environmental Registry (EBR), and Brownfields Environmental Site Registry were reviewed for the Site by Golder on April 18, 2012. These sources indicated the following:

- The Site is not listed as a PCB Storage site, and there are no PCB storage sites listed within a 250 m radius of the Site;
- The Site is not listed in the Anderson Waste Disposal Sites database. However, 100 Kitchener Street, located 45 m west of the Site, was listed in the database as the Kitchener Street Dump between the 1960s and 1990s with reference numbers MOEE 4110 alt and MOE A250601 - 1976;
- The Site is not listed as a site using or producing coal tar and related tars, and there are no sites using or producing coal tar and related tars listed within 250 m of the Site;
- The Site is not listed as a coal gasification plant waste site, and there are no sites listed as a coal gasification waste plant listed within 250 m of the Site;
- The Site was not listed in the MOE Waste Generator databases reviewed;
- The Site was not listed in the HWIN database;
- The Site was not listed in the EBR Environmental Registry; and,
- The Site was not listed in the Brownfields Environmental Site Registry.

3.1.8 Previous Environmental Reports

No previous environmental reports were provided to Golder relating to the Site.

3.1.9 City of Orillia – Public Works Department

According to City staff, prior to 1992, the storage lagoons located at the WWTC were not lined. In 1992 the lagoons were drained and the pond bases were lined with a clayey silt/silty clay deposit with a reported maximum permeability of 1×10^{-6} cm/s. Water quality within the lagoons is monitored monthly by City staff during the spring, summer and fall. In August 2012, concentrations of ammonia were reported for each of the six storage lagoons, and ranged from 23 mg/L to 870 mg/L (average 454 mg/L). Concentrations of potassium are not monitored by the City, although, elevated concentrations of potassium are typical in sewage.

3.2 Site Reconnaissance

On September 6, 2012, a visual walk-over reconnaissance of the Site was conducted by Golder. The property located at 40 Kitchener Street was only assessed from publically owned lands. The snow dump was fully accessible as it is owned by the City. The weather was sunny and 20 °C. A photographic record of the reconnaissance is provided as Appendix E. The results of the reconnaissance are discussed below.



3.2.1 Site Buildings and Related Infrastructure

The Site is an undeveloped property currently used by the City as a snow dump. Site representatives have indicated that the snow dump is used during the winter months as a storage area for snow removed during winter road maintenance. At the time of the Site visit the fill area was noted to be approximately 3.5 acres and grass covered. Small pieces of waste were noted on-Site; however, the fill mainly consisted of sand. No buildings or foundations were noted at the snow dump. No chemical storage or AST were noted on-Site.

3.2.2 Site Topography and Surface Water Drainage

Small berms were noted on the northern and western edge of the snow dump fill area. Surface water flow appears to run from south to north towards Highway 12.

3.2.3 Hazardous Materials

A full assessment of the on-Site buildings could not be conducted; however due to their age, asbestos, lead-based paint, polychlorinated biphenyls (PCB), urea formaldehyde foam insulation (UFFI), mercury, and mould are possible. If these buildings are to be demolished, a full designated substance survey would be required to ensure that appropriate personal protective equipment is used by the workers during demolition.

3.2.4 Air Emissions

Multiple vents were observed on the roof of the Site buildings. It is probable that these vents are associated with wastewater treatment equipment and processes.

3.2.5 Chemical Storage and Waste Management Activities

No evidence of chemical storage, spills or releases were observed during the Site reconnaissance. However, based on the industrial land use noted at the Site it is highly probable that chemicals are stored on-Site.

Waste management activities included the treatment of wastewater on-Site.

3.2.6 Above Ground and Underground Storage Tanks

Several sewage Aboveground Storage Tanks (ASTs) were observed in the central portion of the Site, adjacent to the Site building. The tanks appeared to be in good condition. No secondary containment was observed around the ASTs.

3.3 Adjacent Properties

Golder observed the surrounding properties from publicly accessible areas and from the Site. Properties located adjacent to the Site at the time of the Site visit included the following:

North: Highway 12 followed by undeveloped land;

East: K. Knight Contracting and Moose Lodge (6 Kitchener Street), Sunshine Racquet and Fitness (10 Kitchener Street), Elite Printing / Elite Fabricating and Welding (14 Kitchener Street), Mid Ontario Disposal (24 Kitchener Street), FMR Scrap Buyers (18 Kitchener Street), Orillia Metal Fabrication (26 Kitchener Street), Schachter P & Sons Ltd. (30 Kitchener Street), Astek Composites Inc. (32 Kitchener Street);

West: Kitchener Street Waste Diversion Site: and,



South: The WWTC, Ben's Ditch and Kitchener Street Park followed by Lake Simcoe;

3.4 Historical Information Review

Based on the information collected during this assessment, the following information was obtained:

- The City reported that the storage lagoons at the Site were not lined prior to 1992, and are currently only partially lined (i.e., the sidewalls were not lined). It is possible that elevated ammonia observed in the sand aquifer in the area may be influenced by the storage lagoons;
- Based on the City Directory Review, the Site address (40 Kitchener Street) was listed as Waste Management Advisory Council in the 1996/1997 and 1998/1999 city directories;
- The Site was listed as The Corporation of the City of Orillia in the Environmental Registry for approval for a waste disposal site for the year 2011; and,
- At the time of the Site visit, the fill area was noted to be approximately 3.5 acres and grass covered. Small pieces of waste were noted on the Site; however, the fill mainly consisted of sand.



4.0 FIELD INVESTIGATION METHODS – SUBSURFACE INVESTIGATION

The following sections describe the field investigation methods employed during the work program carried out at the locations in the vicinity of the former waste disposal Site.

The field work was completed between July 25, 2012 and January 9, 2013. The field work described herein was carried out under the supervision of members of Golder's technical staff.

4.1 Health and Safety

Prior to initiating the field work, Golder developed and implemented Site-specific protocols to protect the health and safety of its employees and subcontractors through the preparation of a Site-specific Health and Safety Plan. An assessment of potential health and safety hazards within the study area and those associated with the proposed work was completed at the beginning of each day of the field program. A health and safety tailgate meeting was held with Golder's subcontractors each day prior to commencement of the field work. A Health and Safety Contractor Checklist for Golder's drilling subcontractor was completed and forwarded to City staff prior to commencement of drilling activities.

Golder coordinated utility clearances with the local utility companies prior to the initiation of the field work. As well, a private locator (Cable Master Inc., of Newmarket, Ontario) was retained to assess for the presence of unidentified buried services in the area of the proposed borehole locations.

4.2 Borehole Advancement

Golder retained the services of Geo-Environmental Drilling Inc. of Milton, Ontario for borehole drilling and monitoring well and gas probe installation, which were completed on July 25, 2012. The boreholes were advanced using a M75-2 track mounted auger rig. Soil samples were obtained at regular depth intervals using 35 mm split spoon soil sampling equipment. All sampling equipment was cleaned between sampling intervals. Four boreholes were advanced (BH12-1 through BH12-3 and BH12-14) to depths ranging from 3.66 m (12 feet) to 5.94 m (19.5 feet) below grade.

Soil cuttings generated during the drilling of the boreholes were placed in 205 L drums and left on-Site for subsequent disposal by Assured Industrial Services (AIS), a MOE licensed waste hauler (Certificate of Approval #A840688), of Gormley, Ontario.

4.3 Soil Sampling

Soil samples were obtained at regular depth intervals in the boreholes and were logged in the field noting subsurface conditions and visual evidence of waste and/or contamination. A portion of each soil sample was placed in a sealed plastic bag, and, if analyzed, laboratory supplied sample jars. Bagged portions of the samples were subsequently screened for combustible vapours using either an RKI Eagle organic vapour meter (OVM) or an RKI Eagle 2 gas detector. Headspace readings were taken in the plastic soil sample bags' headspace shortly after sample collection. Conditions encountered in the boreholes are summarized on the Record of Borehole Log sheets provided in Appendix F.

Soil samples selected for chemical analysis were immediately placed in coolers with ice and submitted to AGAT Laboratories Ltd. (AGAT) of Mississauga, Ontario, under chain-of-custody. The selection of samples for laboratory analysis was based on the presence of waste, visual and olfactory observations (i.e., odour or



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staining) during drilling, and headspace readings. Table 4.1 provides a summary of the soil samples submitted to AGAT for analysis.

Table 4.1: Summary of Analyzed Soil Samples

Location	Sample I.D.	Sample Depth (mbgs)	Sample Description	PID Reading (ppm)	Requested Analysis
GP12-1	GP12-1-3	1.52 – 2.13	Silt layer below fill and waste layer	2	VOC, metals, inorganics, PAH, PHC F1-F4
MW12-2	BH12-2-3	1.52 – 2.13	Worst case OVM and PID readings	6	VOC, metals, inorganics
	BH12-2-5	3.05 – 3.66	Silty sand and organic layer below fill and waste layer	5	VOC, PAH, PHC F1-F4
	BH12-2-7	4.57– 5.18	Water table	2	VOC
GP12-3	GP12-3-2	0.76 – 1.37	Surficial silty sand with ash, brick, and plastic waste	0	VOC, metals, inorganics, PAH
	GP12-3-3	1.52 – 2.13	Silty sand layer above confining till layer	2	VOC, metals, inorganics, PHC F1-F4

Notes:

ppm = parts per million by volume

VOC = volatile organic compounds

PAH = polynuclear aromatic hydrocarbons

PHC = petroleum hydrocarbon fractions F1 to F4

4.4 Well Installation

4.4.1 Monitoring Wells

One borehole, (BH12-2) was completed as a combination groundwater and soil gas monitoring well on July 25, 2012. The monitoring well installation consisted of a single monitoring well constructed with a nominal 50 mm (2 inch) diameter solid PVC plastic riser pipe fitted with a nominal 50 mm diameter threaded PVC screen, 3.05 m in length. The pipe was pre-washed and delivered to the Site in factory sealed plastic bags. The base of the monitoring well screens was installed to intersect the water table. At the monitoring well location, the annulus of the borehole adjacent to the screened portion of the well was backfilled with #1 silica filter sand to a minimum level of approximately 0.15 m above the top of the screen. The remainder of the borehole annulus adjacent to the well riser pipe was backfilled with bentonite and/or grout to within 0.3 m of ground surface, where a concrete plug was placed. The monitoring wells were completed with a 0.10 m (4-inch) diameter stick-up steel protective well casing set in the concrete. Details of the monitoring well installations are provided on the Record of Borehole sheets enclosed in Appendix F. A copy of the MOE Well Record for the newly installed well is provided in Appendix G and locations of MOE recorded wells within 250 m of the Site are provided on Figure 3.



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The monitoring well was surveyed by the City on August 9, 2012. The elevations of the ground surface in the vicinity of the well, and the top of the measuring pipe were measured relative to a geodetic benchmark. Groundwater levels were measured four times in the monitoring well between August 1 and September 11, 2012, using an electronic water level tape.

4.4.1 Gas Probes

A shallow nested gas probe was installed at the monitoring well location. In addition to the monitoring well location, an additional two landfill gas probes were installed at boreholes BH12-1 and BH12-3 on July 25, 2012 (subsequently relabeled GP12-1 and GP12-3, respectively). The landfill gas probe screens were installed in the vadose zone (i.e., above the anticipated groundwater elevation) to facilitate the assessment of the presence/absence of landfill gas.

Each landfill gas probe installation consisted of a single monitoring well constructed with a nominal 50 mm (2 inch) diameter solid PVC plastic riser pipe fitted with a nominal 50 mm diameter threaded PVC screen, ranging in length from 1.52 m (i.e., GP12-1 to GP12-2) to 3.05 m (GP12-3). The pipe was pre-washed and delivered to the Site in factory sealed plastic bags. At each gas probe location, the annulus of the borehole adjacent to the screened portion of the well was backfilled with #2 silica filter sand to just above the top of the screen. The remainder of the borehole annulus adjacent to the well riser pipe was backfilled with bentonite to within 0.15 m of ground surface, where a concrete plug was placed. The gas probes were completed with a 100 mm stick-up steel protective well casing set in the concrete. Details of the landfill gas probe installations are provided on the Record of Borehole sheets contained in Appendix F. The MOE Well Record for the newly installed probes is provided in Appendix G.

Landfill gas probes were surveyed by the City on August 9, 2012. The elevations of the ground surface in the vicinity of the wells, and the top of the measuring pipe were measured relative to a geodetic benchmark.



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Table 4.2: Summary of Monitoring Well and Gas Probe Installations – Snow Dump Fill Area

Well	Monitoring Pipe Elev. (masl)	Ground Surface Elev. (masl)	Depth to Bottom of Screen (mbgs)	Top of Screen Elev. (masl)	Bottom of Well Elev. (masl)	Screen Installation Description
GP12-1	224.13	223.17	3.05	221.64	220.12	Native silt, some sand and clayey silt, overlying sand, some silt
MW12-2	224.32	223.14	5.49	220.70	217.65	Silty sand, trace clayey chunks, fill, noted waste, transitioning to native silty sand, followed by clayey silt to silt, some sand, overlying fine to coarse sand
GP12-2	224.11	223.14	2.90	221.76	220.24	Silty sand, trace clayey chunks, fill, noted waste
GP12-3	222.74	221.72	3.81	220.96	217.91	Silty sand and gravel, clayey chunks, fill, noted waste, transitioning to silty clay to clayey silt

Notes:

masl = metres above sea level

mbgs = metres below ground surface

4.5 Hydraulic Testing

Hydraulic conductivity estimates were obtained from a rising head test completed at the monitoring well as part of the current investigation. The results of the test are presented below in Table 4.3 and are also provided in Appendix H.

Table 4.3: Hydraulic Conductivity Testing Results

Well Location	Hydraulic Conductivity (cm/second)	Screen Material
MW12-2	1.13×10^{-3}	Silty sand, trace clayey chunks, fill, noted waste, transitioning to native silty sand, followed by clayey silt to silt, some sand, overlying fine to coarse sand

4.6 Groundwater Purging and Sampling

The monitoring well was equipped with dedicated low density polyethylene (LDPE) tubing and a foot valve (Waterra™-type system) for subsequent well purging and water sampling. Monitoring well MW12-2 was developed by surging using a dedicated surge block to pump the well until indicator parameters (i.e., pH, temperature and conductivity) stabilized, or until ten well volumes were removed from the well, using a hydraulic



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lift pump to flush out the annulus of excess sediment to aid in reduction of silt content in the groundwater samples. The well was allowed to recover for a minimum of 24 hours prior to sample collection.

Prior to collection of groundwater samples, a minimum of approximately three well volumes were purged from the well. Purged water was placed in 205 L drums for subsequent disposal off-Site by AIS.

Groundwater samples from the monitoring well were collected on August 27 and September 11, 2012. At the time of sampling, the groundwater samples were placed in coolers with ice and subsequently submitted to the commercial analytical laboratory under chain-of-custody procedures. Table 4.4 provides a summary of the groundwater samples submitted for laboratory analysis.

During the first groundwater sampling event at each location, the well was sampled for parameters including: VOC, PHC, metals (excluding iron and manganese), major ions, ammonia, chromium VI, and PAH. Based on the results of the first sampling event, analyzed parameters were adjusted to subsequently sample those parameters present at each location. Electrical conductivity, sodium adsorption ratio, cyanide, mercury, and chromium VI were not analyzed during the second round of groundwater sampling.

Table 4.4: Summary of Analyzed Groundwater Samples

Well Number and I.D.	Date Sampled	Final Field pH	Final Field Temp. (°C)	Final Field Cond. (µS/cm)	Total Volume Purged (L)
MW12-2	27-Aug-12	7.16	11.1	1842	6
	11-Sep-12	6.72	10.9	1809	7

Notes:

µS/cm = micro Siemens per centimetre

4.7 Landfill Gas Sampling

Landfill gas sampling was conducted at the three landfill gas probes three times at each location between August 23, 2012 and January 9, 2013.

A portable, high volume pump (25 L/min) was used to purge three times the volume of each gas well prior to sampling. Readings including the relative concentrations of carbon dioxide (CO₂), methane (CH₄), and oxygen (O₂) were obtained from the gas probes using a calibrated GEM 2000 air monitor.

Table 1 provides a full list of landfill gas readings in the landfill gas probes.

4.8 Analytical Program

Golder retained the services of AGAT for the chemical analysis of soil and groundwater samples. AGAT is accredited by the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories program. Analytical methods are reported by AGAT on the Laboratory Certificates of Analysis provided in Appendices K and L. The standard analytical methods and procedures used, as well as internal laboratory method blanks, duplicates and surrogate recoveries for organic analyses are also provided on the AGAT Laboratory Certificates of Analysis provided in Appendices K and L.

4.8.1 Quality Assurance/Quality Control

AGAT has an in-house quality assurance/quality control (QA/QC) program to govern sample analysis. Standard QA/QC protocols include the analysis of method blanks, matrix spikes, ion balance calculations and 10%



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replicates for every sample batch. In addition to the quality control employed by AGAT, the following QA/QC samples were also submitted during the work program:

- One (1) blind groundwater duplicate sample (DUP1, a duplicate of MW12-2) was submitted for analysis of VOCs, PHC F1 to F4, metals, major ions, ammonia;
- Two blind field blank samples (both labelled as Field Blank) were submitted for analysis of VOC and/or PHC F1 to F4 during the August and September 2012 sampling events; and,
- Two trip blank samples (both labelled as Trip Blank) were submitted for analysis of VOC during the August and September 2012 sampling events.



5.0 PHYSICAL CHARACTERISTICS

5.1 Utilities and Water Supply

No utilities are identified within 50 m of the boreholes at the Snow Dump. Bell lines were identified outside the fence line along Kitchener Road. Gas, electric, hydro, fiber optic, and sewer have been reported to be located on the WWTC portion of the Site.

5.2 Regional Geologic Setting

According to Barnett, Cowan, and Henry, Quaternary Geology of Ontario, Southern Sheet, Ontario Geological Survey Map 2556 scale 1:1,000,000 (1991), surficial geology in the area consists of glaciolacustrine deep water deposits including silt and clay, minor sand, and basin and quiet water deposits. In addition fill and organic deposits were identified on-Site. Ontario Geological Survey, Ministry of Northern Development and Mines, Map 2554, Bedrock Geology of Ontario, Southern Sheet (OGS, 1991), indicates that Middle Ordovician limestone, dolostone, shale, arkose and sandstone underlie the area of the Site (see Figure 5).

Based on the Site reconnaissance and local topographic mapping (*Surveys and Mapping Branch, Department of Energy, Mines and Resources, Bolton, 040 P/08, Scale 1:50,000, and published in 1985*), Ben's Ditch is located adjacent west of the Site and extends to the south flowing into Lake Simcoe. It is expected that local and regional groundwater flows in a southerly direction to Lake Simcoe. The presence of buried utilities and structures could potentially influence groundwater flow conditions in the vicinity of the Site.

Previously completed regional studies indicate that quaternary geology in the vicinity of the Site consist of silts and clays deposited in the deep waters of Glacial Lake Algonquin. Bedrock underlying the Orillia area consists of Ordovician age limestones of the Simcoe Group and is found at an elevation of approximately 190 masl (Golder, 2005).

5.3 Site Specific Subsurface Conditions

Details of the conditions encountered in the boreholes are presented on the Record of Borehole sheets provided in Appendix F. Subsurface conditions encountered are specific to the borehole locations and will vary between and beyond borehole and sampling locations.

The soil conditions encountered at the borehole locations generally consisted of silty sand fill to a maximum depth of 3.05 m, overlying a silty sand and silty clay transitioning to a clayey silt to silt to the maximum depth of 4.88 m, overlying a fine to coarse sand to the maximum depth of the investigation (i.e., 5.94 m below grade). An organic sandy silt was noted at 3.4 m below grade at MW12-2.

Waste material was encountered in each borehole intermixed with silty sand fill. Waste was noted to a maximum depth of 3.05 m below grade (BH12-3). Waste material encountered included glass, metal, concrete, ash, brick fragments, plastic, and cloth.

No hydrocarbon-related staining or odours were noted in the boreholes. Headspace readings in the soil samples, which are potentially related to methane, ranged from less than 25 parts per million (ppm) by volume to 360 ppm (i.e., at MW12-2-6).

Based on information obtained from the boreholes, the Site is generally underlain by soils, which consist of more than 50 percent by mass of particles that are 75 µm or larger in mean diameter. Therefore, the texture of soil at



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the Site would likely be classified as coarse grained for the application of site-condition standards set out in O. Reg. 153/04, as amended.

The depths to groundwater in the monitoring well and gas probes are summarized in Table 5.1 below. No hydrocarbon-related sheen or odours were noted in groundwater purged from the monitoring well.

The groundwater elevations obtained from the monitoring well and gas probes on September 11, 2012 generally ranged from 219.00 masl (at MW12-2) to 219.02 masl (at GP12-3). Groundwater levels could not be measured in GP12-1 and GP12-2 due to the probes being dry. Groundwater flow and vertical gradients could not be interpreted from the collected data; however investigations at the Kitchener Street Park infer that groundwater flow for the area would be southerly toward Lake Simcoe.

Table 5.1: Groundwater Elevations – September 11, 2012

Well	Monitoring Pipe Elev. (masl)	Ground Surface Elev. (masl)	Top of Screen Elev. (masl)	Bottom of Well Elev. (masl)	Depth to Groundwater (mbgs)	Groundwater Elev. (masl)
GP12-1	224.13	223.17	221.64	220.12	Dry	NA
MW12-2	224.32	223.14	220.70	217.65	4.13	219.02
GP12-2	224.11	223.14	221.76	220.24	Dry	NA
GP12-3	222.74	221.72	220.96	217.91	2.72	219.00

Notes:

mbgs =metres below ground surface

masl = metres above sea level

Figure 4 illustrates the groundwater flow direction obtained from the gas probes (i.e., the shallowest well screens) on September 11, 2012 as well as the groundwater flow direction obtained from the gas probes located at Kitchener Street Park on October 10, 2012. A summary of groundwater elevations obtained from the on-Site monitoring well and gas probes is provided in Table I-1 (Appendix I).



6.0 ANALYTICAL FINDINGS

6.1 Applicable Site Condition Standards

The analytical results for soil were compared to the full depth site condition standards for industrial/commercial/community land use, coarse textured soil, listed in Table 2 (potable groundwater situation) of the “*Soil, Groundwater and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*”, dated April 15, 2011 (“MOE Table 2 Standards”).

The MOE Table 2 Standards are considered applicable to the site based on the following rationale:

- The Site and adjacent properties obtain their water supply from municipal wells;
- The location of the Site is not inferred to be located in an area of natural significance, and is not less than 30 m from a water body;
- Soil pH is greater than 5 and less than 9;
- The depth to bedrock in the vicinity of the study area is greater than 2 metres below ground; and,
- The Site is currently used for industrial purposes and it is our understanding that the land use will remain industrial/commercial/community.

The MOE Table 2 Standards are provided in Tables 2 through 7 (attached). The respective Ontario Drinking Water Standards (ODWS) are also provided in Tables 5 through 7, as the Site lies over a municipal water supply aquifer.

6.2 Analytical Results

The soil and groundwater analytical results, and associated MOE Table 2 Standards and/or ODWS, are provided in Tables 2 through 7 (attached).

Concentrations of analyzed parameters in the trip blanks and field blank samples were less than their respective laboratory detection limits for analyzed parameters.

Surrogate standard recoveries outside the range, typically, of 70-130% are indicative of questionable results for the tested volatile organic compounds. The reported surrogate recoveries are considered acceptable on this basis.

Matrix spike recoveries outside the typical range of individual parameters are indicative of questionable results for the tested VOC. The reported surrogate recoveries are considered acceptable on this basis.

During the work program, slightly elevated ion balance results (>5%) were noted for major ion analyses in monitoring well MW12-2 and its field replicate, DUP1, in August 2012 only. The ion balance is only slightly elevated (i.e., 5.76% and 5.31%), but is acceptable for the purposes of this monitoring program. Elevated ion balance errors are generally associated with samples containing elevated silt content or more complex chemical composition.

All other laboratory QA/QC results for the monitoring program are within acceptable limits or, based on review of the reported data, do not appear to affect the results.



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6.2.1 Soil

Laboratory Certificates of Analysis for groundwater are provided in Appendix J.

Soil quality in samples collected from the native stratigraphic units met the MOE Table 2 Standards for the analyzed parameters (see Tables 2 through 4 attached), with the exception of the following:

- **Arsenic** (31 µg/g), greater than the MOE Table 2 Standard of 18 µg/g, **barium** (697 µg/g), greater than the MOE Table 2 Standard of 670 µg/g, **cadmium** (9.5 µg/g), greater than the MOE Table 2 Standard of 1.9 µg/g, **copper** (406 µg/g), greater than the MOE Table 2 Standard of 230 µg/g, **lead** (3,550 µg/g), greater than the MOE Table 2 Standard of 120 µg/g, and **zinc** (1,280 µg/g), greater than the MOE Table 2 Standard of 340 µg/g, in soil sample **BH12-2-3**, consisting of silty sand fill noted with glass, metal, and cloth waste at a depth of 1.52 mbgs to 2.13 mbgs; and,
- **Lead** (236 µg/g), greater than the MOE Table 2 Standard of 120 µg/g and **benzo(a)pyrene** (0.64 µg/g), greater than the MOE Table 2 Standard of 0.3 µg/g in soil sample **GP12-3-2**, consisting of silty sand fill and gravel fill noted with ash, brick fragments, and plastic waste at a depth of 0.76 mbgs to 1.41 mbgs.

The elevated metal and benzo(a)pyrene values are possibly related to the waste encountered and are consistent with potential landfill impacts. No soil impacts were identified in the downgradient location, BH12-1.

6.2.2 Groundwater

Laboratory Certificates of Analysis for groundwater are provided in Appendix K.

VOC, Metals, Inorganics, and PAH

Groundwater quality in samples collected the monitoring wells (see Tables 5 through 7 attached) met the ODWS and/or the MOE Table 2 Standards for the analyzed parameters, with the exceptions of the following:

Monitoring Well MW12-2 and DUP1

- **Cobalt** (17.7 µg/L and 20.0 µg/L in August and September 2012, respectively), greater than the MOE Table 2 Standard of 3.8 µg/L. The field replicate, DUP1, taken in August 2012 also exceeded the MOE Table 2 Standard for cobalt with a value of 17.3 µg/L;
- **Iron** (5.08 mg/L in September 2012), greater than the ODWS aesthetic objective of 0.3 mg/L. There is no MOE Table 2 Standard for iron;
- **Manganese** (2.22 mg/L in September 2012), greater than the ODWS aesthetic objective of 0.05 mg/L. There is no MOE Table 2 Standard for manganese;

Cobalt is used to make alloys, colored pigments, and as a drier for paint and porcelain enamel used on steel bathroom fixtures, large appliances, and kitchen utensils. Cobalt is also released from burning coal and oil, and from car and truck exhaust. Iron and calcium carbonate (CaCO₃) are found in the waste materials from metal fabrication and other industrial activities. Manganese is a component used in unleaded gas. The presence of elevated concentrations of cobalt, iron, and manganese are possibly related to the glass, metal, and cloth waste encountered at MW12-2 and is consistent with potential landfill impacts.



Major Ions and Indicator Parameters

Concentrations of chloride and sodium at MW12-2 remain well below their respective ODWS and MOE Table 2 Standards. Any elevated concentrations can be attributed to the infiltration of surface water and likely road salt impacts.

In the absence of either a MOE Table 2 Standard or ODWS, relative comparisons can be made regarding general water quality for parameters such as ammonia as N and potassium.

The concentrations of ammonia as N (49.8 mg/L and 48.2 mg/L) and potassium (20.9 mg/L and 23.7 mg/L) were elevated in the groundwater samples from MW12-2. Given that the storage lagoons were not lined prior to 1992, and are currently only partially lined (i.e., the sidewalls were not lined), it is possible that this elevated ammonia may be influenced by the storage lagoons.

The electrical conductivity levels ranged from 1,650 and 1,670 uS/cm, the calcium concentrations ranged from 205 and 215 mg/L, and the magnesium concentrations ranged from 24.3 to 25.8 mg/L.

The alkalinity (835 mg/L and 830 mg/L in August and September 2012, respectively), and total hardness (as CaCO₃) (643 mg/L in September 2012) exceeded the OWDS operational guidelines of 30 to 500 mg/L and 80 to 100 mg/L, respectively; however this is related to operation of water treatment systems and is not relevant to this study. There is no MOE Table 2 Standard for alkalinity and total hardness.

Mercury, chromium VI, nitrite and nitrate were not detected at the well location.

6.2.3 Landfill Gas

Landfill gas (as defined by methane concentrations) was not detected at GP12-1 or GP12-2. The concentrations of methane at GP12-3 exceeded the lower explosive limit (LEL) of 5% methane by volume, during the August 2012 and January 2013 monitoring events (8.4% and 23.7%, respectively).

To the southeast of the Site, at the Kitchener Park Landfill, concentrations of landfill gas at GP-KP7 and GP-KP8 exceeded the LEL. Concentrations at the nearest well within the landfill (GP-KP7) were 75.6% in November 2012. Lower concentrations of methane gas at GP-KP9 and GP-KP10 (maximum of 3.4% in February 2013 at GP-KP10) indicate that methane is migrating to the north of the former KPL, but at reduced concentrations. The absence of LFG at GP12-1 indicates that methane migration from the known waste fill at the KPL is not an issue.

The landfill gas has not migrated significantly beyond the former waste disposal site to the south as indicated by non-detectable or low readings of methane at the downgradient gas probe GP12-2.

Gas probe GP12-3 is located south of a drainage ditch, which runs along the south side of Highway 12. This ditch is anticipated to act as a natural venting location for methane gas however this cannot be confirmed as methane gas concentrations have not been assessed to the north of Highway 12.



7.0 SUMMARY AND DISCUSSION

7.1 Environmental Conditions

The soil samples collected from the vicinity of the boreholes appeared to be impacted by the presence of the fill and the use of the fill area as a snow dump. Exceedances of the MOE Table 2 Standards for soil noted in the upgradient and downgradient locations are likely due to potential impacts from the fill materials or melt water and entrained sediment from the snow dump operations. Impacts in soil are limited to samples MW12-2-3 and GP12-3-2, which are both located above the water table. As soil impacts were not detected downgradient of the fill site, this suggests that landfill related impacts do not extend beyond the limits of the waste.

The quality of groundwater samples collected from MW12-2 appeared to be impacted by the presence of the snow dump. The presence of iron, cobalt and manganese in groundwater at MW12-2 may be attributable to the fill materials or melt water and entrained sediment from the snow dump operations.

Elevated concentrations of methane were observed at GP12-3. Migration to the north may be limited by the drainage ditch located along the south side of Highway 12; however, this cannot be confirmed based on the current monitoring network. Migration of methane from this Site to the south is not anticipated to be of concern, based on the absence of methane at GP12-2.

7.2 Estimated Extent of Waste

Glass, metal, concrete, ash, brick fragments, plastic, and cloth waste materials intermixed with fill was encountered at all borehole locations drilled as part of the work program. The fill with waste extended to a maximum depth of 3.05 m below grade. An additional borehole, BH13-01, was drilled south of the WWTC on July 8, 2013. Conditions encountered at BH13-01 are summarized in a Record of Borehole Log sheet provided in Appendix F. Similarly to borehole locations drilled as part of the work program, waste fill extended to a depth of 2.44 m below grade.

The estimated areal extent of waste is illustrated on Figure 6 and is based on the Site reconnaissance, conditions encountered during borehole drilling, and aerial photograph interpretation. No definite limits could be confirmed and are estimated.

Waste fill was evident on-Site. Small pieces and fragments during the Site reconnaissance suggest that waste materials were entrained within the fill material. Ash, brick, plastic, glass, metal, concrete and cloth were encountered during the drilling of the boreholes. Significant quantities of organic material were not observed, notably in the borehole at GP12-3 where methane was detected. This suggests there is a source of methane generating materials in the area that was not encountered in the boreholes.

7.3 Interpreted Extent of Environmental Impacts from Waste

As stated in the D-4 Guideline (MOE, 1994), its purpose is to protect the health, safety, convenience and welfare of residents from the potential adverse effects of landfills and dumps by restricting or controlling land use in their vicinity. It complements the Ministry's existing abatement programs, and Ministry staff refer to it when they review land use proposals in the vicinity of landfills. Factors to be considered when land use is proposed on or near a non-operating site include: (i) ground and surface water contamination by leachate, (ii) surface runoff, ground settlement, (iii) visual impact, (iv) soil contamination and hazardous waste, and (iv) landfill-generated gases. Particular attention is given to the production and migration of methane gas. The scope of the current



HISTORICAL WASTE SITE INVESTIGATION - WASTEWATER TREATMENT CENTRE AND SNOW DUMP (40 KITCHENER STREET)

study completed by Golder does not include assessment of ground settlement or contaminated soils and impacts on private sites, other than to comment on available historical information.

The subject Site, referred to as the Snow Dump Fill Area, is located on City property. The extent of impact commented on in this current study is limited to the area on the snow dump portion of the Site, and is interpreted to the extent possible with the available information.

The interpreted groundwater flow in the vicinity of the Site is in a southwesterly direction towards Ben's Ditch, which the exception of the WWTC lagoons area south of the Site, where it is expected groundwater flow is radially outwards. Monitoring well MW12-2 represents a downgradient location, relative to the snow dump.

On the basis of the results of these investigations and the observed historical information, reduction of the standard 500 metre assessment zone for D-4 investigations can be undertaken. It is recommended that two gas monitoring probes be installed, one north of Highway 12 and one north-east of Site, north of the industrial properties on Kitchener Street to confirm the extent of methane migration off-Site. Given the groundwater flow direction and lack of visual impact, investigations for D-4 purposes are not considered necessary outside the limits of the Site, as outlined on Figure 6.

Based on the results of these investigations and the observed historical information for the six City of Orillia historical waste sites, Figure L-1 (Appendix L) summarizes the areas where investigations for D-4 purposes are required.



8.0 RECOMMENDATIONS

Based on the findings of the above scope of work and recommended monitoring program, Golder recommends the following:

- 1) The area under D-4 guidelines can be reduced to the limits of the Site (see Figure 6);
- 2) Installation of two gas probes, one north of Highway 12 and one north-east of the Site, north of the industrial properties on Kitchener Street, to confirm the limit of methane gas migration; and,
- 3) Decommission the on-Site monitoring wells and landfill gas probes in accordance with O. Reg. 903 when no longer required..



Report Signature Page

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TZ/SMF/JTF/JEB/CLG/PJD/plc

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9.0 LIMITATIONS AND USE OF REPORT

Golder Associates Ltd.'s (Golder's) professional services for this assignment addressed only the geo-environmental (chemical) aspects of the subsurface conditions at this Site. The geotechnical (physical) aspects, including engineering recommendations for the design and construction of building foundations, pavements, underground servicing and the like are outside the terms of reference for this report and have not been investigated or addressed.

This report is based on data and information collected during the subsurface environmental investigation conducted by Golder and is based solely on Site conditions encountered at the time of the field work (i.e., July 25 to January 9, 2013), as described in this report.

In evaluating the Site, Golder has relied in good faith on information provided by others and evaluated only conditions at a limited number of test locations. Only limited chemical analyses of soil samples were carried out. It should be noted that the results of an investigation of this nature should, in no way, be construed as a warranty that the Site is free from any and all contamination from past or current practices.

We accept no responsibility for any deficiency, misstatements or inaccuracies contained in this report as a result of omission, misinterpretations or fraudulent acts of the persons interviewed. Golder accepts no responsibility for any reduction in property value, either real or perceived, as a result of the reporting of factual information herein.

This assessment was carried out using existing historical information as available from various agencies and no assurance is made regarding the accuracy or completeness of this information.

If additional information is obtained during future work at the Site, including excavations, borings, or other studies, and/or if conditions exposed during construction are different from those encountered in this assessment, Golder should be requested to re-evaluate the conclusions presented in this report and provide amendments as required.



HISTORICAL WASTE SITE INVESTIGATION - WASTEWATER TREATMENT CENTRE AND SNOW DUMP (40 KITCHENER STREET)

10.0 REFERENCES

The following is a list of persons contacted and references reviewed for the purposes of preparing this report:

Source	Date
Aerial Photographs – obtained from National Air Photo Library on behalf of Golder.	1930, 1945, 1965, 1967, 1968, 1976, 1984, and 2002
<u>Bedrock Geology of Ontario, Southern Sheet</u> . Map 2544. Ontario Ministry of Development and Mines, 1991.	1991
Chain of Title Report	2012
City Directories, obtained by LGI on behalf of Golder.	1961, 1966, 1976, 1982, 1986, 1996/1997, and 1998/1999
County of Simcoe interactive mapping website, 2012, http://maps.simcoe.ca/ ,	2012
EcoLog Environmental Risk Information Services	March 30, 2012
Golder Associates Ltd., 2005. North Simcoe Groundwater Study, WHPA – City of Orillia	May 2005
Google Earth Images, reviewed online.	2009
Ministry of the Environment, 1980. Old Waste Disposal Site Study, Site 4109, Cochrane and West, Orillia, County of Simcoe	1980
Ontario Ministry of the Environment Freedom of Information	Pending
Ontario Ministry of the Environment, June 2003, revised June 2006. Ontario Drinking-Water Quality, Standards and Objectives. PIBS 4449e01	2006
Ontario Ministry of the Environment, Water Well Records database	October 2012
RMS Response	April 4, 2012
<u>Sheet 30S</u> . Map 1335A, Southern Sheet. Geological Survey of Canada, 1971.	1971
Technical Standards and Safety Authority Response	March 23, 2012
Golder Associates Ltd. 2012. 2011 Annual Monitoring Report, Kitchener Park Landfill, Orillia, ON	April 2012



FIGURES

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-IA-\111700079\ASITE.dwg\111700079\ASITE.dwg: [Figure 2]



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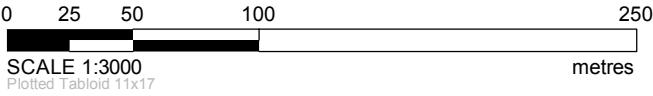
- Snow Dump Fill Area
- Estimated Extent of Landfill
- Gas Probe
- Monitoring Well / Gas Probe
- Borehole
- Kitchener Park Landfill Gas Probe
- Observation Well

NOTES:

- DATUM IS UTM NAD83 Zone 17
- ALL MAPPED BOUNDARIES, LIMITS, AND INTERPOLATED FEATURES ARE APPROXIMATE

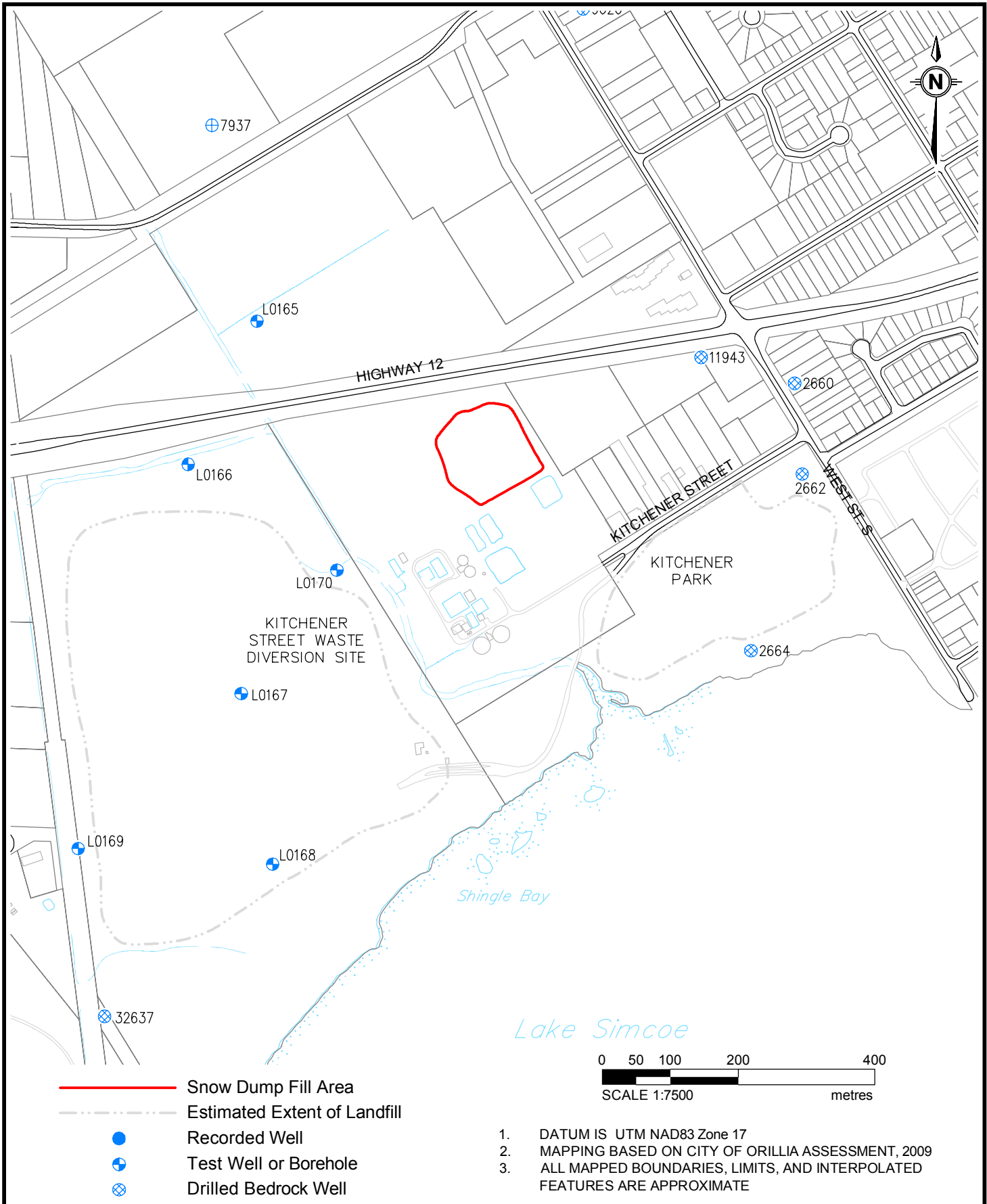
REFERENCES:

- MAPPING BASED ON CITY OF ORILLIA ASSESSMENT, 2009
- SATELLITE IMAGERY FROM DISCOVERSIMCOE.CA



TITLE			
SITE LOCATION MAP SNOW DUMP FILL AREA			
HISTORICAL LANDFILL SITES CITY OF ORILLIA			
		SCALE	AS SHOWN
		DATE	22 JUL 2013
		DESIGN	
		CAD	S BOWERMAN
FILE No.	1111700079\ASITE.dwg	CHECK	CLG
PROJECT No.	11-1170-0079	REV.	
		FIGURE	2
		REVIEW	

PLOT DATE: August 23, 2013
 FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-IA-1111700079IASITE.dwg



SCALE	AS SHOWN
DATE	02 APR 2013
DESIGN	
CAD	S BOWERMAN
CHECK	CLG
REVIEW	

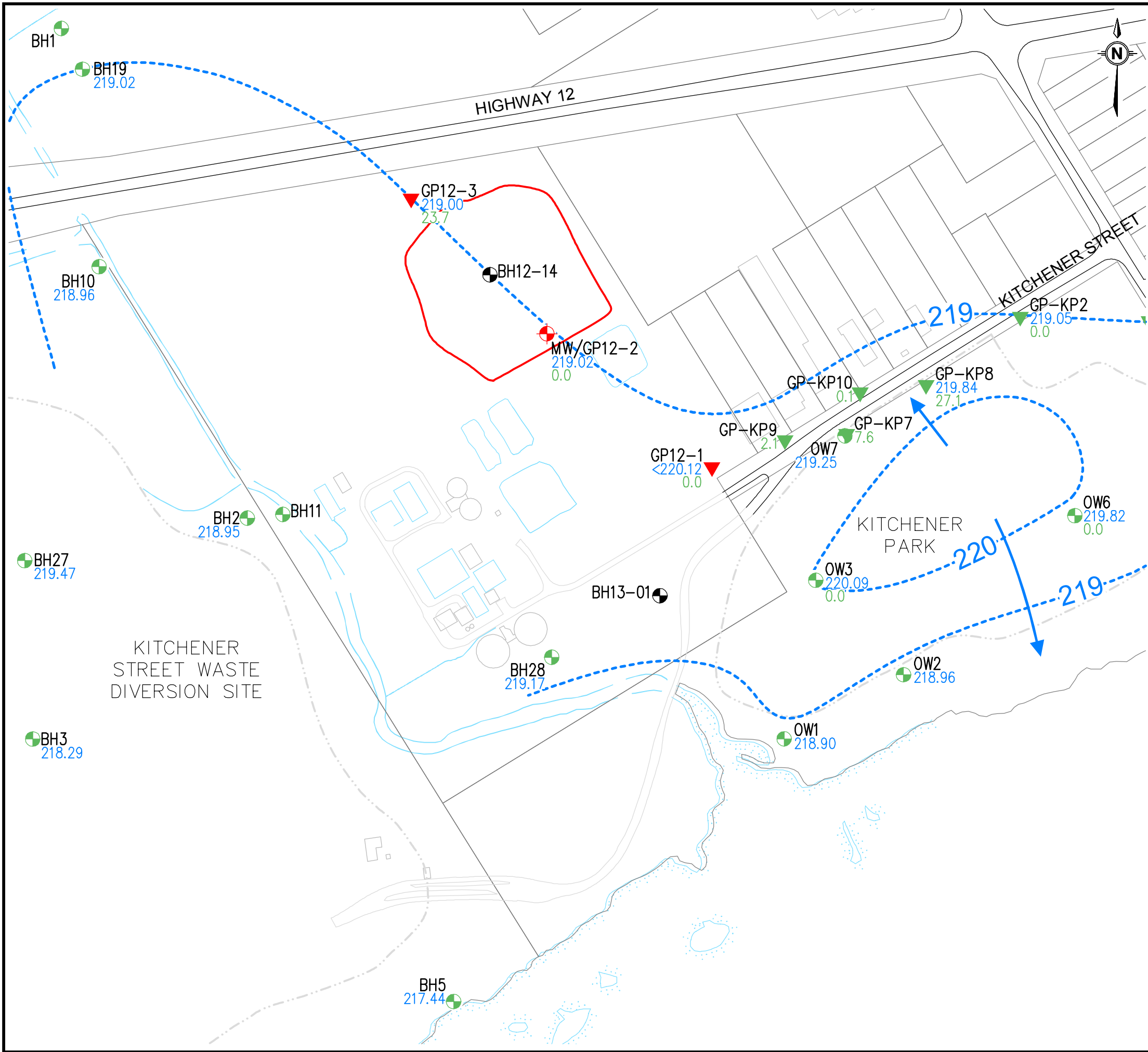
TITLE MOE RECORDED WATER WELL LOCATION MAP SNOW DUMP FILL AREA	
HISTORICAL LANDFILL SITES CITY OF ORILLIA	FIGURE 3

FILE No. 1111700079IASITE.dwg

PROJECT No. 11-1170-0079

REV.

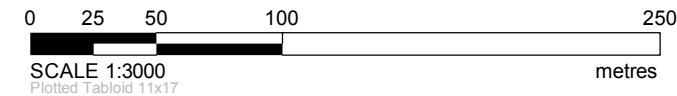
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- LEGEND:**
- Snow Dump Fill Area
 - Estimated Extent of Landfill
 - Borehole / Gas Probe
 - Monitoring Well / Gas Probe
 - Borehole
 - Kitchener Park Gas Probe
 - Observation Well
 - Interpolated Equipotential Line
 - Interpolated Groundwater Flow Direction
 - Static Water Elevation Fall 2012 (masl)
 - Landfill Gas Concentration Spring 2013 (%)

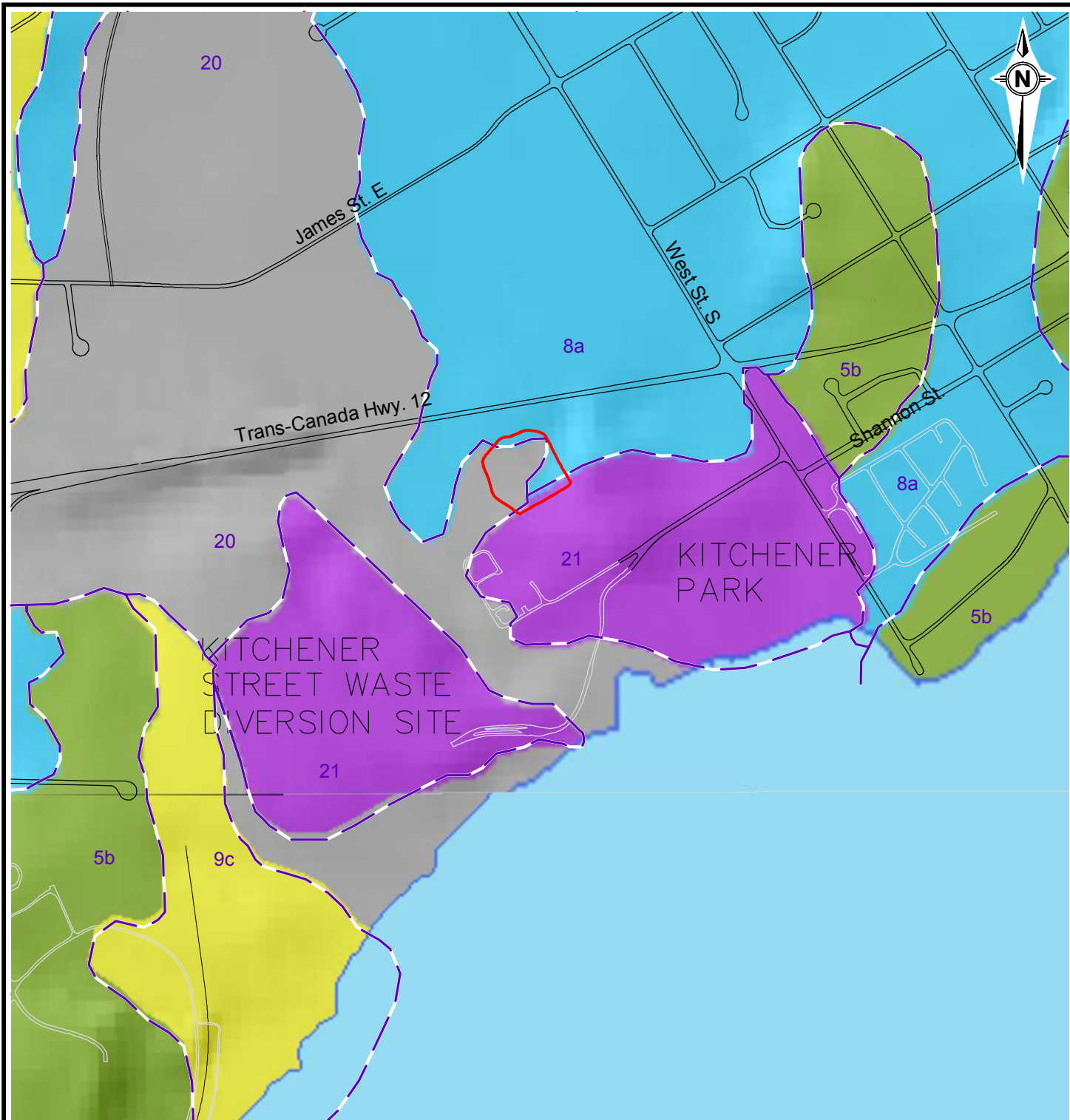
- NOTES:**
- DATUM IS UTM NAD83 Zone 17
 - ALL MAPPED BOUNDARIES, LIMITS, AND INTERPOLATED FEATURES ARE APPROXIMATE

- REFERENCES:**
- MAPPING BASED ON CITY OF ORILLIA ASSESSMENT, 2009



TITLE				
GROUNDWATER ELEVATIONS AND LANDFILL GAS CONCENTRATIONS SNOW DUMP FILL AREA				
HISTORICAL LANDFILL SITES CITY OF ORILLIA				
		SCALE	AS SHOWN	
		DATE	22 JUL 2013	
		DESIGN		
		CAD	S BOWERMAN	
FILE No.	1111700079\IAEQUI.dwg	CHECK	CLG	FIGURE
PROJECT No.	11-1170-0079	REV.	REVIEW	4

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-IA-1111700079IAQUAT.dwg

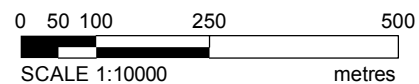


LEGEND:

- | | | |
|----|---|---|
| 20 | Organic Deposits |  Snow Dump Fill Area |
| 21 | Fill | |
| 9c | Glaciolacustrine Shallow Water Deposits | |
| 8a | Glaciolacustrine Deep Water Deposits | |
| 5b | Ablation Till | |

NOTE:

Source: Ontario Geological Survey / Geological Survey Canada; 1:50000 Digital compilation, Queen's Printer 2006



SCALE	AS SHOWN
DATE	23 JUL 2013
DESIGN	
CAD	S BOWERMAN

TITLE

QUATERNARY GEOLOGY MAP

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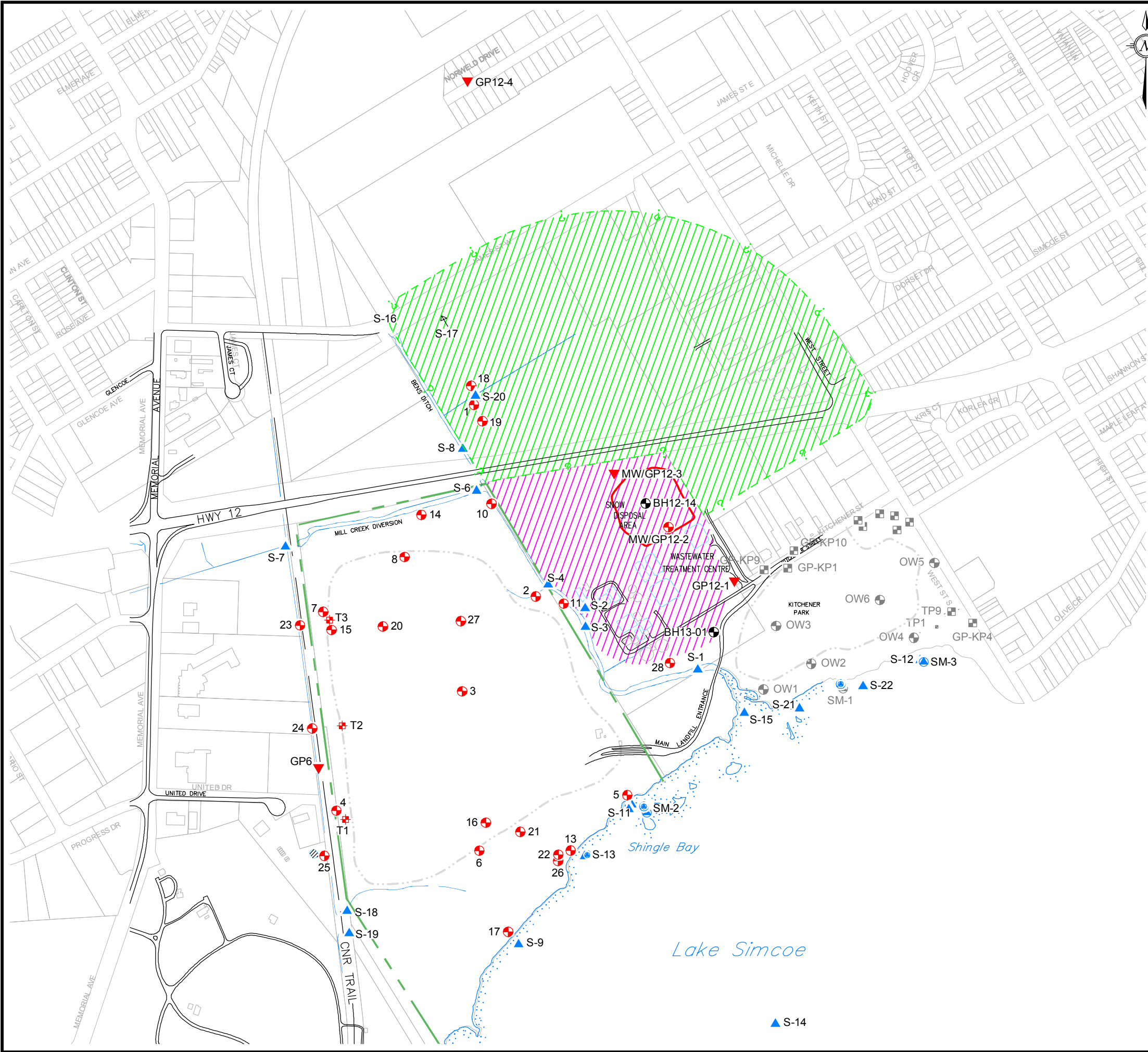
CHECK	CLG
REVIEW	

HISTORICAL LANDFILL SITES
CITY OF ORILLIA

FIGURE

5

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-IB-\111700079\IBEQUL.dwg: [Figure 6]



LEGEND

- Snow Dump Fill Area
- Estimated Extent of Landfill
- D4 Assessment Required due to Possible Landfill Waste
- D4 Assessment Required due to Possible Landfill Gas
- Observation Well
- Borehole
- Gas Probe
- Groundwater Level Monitoring Location
- Surface Water Quality Station / Seepage Monitor

NOTE

- DATUM IS UTM NAD83 Zone 17
- ALL MAPPED BOUNDARIES, LIMITS, AND INTERPOLATED FEATURES ARE APPROXIMATE
- REFER TO KWDS REPORT FOR D-4 REQUIRED 500 m OFFSET AREA



UTM NAD 83 ZONE 17
CAD base Courtesy CITY OF ORILLIA; Digital 1:2000 OBM Mapping

TITLE			D4 ASSESSMENT AREAS SNOW DUMP FILL AREA		
HISTORICAL LANDFILL SITES CITY OF ORILLIA					
 Barrie, Ontario, Canada			SCALE	AS SHOWN	
			DATE	22 JUL 2013	
FILE No. 1111700079\IBEQUL.dwg			DESIGN		
			CAD	S BOWERMAN	
PROJECT No. 11-1170-0079			CHECK	CLG	FIGURE
			REV.		6
			REVIEW		



HISTORICAL WASTE SITE INVESTIGATION - WASTEWATER TREATMENT CENTRE AND SNOW DUMP (40 KITCHENER STREET)

TABLES

Table 1
Summary of Landfill Gas Concentrations
Wastewater Treatment Centre and Snow Dump

Well ID	Water (m below toc)	Sample Date	Landfill Gas Readings - GEM 2000			
			CH4 (%)	CO2 (%)	O2 (%)	Bal. (%)
GP12-1	dry	23-Aug-12	0.0	7.0	13.7	79.4
GP12-1	dry	11-Sep-12	0.0	0.8	20.2	79.0
GP12-1	dry	9-Jan-13	0.0	4.5	17.0	78.5
MW12-2	5.21	23-Aug-12	0.1	11.8	1.9	86.2
MW12-2	5.30	11-Sep-12	0.0	9.9	7.8	82.3
GP12-2	dry	23-Aug-12	0.0	10.6	6.8	82.6
GP12-2	dry	11-Sep-12	0.0	7.0	13.0	79.9
GP12-2	dry	9-Jan-13	0.0	9.6	9.3	81.1
GP12-3	3.72	23-Aug-12	8.4	12.3	2.4	77.0
GP12-3	3.74	11-Sep-12	1.0	4.0	13.4	81.5
GP12-3	3.12	9-Jan-13	23.7	8.8	0.6	66.8
GP-KP7	dry	2-Nov-12	75.6	18.4	0.2	5.8
GP-KP7	dry	9-Jan-13	67.1	15.0	0.0	17.9
GP-KP7	dry	20-Feb-13	0.1	0.4	21.4	78.1
GP-KP8	3.27	2-Nov-12	0.9	0.5	21.7	76.9
GP-KP8	3.52	9-Jan-13	20.7	11.2	1.0	67.0
GP-KP8	3.73	20-Feb-13	37.1	10.2	0.0	52.7
GP-KP9	3.63	9-Jan-13	1.4	12.3	0.0	86.3
GP-KP9	3.51	20-Feb-13	2.5	11.9	0.4	85.2
GP-KP10	3.33	9-Jan-13	0.1	4.8	11.1	84.0
GP-KP10	3.24	20-Feb-13	3.4	10.2	2.4	84.0

Table 2
Soil Analytical Results
Metals and Inorganics
Historical Landfill Sites - City of Orillia

Sample I.D.				GP12-1-3	BH12-2-3	GP12-3-2	GP12-3-3
Borehole (BH) Number				BH12-1	BH12-2	BH12-3	
Site No.				WWTC	WWTC	WWTC	
Sampling Depth (m below grade)				1.52 - 2.13	1.52 - 2.13	0.76 - 1.37	1.52 - 2.13
Methane Reading (ppm)				115	320	<25	<25
Photoionization Detector Reading (ppm)				2	6	0	2
Sampling Date				25-Jul-12	25-Jul-12	25-Jul-12	25-Jul-12
Parameter	Units	RDL	MOE Table2 Ind/comm/com Standard				
Metals							
Antimony	µg/g	0.8	40	<0.8	15.9	<0.8	<0.8
Arsenic	µg/g	1	18	1	31	2	2
Barium	µg/g	2	670	72	697	73	52
Beryllium	µg/g	0.5	8	<0.5	1.0	<0.5	<0.5
Boron (Hot Water Extractable)	µg/g	0.10	2	0.57	0.80	0.30	0.41
Boron	µg/g	5	120	6	35	6	5
Cadmium	µg/g	0.5	1.9	<0.5	9.5	0.6	<0.5
Chromium	µg/g	2	160	19	84	19	13
Cobalt	µg/g	0.5	80	6.2	22.2	4.8	3.8
Copper	µg/g	1	230	18	406	25	17
Lead	µg/g	1	120	8	3550	236	27
Molybdenum	µg/g	0.5	40	<0.5	9.7	1.1	<0.5
Nickel	µg/g	1	270	12	102	11	8
Selenium	µg/g	0.4	5.5	<0.4	3.0	<0.4	0.5
Silver	µg/g	0.2	40	<0.2	2.5	<0.2	<0.2
Thallium	µg/g	0.4	3.3	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	0.5	33	<0.5	0.8	<0.5	<0.5
Vanadium	µg/g	1	86	35	36	21	22
Zinc	µg/g	5	340	35	1280	74	49
Chromium, Hexavalent	µg/g	0.2	8	<0.2	<0.2	<0.2	<0.2
Cyanide, Free	µg/g	0.040	0.051	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.10	3.9	<0.10	1.67	<0.10	<0.10
Inorganics							
Electrical Conductivity (2:1)	mS/cm	0.005	1.4	0.122	0.239	0.284	0.373
Sodium Adsorption Ratio (2:1)	NA	NA	12	0.261	0.225	3.04	2.18
pH, 2:1 CaCl2 Extraction	pH Units	NA	6.5 - 8.5	7.26	7.31	7.21	7.23

Notes:

- 1. Methane Reading - measured in ppm (parts per million by volume)
- 2.Photoionization Detector Reading - measured in ppm (parts per million by volume), calibrated to isobutylene
- 3. µg/g = Microgram per Gram
- 4. mS/cm = milliSiemen per centimeter
- 5. RDL = Laboratory Reportable Detection Limit
- 6. na = not applicable
- 7. Table 2 Standard = Ministry of Environment (MOE) "Soil, Groundwater, and Sediment Standards, Part XV.1 Environment Protection Act, April 15, 2011 " full depth generic site condition standards for industrial/commercial/community land use, potable groundwater condition, coarse textured soil
- 8. Bold type and shaded indicates an exceedance of the MOE Table 2 site condition standard

Table 3
Soil Analytical Results
VOC
Historical Landfill Sites - City of Orillia

Sample I.D.				GP12-1-3	BH12-2-3	BH12-2-5	BH12-2-7	GP12-3-2	GP12-3-3
Borehole (BH) Number				BH12-1	BH12-2			BH12-3	
Site No.				WWTC	WWTC			WWTC	
Sampling Depth (m below grade)				1.52 - 2.13	1.52 - 2.13	3.05 - 3.66	4.57 - 5.18	0.76 - 1.37	1.52 - 2.13
Organic Vapour Meter Reading (ppm)				115	320	240	95	<25	<25
Photoionization Detector Reading (ppm)				2	6	5	2	0	2
Sampling Date				25-Jul-12	25-Jul-12	25-Jul-12	25-Jul-12	25-Jul-12	25-Jul-12
Parameter	Units	RDL	MOE Table2 Ind/comm/com Standard						
VOCs									
Acetone	ug/g	0.50	16	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Benzene	ug/g	0.02	0.32	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	ug/g	0.05	1.5	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.05	0.61	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.21	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	ug/g	0.05	2.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	ug/g	0.04	0.47	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Dibromochloromethane	ug/g	0.05	2.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	0.05	1.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	0.05	9.6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.05	0.2	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.02	0.47	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloroethane	ug/g	0.03	0.05	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1-Dichloroethylene	ug/g	0.05	0.064	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Cis- 1,2-Dichloroethylene	ug/g	0.02	1.9	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Trans- 1,2-Dichloroethylene	ug/g	0.05	1.3	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dichlorodifluoromethane	µg/g	0.05	16	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	ug/g	0.03	0.16	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
(CIS+TRANS)-1,3-Dichloropropene	ug/g	0.04	0.059	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Ethylbenzene	ug/g	0.05	1.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	0.05	46	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.05	1.6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Ethyl Ketone	ug/g	0.50	70	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl Isobutyl Ketone	ug/g	0.50	31	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Methyl tert-butyl Ether	ug/g	0.05	1.6	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	ug/g	0.05	34	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	ug/g	0.05	6.4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.04	0.087	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethylene	ug/g	0.05	1.9	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1-Trichloroethane	ug/g	0.05	6.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	ug/g	0.04	0.05	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Trichloroethylene	ug/g	0.03	0.55	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichlorofluoromethane	ug/g	0.05	4	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.032	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
m & p-Xylene	ug/g	0.05	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g	0.05	NV	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	0.05	26	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Notes:

1. Methane Reading - measured in ppm (parts per million by volume)
- 2.Photoionization Detector Reading - measured in ppm (parts per million by volume), calibrated to isobutylene
3. µg/g = Microgram per Gram
4. RDL = Laboratory Reportable Detection Limit
5. NV = no value
6. Table 2 Standard = Ministry of Environment (MOE) "Soil, Groundwater, and Sediment Standards, Part XV.1 Environment Protection Act, April 15, 2011 " full depth generic site condition standards for industrial/commercial/community land use, potable groundwater condition, coarse textured soil
7. Bold type and shaded indicates an exceedance of the MOE Table 2 site condition standard

Table 4
Soil Analytical Results
Polynuclear Aromatic Hydrocarbons
Historical Landfill Sites - City of Orillia

Sample I.D.				GP12-1-3	BH12-2-5	GP12-3-2
Borehole (BH) Number				BH12-1	BH12-2	BH12-3
Site No.				WWTC	WWTC	WWTC
Sampling Depth (m below grade)				1.52 - 2.13	3.05 - 3.66	0.76 - 1.37
Organic Vapour Meter Reading (ppm)				115	240	<25
Photoionization Detector Reading (ppm)				2	5	0
				25-Jul-12	25-Jul-12	25-Jul-12
Parameter	Units	RDL	MOE Table2 Ind/comm/com Standard			
Acenaphthene	µg/g	0.05	21	<0.05	<0.05	0.13
Acenaphthylene	µg/g	0.05	0.15	<0.05	<0.05	<0.05
Anthracene	µg/g	0.05	0.67	<0.05	<0.05	0.49
Benz(a)anthracene	µg/g	0.05	0.96	<0.05	<0.05	0.88
Benzo(a)pyrene	µg/g	0.05	0.3	<0.05	<0.05	0.64
Benzo(b)fluoranthene	µg/g	0.05	0.96	<0.05	<0.05	0.75
Benzo(g,h,i)perylene	µg/g	0.05	9.6	<0.05	<0.05	0.28
Benzo(k)fluoranthene	µg/g	0.05	0.96	<0.05	<0.05	0.20
Chrysene	µg/g	0.05	9.6	<0.05	<0.05	0.60
Dibenz(a,h)anthracene	µg/g	0.05	0.1	<0.05	<0.05	0.07
Fluoranthene	µg/g	0.05	9.6	<0.05	<0.05	1.8
Fluorene	µg/g	0.05	9.6	<0.05	<0.05	0.29
Indeno(1,2,3-cd)pyrene	µg/g	0.05	0.76	<0.05	<0.05	0.32
2-and 1-methyl Naphthalene	µg/g	0.05	30	<0.05	<0.05	0.14
Naphthalene	µg/g	0.05	9.6	<0.05	<0.05	0.10
Phenanthrene	µg/g	0.05	12	<0.05	<0.05	2.0
Pyrene	µg/g	0.05	96	<0.05	<0.05	1.3

Notes:

1. Methane Reading - measured in ppm (parts per million by volume)
2. Photoionization Detector Reading - measured in ppm (parts per million by volume), calibrated to isobutylene
3. µg/g = Microgram per Gram
4. RDL = Laboratory Reportable Detection Limit
5. Table 2 Standard = Ministry of Environment (MOE) "Soil, Groundwater, and Sediment Standards, Part XV.1 Environment Protection Act, April 15, 2011 " full depth generic site condition standards for industrial/commercial/community land use, potable groundwater condition, coarse textured soil
6. Bold type and shaded indicates an exceedance of the MOE Table 2 site condition standard

Table 5
Groundwater Analytical Results
Metals and Inorganics
Historical Landfill Sites - City of Orillia

Monitoring Well Location					MW12-2		
Sampling Date					27-Aug-12		11-Sep-12
Parameter	Units	RDL	ODWS	MOE Table 2 Standards		Field Duplicate of MW12-2	
Dissolved Metals							
Barium	µg/L	2.0	1000	1000	402	406	405
Beryllium	µg/L	0.5	NS	4.0	<0.5	<0.5	<0.5
Boron	µg/L	10.0	5000	5000	1150	1160	1080
Cadmium	µg/L	0.2	5	2.7	<0.2	<0.2	<0.2
Chromium (Total Dissolved)	µg/L	2.0	50	50	2.7	<2.0	4.2
Cobalt	µg/L	0.5	NS	3.8	17.7	17.3	20.0
Copper	µg/L	1.0	1000 (AO)	87	2.9	3.3	2.9
Iron	mg/L	0.010	0.3 (AO)	NV	-	-	5.08
Lead	µg/L	0.5	10	10	<0.5	0.5	0.5
Manganese	mg/L	0.002	0.05 (AO)	NV	-	-	2.22
Molybdenum	µg/L	0.5	NS	70	2.2	2.2	2.5
Nickel	µg/L	1.0	NS	100	22.1	22.2	15.9
Silver	µg/L	0.2	NS	1.5	<0.2	<0.2	<0.2
Thallium	µg/L	0.3	NS	2	<0.3	<0.3	<0.3
Uranium	µg/L	0.5	20	20	1.5	1.6	1.8
Vanadium	µg/L	0.4	NS	6.2	0.5	0.5	0.7
Zinc	µg/L	5.0	5000 (AO)	1100	13.9	20.9	14.1
Inorganics							
Electrical Conductivity	uS/cm	2	NS	NV	1650	1670	-
pH	pH Units	NA	6.5-8.5 (OG)	6.5-8.5	7.92	8.01	8.05
Sodium Adsorption Ratio	-	-	NS	-	1.62	1.63	-
Cyanide	µg/L	2	200	66	<2	<2	-
Mercury	µg/L	0.02	1	0.29	<0.02	<0.02	-
Chloride	mg/L	0.1	250 (AO)	790	73.7	74.9	86.4
Sulphate	mg/L	0.1	500 (AO)	NV	3.75	3.88	4.28
Ammonia as N	mg/L	0.02	NS	NV	49.8	44.4	48.2
Calcium	mg/L	0.05	NS	NV	205	208	215
Magnesium	mg/L	0.05	NS	NV	24.3	24.7	25.8
Chromium VI	µg/L	5	NS	25	<5	<5	-
Sodium	µg/L	0.5	200000 (AO)	490	92.6	93.7	99.9
Potassium	mg/L	0.05	NS	NV	20.9	21.2	23.7
Nitrate as N	mg/L	0.05	10.0	NV	<0.05	<0.05	<0.10
Nitrite as N	mg/L	0.05	1.0	NV	<0.05	<0.05	<0.10
Alkalinity (as CaCO3)	mg/L	5	30-500 (OG)	NV	835	838	830
Total Hardness (as CaCO3)	mg/L	0.5	80-100 (OG)	NV	-	-	643

- Notes:
1. NS = No standard
 2. NV = No value
 3. NO = No objective
 4. µg/L = Microgram per Litre
 5. mg/L = Milligrams per Litre
 6. µS/cm = MicroSiemens per centimeter
 7. - = Not analysed
 8. RDL = Laboratory Reportable Detection Limit
 9. ODWS = Ontario Drinking Water Standards, June, 2006
 10. PWQO = MOE Provincial Water Quality Objectives, July, 1994
 11. Table 2 Standard = Ministry of Environment (MOE) "Soil, Groundwater, and Sediment Standards, Part XV.1 Environment Protection Act, April 15, 2011 " full depth generic site condition standards for all types of land uses, potable groundwater condition, coarse textured soil
 12. Bold type and outlined indicates an exceedance of the ODWS
 13. Italicized indicates an exceedance of the PWQO
 14. Bold type and shaded indicates an exceedance of the MOE Table 2 site condition standard

Table 6
Groundwater Analytical Results
VOC and Petroleum Hydrocarbons
Historical Landfill Sites - City of Orillia

Monitoring Well Location						MW12-2			Field Blank		Trip Blank	
Site No.						WWTC			NA		NA	
Sampling Date						27-Aug-12		11-Sep-12	27-Aug-12	11-Sep-12	Aug-12	Sep-12
Parameter	Units	RDL	ODWS	PWQO	MOE Table 2 Standard		Field Duplicate of MW12-2					
VOC												
Acetone	µg/L	1.0	NS	NO	2700	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0
Benzene	µg/L	0.20	5	100	5.0	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Bromodichloromethane	µg/L	0.20	NS	200	16	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Bromoform	µg/L	0.10	NS	60	25	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
Bromomethane	µg/L	0.20	NS	0.9	0.89	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Carbon Tetrachloride	µg/L	0.20	5	NO	0.79	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Chlorobenzene	µg/L	0.10	NS	15	30	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
Chloroform	µg/L	0.20	NS	NO	2.4	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Dibromochloromethane	µg/L	0.10	NS	NO	25	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	0.10	200	2.5	3	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	0.10	NS	2.5	59	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	0.10	5	4	1	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
Dichlorodifluoromethane	µg/L	0.20	NS	NO	590	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	0.30	NS	200	5	<0.60	<0.60	<0.60	<0.30	<0.30	<0.30	<0.30
1,2-Dichloroethane	µg/L	0.20	5	100	1.6	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
1,1-Dichloroethylene	µg/L	0.30	14	40	1.6	<0.60	<0.60	<0.60	<0.30	<0.30	<0.30	<0.30
cis- 1,2-Dichloroethylene	µg/L	0.20	NS	200	1.6	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
trans- 1,2-Dichloroethylene	µg/L	0.20	NS	200	1.6	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	0.20	NS	0.7	5	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
1,3-Dichloropropene	µg/L	0.30	NS	7	0.5	<0.60	<0.60	<0.60	<0.30	<0.30	<0.30	<0.30
Ethylbenzene	µg/L	0.10	2.4 (AO)	8	2.4	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.10	NS	5	0.2	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
n-Hexane	µg/L	0.20	NS	NO	51	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Methylene Chloride	µg/L	0.30	NS	100	50	<0.60	<0.60	<0.60	<0.30	<0.30	<0.30	<0.30
Methyl Isobutyl Ketone	µg/L	1.0	NS	NO	640	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0
Methyl Ethyl Ketone	µg/L	1.0	NS	NO	1800	<2.0	<2.0	<2.0	<1.0	<1.0	<1.0	<1.0
Methyl tert-butyl ether	µg/L	0.20	NS	200	15	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Styrene	µg/L	0.10	NS	4	5.4	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
1,1,1,2-Tetrachloroethane	µg/L	0.10	NS	20	1.1	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	0.10	NS	70	1	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	0.20	30	50	1.6	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Toluene	µg/L	0.20	24 (AO)	0.8	24	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	0.30	NS	10	200	<0.60	<0.60	<0.60	<0.30	<0.30	<0.30	<0.30
1,1,2-Trichloroethane	µg/L	0.20	NS	800	4.7	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Trichloroethylene	µg/L	0.20	5	20	1.6	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Vinyl Chloride	µg/L	0.17	2	600	0.5	<0.34	<0.34	<0.34	<0.17	<0.17	<0.17	<0.17
m & p-Xylene	µg/L	0.20	NS	2	NV	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
o-Xylene	µg/L	0.10	NS	40	NV	<0.20	<0.20	<0.20	<0.10	<0.10	<0.10	<0.10
Xylene Mixture	µg/L	0.20	300 (AO)	NO	300	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	0.40	NS	NO	150	<0.80	<0.80	<0.80	<0.40	<0.40	<0.40	<0.40
Petroleum Hydrocarbons												
C6 - C10 (PHC F1 minus BTEX)	µg/L	25	NS	NO	750	<25	<25	<25	-	<25	-	-
C10 to C16 (PHC F2 minus Naphthalene)***	µg/L	100	NS	NO	150	<100	-	<100	-	<100	-	-
C16 - C34 (PHC F3 minus PAHs)***	µg/L	100	NS	NO	500	110	-	<100	-	<100	-	-
C34 - C50 (PHC F4)***	µg/L	100	NS	NO	500	<100	-	<100	-	<100	-	-

Notes:

1. NA = not applicable

2. NS = No standard

3. NV = No value

4. NO = No objective

5. µg/L = Microgram per Litre

6. - = not analysed

7. RDL = Laboratory Reportable Detection Limit

8. ODWS = Ontario Drinking Water Standards, June, 2006

9. PWQO = MOE Provincial Water Quality Objectives, July, 1994

10. Table 2 Standard = Ministry of Environment (MOE) "Soil, Groundwater, and Sediment Standards, Part XV.1 Environment Protection Act, April 15, 2011 " full depth generic site condition standards for all types of land uses, potable groundwater condition, coarse textured soil

11. Bold type and outlined indicates an exceedance of the ODWS

12. Italicized indicates an exceedance of the PWQO

13. Bold type and shaded indicates an exceedance of the MOE Table 2 site condition standard

Table 7
Groundwater Analytical Results
Polynuclear Aromatic Hydrocarbons
Historical Landfill Sites - City of Orillia

Monitoring Well Location					MW12-2	
Sampling Date					WWTC	
					27-Aug-12	11-Sep-12
Parameter	Units	RDL	ODWS	MOE Table 2 Standards		
Polycyclic Aromatic Hydrocarbons						
Naphthalene	µg/L	0.20	NS	11	0.27	<0.20
Acenaphthylene	µg/L	0.20	NS	1	<0.20	<0.20
Acenaphthene	µg/L	0.20	NS	4.1	<0.20	<0.20
Fluorene	µg/L	0.20	NS	120	<0.20	<0.20
Phenanthrene	µg/L	0.10	NS	1	0.44	0.12
Anthracene	µg/L	0.10	NS	2.4	0.14	<0.10
Fluoranthene	µg/L	0.20	NS	0.41	<0.20	<0.20
Pyrene	µg/L	0.20	NS	4.1	<0.20	<0.20
Benz(a)anthracene	µg/L	0.20	NS	1.0	<0.20	<0.20
Chrysene	µg/L	0.10	NS	0.1	<0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.10	NS	0.1	<0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.10	NS	0.1	<0.10	<0.10
Benzo(a)pyrene	µg/L	0.01	0.01	0.01	<0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.20	NS	0.2	<0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.20	NS	0.2	<0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.20	NS	0.2	<0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	0.20	NS	3.2	0.68	0.38

Notes:

1. NS = No standard
2. NO = No objective
3. µg/L = Microgram per Litre
4. RDL = Laboratory Reportable Detection Limit
5. ODWS = Ontario Drinking Water Standards, June, 2006
6. PWQO = MOE Provincial Water Quality Objectives, July, 1994
7. Table 2 Standard = Ministry of Environment (MOE) "Soil, Groundwater, and Sediment Standards, Part XV.1 Environment Protection Act, April 15, 2011 " full depth generic site condition standards for all types of land uses, potable groundwater condition, coarse textured soil
8. Bold type and outlined indicates an exceedance of the ODWS
9. Italicized indicates an exceedance of the PWQO
10. Bold type and shaded indicates an exceedance of the MOE Table 2 site condition standard



APPENDIX A

Aerial Photographs

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-IA-1111700079IAAIR1930.dwg



SCALE	AS SHOWN
DATE	23 JUL 2013
DESIGN	
CAD	S BOWERMAN
CHECK	CLG
REVIEW	

TITLE

AIR PHOTO 1930

FILE No. 1111700079IAAIR1930.dwg

PROJECT No. 11-1170-0079

REV.

HISTORICAL LANDFILL SITES
CITY OF ORILLIA

FIGURE

A-1

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-A-\1111700079IAAIR1945.dwg

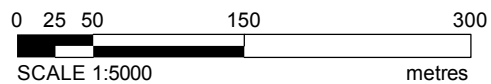


LEGEND:

— Snow Dump Fill Area

NOTE:

1. Projection UTM NAD83 Zone 17



SCALE	AS SHOWN
DATE	03 APR 2013
DESIGN	
CAD	S BOWERMAN
CHECK	CLG
REVIEW	

TITLE

AIR PHOTO 1945

FILE No. 1111700079IAAIR1945.dwg

PROJECT No. 11-1170-0079

REV.

HISTORICAL LANDFILL SITES
CITY OF ORILLIA

FIGURE

A-2

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-A-1111700079IAAIR1965.dwg



LEGEND:

— Snow Dump Fill Area

NOTE:

1. Projection UTM NAD83 Zone 17

0 25 50 150 300
SCALE 1:5000 metres



SCALE AS SHOWN
DATE 03 APR 2013
DESIGN
CAD S BOWERMAN

TITLE

AIR PHOTO 1965

FILE No. 1111700079IAAIR1965.dwg

CHECK CLG

**HISTORICAL LANDFILL SITES
CITY OF ORILLIA**

FIGURE

A-3

PROJECT No. 11-1170-0079

REV.

REVIEW

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-IA-1111700079IAAIR1967.dwg



LEGEND:

— Snow Dump Fill Area

NOTE:

1. Projection UTM NAD83 Zone 17

0 25 50 150 300
SCALE 1:5000 metres



SCALE AS SHOWN
DATE 03 APR 2013
DESIGN
CAD S BOWERMAN

TITLE

AIR PHOTO 1967

FILE No. 1111700079IAAIR1967.dwg

CHECK CLG

**HISTORICAL LANDFILL SITES
CITY OF ORILLIA**

FIGURE

A-4

PROJECT No. 11-1170-0079

REV.

REVIEW

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-IA-1111700079IAIR1968.dwg



LEGEND:

— Snow Dump Fill Area

NOTE:

1. Projection UTM NAD83 Zone 17

0 25 50 150 300
SCALE 1:5000 metres



SCALE AS SHOWN
DATE 03 APR 2013
DESIGN
CAD S BOWERMAN

TITLE

AIR PHOTO 1968

FILE No. 1111700079IAIR1968.dwg

CHECK CLG

**HISTORICAL LANDFILL SITES
CITY OF ORILLIA**

FIGURE

A-5

PROJECT No. 11-1170-0079

REV.

REVIEW

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-IA-1111700079IAIR1976.dwg

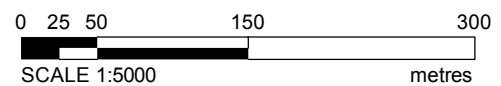


LEGEND:

— Snow Dump Fill Area

NOTE:

1. Projection UTM NAD83 Zone 17



SCALE AS SHOWN
DATE 03 APR 2013
DESIGN
CAD S BOWERMAN

TITLE

AIR PHOTO 1976

FILE No. 1111700079IAIR1976.dwg

CHECK CLG

**HISTORICAL LANDFILL SITES
CITY OF ORILLIA**

FIGURE

A-6

PROJECT No. 11-1170-0079

REV.

REVIEW

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-A-1111700079IAAIR1984.dwg



LEGEND:

— Snow Dump Fill Area

NOTE:

1. Projection UTM NAD83 Zone 17

0 25 50 150 300
SCALE 1:5000 metres



SCALE AS SHOWN
DATE 03 APR 2013
DESIGN
CAD S BOWERMAN

TITLE

AIR PHOTO 1984

FILE No. 1111700079IAAIR1984.dwg

CHECK CLG

HISTORICAL LANDFILL SITES
CITY OF ORILLIA

FIGURE

A-7

PROJECT No. 11-1170-0079

REV.

REVIEW

PLOT DATE: August 23, 2013
FILENAME: T:\Projects\2011\11-1170-0079 (Orillia Historic Landfills)\-A-1111700079IAAIR2002.dwg



LEGEND:

— Snow Dump Fill Area

NOTE:

1. Projection UTM NAD83 Zone 17

0 25 50 150 300
SCALE 1:5000 metres



SCALE AS SHOWN
DATE 03 APR 2013
DESIGN
CAD S BOWERMAN

TITLE

AIR PHOTO 2002

FILE No. 1111700079IAAIR2002.dwg

CHECK CLG

**HISTORICAL LANDFILL SITES
CITY OF ORILLIA**

FIGURE

A-8

PROJECT No. 11-1170-0079

REV.

REVIEW



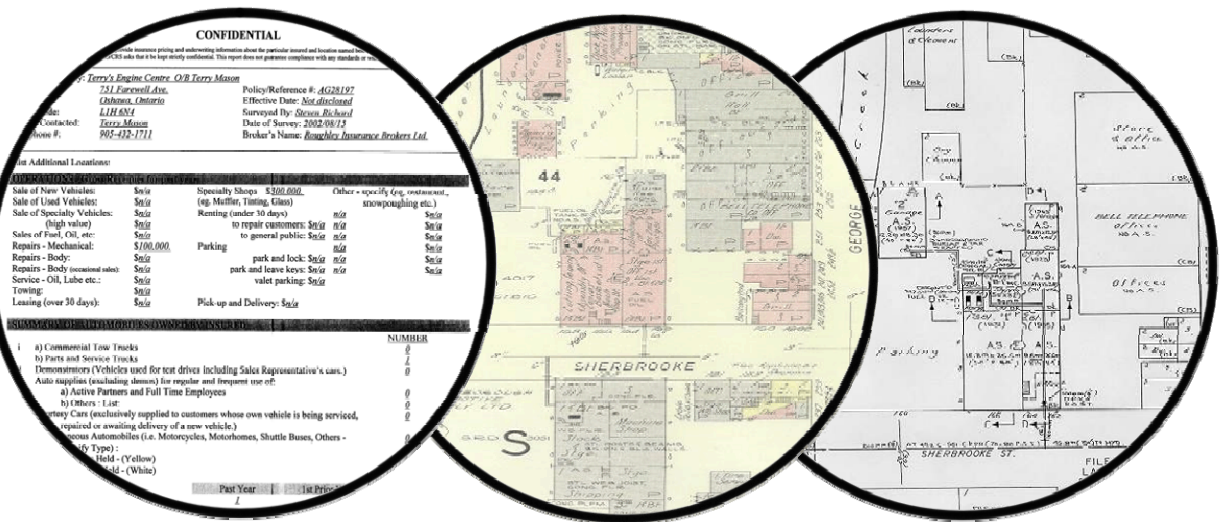
APPENDIX B

RMS Report

HEIRS™



Historical
Environmental
Information
Reporting
System



RISK MANAGEMENT SERVICES
An **SCM** Company

150 Commerce Valley Drive W
Thornhill, ON L3T 7Z3
Tel: (905) 882-6300 ext 5410
www.scm-rms.ca

Report Completed By:
Vanessa Ode

Site Address:

25 Kitchener St
Orillia, ON

Project No:

11-1170-0079

Requested by:

T. Zunti
Golder Associates

Date Completed:

April 3, 2012

RMS Environmental Services
Historical Environmental Information Reporting System (HEIRS™)

April 3, 2012

Tamara Zunti
Golder Associates
100 Scotia Ct
Whitby, ON, L1N 8Y6

Dear Tamara ,

Re: **Your Site Address: 25 Kitchener St, Orillia, ON**
Your Reference No.: 11-1170-0079

As requested, we have searched our records regarding the above site and the following information was found:

Information	Date(s)	Comment	Cost
Research Fee per street address		\$50.00 flat fee per street address.	\$50.00
Fire Insurance Plans	NRF	\$100.00 for each Fire Insurance Plan.	
Reports: All Risk/Multi-Risk Inspection COPE Other	NRF	\$55.00 for each Inspection/Survey Report.	
Site Plan(s)	NRF	\$70.00 for each Site Plan.	
Two (2) or Four (4) Day Rush Fee			
Total			\$50.00

NRF: No Records Found. NO: Not Ordered.

The cost is \$50.00 plus courier charges (if applicable) and HST. See Terms and Conditions on page 2 of this letter.

Thank you for employing the services of SCM Risk Management Services Inc.

Vanessa Ode
RMS Environmental Services



150 Commerce Valley Drive W
Markham, Ontario
L3T 7Z3

T: 905.882.6300
Toll Free: 1.800.268.8080
F: 905.695.6543

An **SCM** Company
www.scm-rms.ca

RMS Environmental Services

Historical Environmental Information Reporting System (HEIRS™)

Terms and Conditions

Report

The documents (hereinafter referred to as the "Documents") to be released as part of the report (hereinafter referred to as the "Report") to be delivered to the purchaser as set out above are documents in RMS's records relating to the described property (hereinafter referred to as the "Property"). RMS makes no representations or warranties respecting the Documents whatsoever, including, without limitation, with respect to the completeness, accuracy or usefulness of the Documents, and does not represent or warrant that these are the only plans and reports prepared in association with the Property. The Documents are current as of the date(s) indicated on them. Interpretation of the Documents, if any, is by inference based upon the information which is apparent and obvious on the face of the Documents only. RMS does not represent, warrant or guarantee that interpretations other than those referred to do not exist from other sources. The Report will be prepared for use by the purchaser of the services as shown above hereof only.

Disclaimer

RMS disclaims responsibility for any losses or damages of any kind whatsoever, whether consequential or other, however caused, incurred or suffered, arising directly or indirectly as a result of the services (which services include, but are not limited to, the preparation of the Report provided hereunder), including but not limited to, any losses or damages arising directly or indirectly from any breach of contract, fundamental or otherwise, from reliance on RMS Reports or from any tortious acts or omissions of RMS's agents, employees or representatives.

Entire Agreement

The parties hereto acknowledge and agree to be bound by the terms and conditions hereof. The request form constitutes the entire agreement between the parties pertaining to the subject matter hereof and supersedes all prior and contemporaneous agreements, negotiations and discussions, whether oral or written, and there are no representations or warranties, or other agreements between the parties in connection with the subject matter hereof except as specifically set forth herein. No supplement, modification, waiver, or termination of the request shall be binding, unless confirmed in writing by the parties hereto.

Governing Document

In the event of any conflicts or inconsistencies between the provisions hereof and the Reports, the rights and obligations of the parties shall be deemed to be governed by the request form, which shall be the paramount document.

Law

This agreement shall be governed by and construed in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein.



APPENDIX C

Regulatory Responses

**LGI COPY SERVICES CANADA**www.lgicscanada.com

alantos@lgicscanada.com

Phone: 613-875-7387

Fax: 819-684-7624

PROJECT NUMBER: 11-1170-0079	
Site Address:	Orillia, Ontario
Year: 1998/1999	
Site Listing:	-No Civic Address Requested
Adjacent Properties:	
Kitchener Street (All)	6-Multi Tenant Office 10-Sunshine Pools -Sunshine Racquet Fitness Club -Storburn Construction 14-All Canadian Towing -Timberline Taxi 18-Res 26-Orillia Form & Fabricating 30-Ontario Recyclers 32-SA Machine & Tool 40-Waste Mgmt Advisory Council
Memorial Avenue (350-600)	355-Tim Horton Donuts 370-Harvey's 380-Super Jay's 2 385-Arby's 390-Swiss Chalet 400-Paisely Moon Rest. 405-Midas Muffler & Brake -Kelsey's 425-Union Gas 450-Orillia Dodge -Dalt's Honda 475-Harmac Transportation 500-Orillia Co-Op & Gas Bar 505-Res 555-Leon's 600-Simcoe Mazda
Olive Crescent (All)	-All Residential

Shannon Street (All)	-All Residential
Trans Canada Hwy (Hwy 12) (No Addresses)	-Street Not Listed
United Drive (All)	1-Standard Auto Glass -Enterprise Rent A Car -First Choice Auto Body 35-Grant's Heating -Granco Fuel Terminals 45-Huron Tool & Machine
West Street South (480-End)	-All Residential 480-Ministry of Transportation -Garden Rest. 495-Martin Rent-All 525-Multi Tenant Office 575-Multi Tenant Office 595-Trombly's Tackle Box 601-Trophy Wood Mfg. 609-Mayes-Martin Ltd.

PROJECT NUMBER: 11-1170-0079	
Site Address:	Orillia, Ontario
Year: 1996/1997	
Site Listing:	-No Civic Address Requested
Adjacent Properties:	
Kitchener Street (All)	6-Multi Tenant Office 10-Sunshine Pools -Sunshine Racquet Fitness Club -Storburn Construction 14-All Canadian Towing -Timberline Taxi 24-Roe Gravel 26-Orillia Form & Fabricating 30-Ontario Recyclers 32-SA Machine & Tool 34-Brockworth Industries 40-Waste Mgmt Advisory Council
Memorial Avenue (350-600)	355-Tim Horton Donuts

	370-Harvey's 380-Super Jay's 2 385-Arby's 390-Swiss Chalet 400-Paisely Moon Rest. 405-Midas Muffler & Brake -Kelsey's 425-Union Gas 450-Orillia Dodge -Dalt's Honda 475-Harmac Transportation 500-Orillia Co-Op & Gas Bar 505-Res 555-Leon's 600-Simcoe Mazda
Olive Crescent (All)	-All Residential
Shannon Street (All)	-All Residential
Trans Canada Hwy (Hwy 12) (No Addresses)	-Street Not Listed
United Drive (All)	1-Standard Auto Glass 2-First Choice Auto Body 35-Grant's Heating -Granco Fuel Terminals 45-Huron Tool & Machine
West Street South (480-End)	-All Residential 480-Garden Rest. 495-Martin Rent-All 525-Multi Tenant Office 575-Multi Tenant Office 595-Trombly's Tackle Box 601-Trophy Wood Mfg. 609-Mayes-Martin Ltd.

PROJECT NUMBER: 11-1170-0079	
Site Address:	Orillia, Ontario
Year: 1986	
Site Listing:	-No Civic Address Requested

Adjacent Properties:	
Kitchener Street (All)	1-Brian's Woodcrafting 3-World Gym 6-Multi Tenant Office 10-Sunshine Pools -Sunshine Racquet Fitness Club -Knight Construction 14-Northern & Central Gas 24-Roe Gravel -Central Disposal 26-Diverse Blending 32-Huronias Fuels 34-Brockworth Industries
Memorial Avenue (350-600)	385-Arby's 400-Holiday Inn 425-IMT Cranes 440-Dalt's Chrysler Dodge 450-Dalt's Honda 475-IMT Cranes 500-Orillia Co-Op & Gas Bar 505-Trillium Cable Communications
Olive Crescent (All)	-All Residential
Shannon Street (All)	-All Residential
Trans Canada Hwy (Hwy 12) (No Addresses)	-Street Not Listed
United Drive (All)	45-Wide Range Mechanical
West Street South (480-End)	-All Residential 480-Brennan Auto Sales 495-Martin Rent-All 525-Multi Tenant Office 580-Four Seasons Variety 595-Annis-Way Signs 601-Trophy Designs Ltd. 609-Mayes-Martin Ltd.

PROJECT NUMBER: 11-1170-0079	
Site Address:	Orillia, Ontario
Year: 1982	
Site Listing:	-No Civic Address Requested
Adjacent Properties:	
Kitchener Street (All)	6-Multi Tenant Office 10-Sunshine Pools -Sunshine Racquet Fitness Club -Knight Construction 24-Simcoe Truck Centre 26-Diverse Blending 30-Littlejohn Athletic Products 34-Intra-Medical Pharmaceutical
Memorial Avenue (350-600)	400-Holiday Inn 425-Condis Int'l 450-Dalt's Honda 475-Red Top Equip't 500-United Co-Op of Ontario 505-Orillia Cable Communications
Olive Crescent (All)	-All Residential
Shannon Street (All)	-All Residential
Trans Canada Hwy (Hwy 12) (No Addresses)	-Street Not Listed
United Drive (All)	45-Grand River Sales
West Street South (480-End)	-All Residential 525-Multi Tenant Office 580-Arview Motel & Variety 595-Annis-Way Signs 601-Trophy Designs Ltd. 609-Howard Fuels

PROJECT NUMBER: 11-1170-0079	
Site Address:	Orillia, Ontario
Year: 1976	
Site Listing:	-No Civic Address Requested
Adjacent Properties:	
Kitchener Street (All)	6-Sunshine Pools -Knight Construction 24-Simcoe Truck Centre 26-Stan's Car Care 30-Maber Mfg. 3-Orillia Ortho Aplncls 34-Annis-Way Signs -Good Host Foods
Memorial Avenue (350-600)	425-Condis Int'l 500-Hogan Ford Sales 505-Orillia Cable TV
Olive Crescent (All)	-All Residential
Shannon Street (All)	-All Residential
Trans Canada Hwy (Hwy 12) (No Addresses)	-Street Not Listed
United Drive (All)	-Street Not Listed
West Street South (480-End)	-All Residential 580-Lakeview Motel & Variety 595-Annis-Way Signs 601-Trophy Designs Ltd. 609-Howard Fuels

PROJECT NUMBER: 11-1170-0079	
Site Address:	Orillia, Ontario
Year: 1966	
Site Listing:	-No Civic Address Requested
Adjacent Properties:	

Kitchener Street (All)	-Street Not Listed
Memorial Avenue (350-600)	-No Listings Within Radius
Olive Crescent (All)	-All Residential
Shannon Street (All)	-All Residential
Trans Canada Hwy (Hwy 12) (No Addresses)	-Street Not Listed
United Drive (All)	-Street Not Listed
West Street South (480-End)	-All Residential 595-Annis-Way Signs 601-Trophy Designs Ltd. 609-Nichols Shell Prod

PROJECT NUMBER: 11-1170-0079	
Site Address:	Orillia, Ontario
Year: 1961	
Site Listing:	-No Civic Address Requested
Adjacent Properties:	
Kitchener Street (All)	-Street Not Listed
Memorial Avenue (350-600)	-No Listings Within Radius
Olive Crescent (All)	-All Residential
Shannon Street (All)	-All Residential
Trans Canada Hwy (Hwy 12) (No Addresses)	-Street Not Listed
United Drive (All)	-Street Not Listed
West Street South (480-End)	-All Residential

*****Orillia, Ontario is listed from 1961 to 1999 within the city directory archives*****

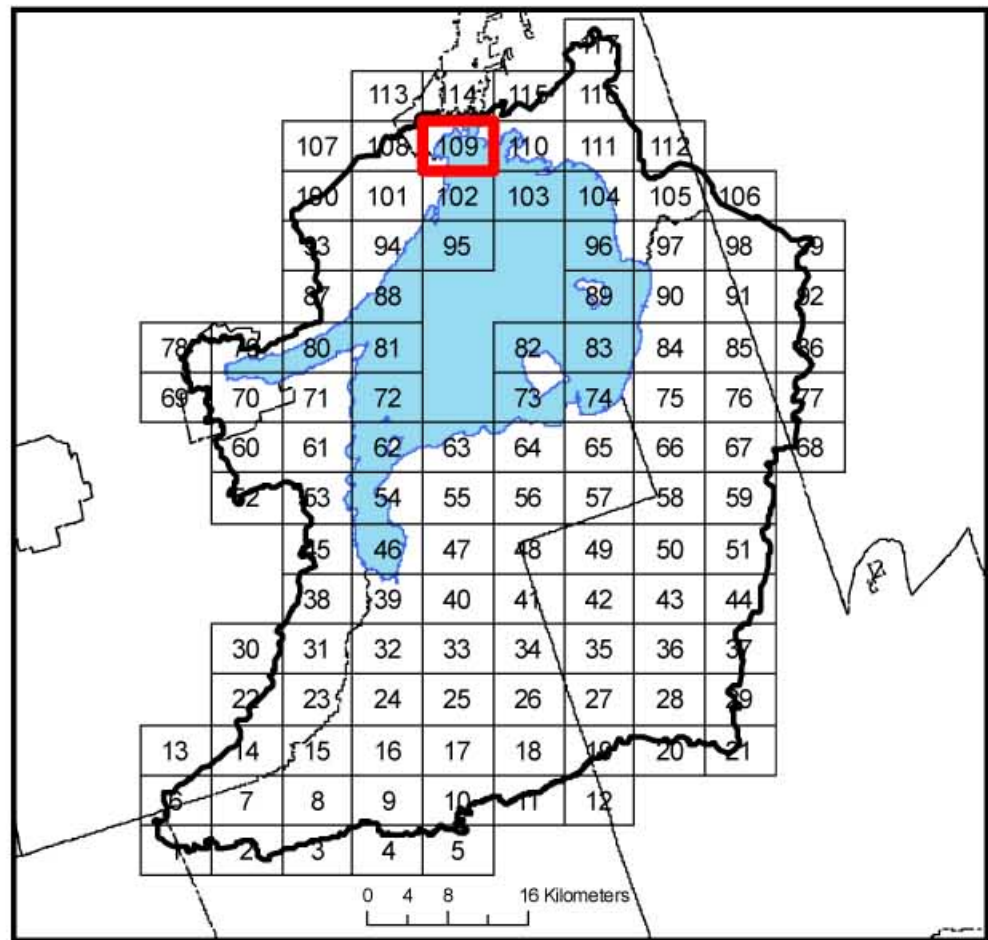


Lake Simcoe
Region
Conservation
Authority



Legend

- WATERCOURSE
- ROAD
- REGULATION AREA
- LOT_CONCESSION
- LSRCA JURISDICTION
- MUNICIPAL BOUNDARY
- LAKE SIMCOE



THIS PRODUCT WAS PRODUCED BY THE LAKE SIMCOE REGION CONSERVATION AUTHORITY AND SOME INFORMATION DEPICTED ON THIS MAP MAY HAVE BEEN COMPILED FROM VARIOUS SOURCES. WHILE EVERY EFFORT HAS BEEN MADE TO ACCURATELY DEPICT THE INFORMATION, DATA/MAPPING ERRORS MAY EXIST. THIS MAP WAS PRODUCED FOR ILLUSTRATIVE PURPOSES ONLY. © LAKE SIMCOE REGION CONSERVATION AUTHORITY, 2009. ALL RIGHTS RESERVED. THE FOLLOWING DATA SETS OF MAPPING DATA WERE USED: LOT CONCESSION AREAS (QUEEN'S PRINTER FOR ONTARIO, 2009), REPRODUCED WITH PERMISSION. © J.D. BARNES LIMITED, 2002 ORTHOPHOTOGRAPHY © J.D. BARNES LIMITED, 2007 ORTHOPHOTOGRAPHY © J.D. BARNES LIMITED, 2008 ORTHOPHOTOGRAPHY. RIVERINE HAZARDS WERE BASED ON EXISTING FLOOD PLAIN MAPPING. FLOOD PLAIN LIMITS WHERE ENGINEERING PRODUCTS DID NOT EXIST WERE DETERMINED BY LSRCA STAFF. RIVERINE EROSION HAZARDS WERE DETERMINED BY LSRCA STAFF. A 15-METER SETBACK WAS APPLIED FROM THE LIMITS OF ALL RIVERINE HAZARDS. SHORELINE FLOOD HAZARDS WERE DETERMINED BY LSRCA STAFF BY APPLYING THE EQUATIONS PREVIOUSLY DEVELOPED THROUGH AN ENGINEERING STUDY. SHORELINE EROSION HAZARDS WERE DETERMINED BY LSRCA STAFF. WETLANDS WERE DELINEATED BY LSRCA STAFF USING THE ECOLOGICAL LAND CLASSIFICATION (ELC) SYSTEM AND BY THE MINISTRY OF NATURAL RESOURCES. SETBACKS OF 100-M FROM PROVINCIALY SIGNIFICANT WETLANDS (PSW) AND 30-M FROM ALL OTHER WETLANDS WERE APPLIED. MEANDERBELT WIDTHS WERE CALCULATED AS 20 TIMES THE BANKFULL WIDTHS ESTIMATED FROM THE CORRESPONDING DRAINAGE AREAS. PLEASE REFER TO "REFERENCE MANUAL FOR DETERMINATION OF REGULATION LIMITS" (LSRCA, 2005) OR CONTACT LSRCA (905-895-1291) FOR MORE INFORMATION.		1:10,000				(ONTARIO REGULATION 97/04) REGULATION OF DEVELOPMENT, INTERFERENCE WITH WETLANDS AND ALTERATIONS TO SHORELINES AND WATERCOURSES. ONTARIO REGULATION 179/06	SHEET NO. 109 OF 117
		0	ONTARIO REGULATION 179/06 APPROVED	MAY 8, 2006	CHECKED - NATURAL HERITAGE	KB	
		1	Mapping revisions to the regulation limit have been completed as referenced in the document "Regulation Limit Changes, May 2007"	SEPTEMBER 28, 2007	CHECKED - REGULATIONS	JP	
		2	Mapping revisions to the regulation limit have been completed as referenced in the document "Regulation Limit Changes, April 2009". Ortho imagery changed to reflect most recent imagery available. Map data disclaimer changed to reflect most current disclaimer in use.	APRIL 24, 2009	CHECKED - ENGINEERING	JP	
NO.		REVISIONS		DATE	APPROVED	TH	PLOT DATE: APRIL 2009
					DATE:	JANUARY 2006	
					MAPPED BY:	JB	FILE LOCATION:



APPENDIX D

EcoLog ERIS Report



Canada's Primary Environmental Risk Information Service

Project Site: Historical Landfill Sites Orillia
Highway 12
Orillia, ON

Client: Tamara Zunti
Golder Associates Ltd.
100 Scotia Court
Whitby, ON L1N8Y6

ERIS Project No: 20120322017

Report Type: Custom Report - .25km Search Radius

Prepared By: Matt Thompson
mthompson@eris.ca

Date: March 30, 2012

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Site Address: Highway 12 Orillia, ON
Report Type: Custom Report, 0.25 km Search Radius

	<u>Section</u>
Report Summary <i>This outlines the number of records from each database that fall on the site, and within various distances from the site.</i>	i
Site Diagram <i>The records that were found within a specified distance from the project property (the primary search radius) have been plotted on a diagram to provide you with a visual representation of the information available. Sites will be plotted on the diagram if there is sufficient information from the database source to determine accurate geographic coordinates. Each plotted site is marked with an acronym identifying the database in which the record was found (i.e., WDS for Waste Disposal Sites). These are referred to as "Map Keys". A variety of problems are inherent when attempting to associate various government or private source records with locations. EcoLog ERIS has attempted to make the best fit possible between the available data and their positions on the site diagram.</i>	ii
Site Profile <i>This table describes the records that relate directly to the property that is being researched.</i>	iii
Detail Report <i>This section represents information, by database, for the records found within the primary search radius. Listed at the end of each database are the sites that could not be plotted on the locator diagram because of insufficient address information. These records will not have map keys. They have been included because they may be found to be relevant during a more detailed investigation.</i>	iv

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Appendix: Database Descriptions

Report Summary

Order Number: 20120322017
 Site Name: Historical Landfill Sites Orillia
 Site Address: Highway 12 Orillia, ON
 Report Type: Custom Report, 0.25 km Search Radius

Number of Mappable Records Surrounding the Site

Database	Selected	On-site	Within 0.25	0.25km to 0.25km	Total
AAGR	Abandoned Aggregate Inventory	Y	0	0	0
AGR	Aggregate Inventory	Y	0	0	0
AMIS	Abandoned Mine Information System	Y	0	0	0
ANDR	Anderson's Waste Disposal Sites	Y	4	5	5
AUWR	Automobile Wrecking & Supplies	Y	0	1	1
BORE	Borehole	Y	0	0	0
CA	Certificates of Approval	Y	4	10	10
CFOT	Commercial Fuel Oil Tanks	Y	0	0	0
CHEM	Chemical Register	Y	0	0	0
COAL	Coal Gasification Plants	Y	0	0	0
CONV	Compliance and Convictions	Y	0	1	1
CPU	Certificates of Property Use	Y	0	0	0
DRL	Drill Hole Database	Y	0	0	0
EASR	Environmental Activity and Sector Registry	Y	0	0	0
EBR	Environmental Registry	Y	1	7	7
ECA	Environmental Compliance Approval	Y	0	0	0
EEM	Environmental Effects Monitoring	Y	0	0	0
EHS	ERIS Historical Searches	Y	0	6	6
EIIS	Environmental Issues Information System	Y	0	0	0
EXP	List of TSSA Expired Facilities	Y	0	25	25
FCON	Federal Convictions	Y	0	0	0
FCS	Contaminated Sites on Federal Land	Y	0	0	0
FOFT	Fisheries & Oceans Fuel Storage Tanks	Y	0	0	0
FST	Fuel Storage Tank	Y	0	7	7
GEN	Ontario Regulation 347 Waste Generators Summary	Y	10	42	42
HINC	TSSA Historic Incidents	Y	1	2	2
IAFT	Indian & Northern Affairs Fuel Tanks	Y	0	0	0
INC	TSSA Incidents	Y	0	0	0
LIMO	Landfill Inventory Management Ontario	Y	1	1	1
MINE	Canadian Mine Locations	Y	0	0	0
MNR	Mineral Occurrences	Y	0	0	0
NATE	National Analysis of Trends in Emergencies System (NATES)	Y	0	0	0
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defence & Canadian Forces Fuel Storage Tanks	Y	0	0	0
NDSP	National Defence & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	1	1
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	0	0
OGW	Oil and Gas Wells	Y	0	0	0
OOGW	Ontario Oil and Gas Wells	Y	0	0	0
OPCB	Inventory of PCB Storage Sites	Y	0	0	0

Report Summary

Order Number: 20120322017
 Site Name: Historical Landfill Sites Orillia
 Site Address: Highway 12 Orillia, ON
 Report Type: Custom Report, 0.25 km Search Radius

Database	Selected	On-site	Within 0.25	0.25km to 0.25km	Total
ORD Orders	Y	0	0	0	0
PAP Canadian Pulp and Paper	Y	0	0	0	0
PCFT Parks Canada Fuel Storage Tanks	Y	0	0	0	0
PES Pesticide Register	Y	0	6	0	6
PINC TSSA Pipeline Incidents	Y	0	0	0	0
PRT Private and Retail Fuel Storage Tanks	Y	0	8	0	8
PTTW Permit to Take Water	Y	0	0	0	0
REC Ontario Regulation 347 Waste Receivers Summary	Y	1	1	0	1
RSC Record of Site Condition	Y	0	0	0	0
RST Retail Fuel Storage Tanks	Y	0	8	0	8
SCT Scott's Manufacturing Directory	Y	1	12	0	12
SPL Ontario Spills	Y	26	32	0	32
SRDS Wastewater Discharger Registration Database	Y	0	0	0	0
TANK Anderson's Storage Tanks	Y	0	0	0	0
TCFT Transport Canada Fuel Storage Tanks	Y	0	0	0	0
VAR Variances for Abandonment of Underground Storage Tanks	Y	0	0	0	0
WDS Waste Disposal Sites - MOE CA Inventory	Y	4	10	0	10
WDSH Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	1	1	0	1
WWIS Water Well Information System	Y	9	17	0	17
TOTAL		63	203	0	203

The databases chosen by the client as per the submitted order form are denoted in the 'Selected' column in the above table. Counts have been provided outside the primary buffer area for cursory examination only. These records have not been examined or verified, therefore, they are subject to change.



Pinpointing Your Environmental Risks

12 Concorde Pl, Suite 800 North York, ON M3C 4J2
416-510-5204

Project Property: Historical Landfill Sites Orillia
Highway 12
Orillia, ON

ERIS Project #: 20120322017

Date: MAR-30-2012

LEGEND

Project Property

Database Location

Points of Interest

Chimney

Silo

Pipe & Transmission Lines

Pipeline

Transmission Line

Transmission Tower

Transformer Station

Rail

Railway - Main

Railway - Sidetrack

Railway - Abandoned

Bridge

Tunnel

Transportation - Other

Embankment

Trail

Runway

Hydrographic Features

Permanent Waterway

Intermittent Waterway

Open Reservoir

Dyke/Levee

Dam

Breakwall

Wetland

Landuse Classifications

Open Area

Residential

Commercial

Resource and Industrial

Government and Institutional

Parks and Recreational

Waterbody

Recreation

Golf Course/Driving Range

Park/Sports Field

Other Recreation Area

Sports/Race Track

Cemetery

Campground

Vegetation

Wooded Area

Orchard

Vineyard

Industrial Resources

Conveyor

Crane: Moveable

Crane: Stationary

Tank

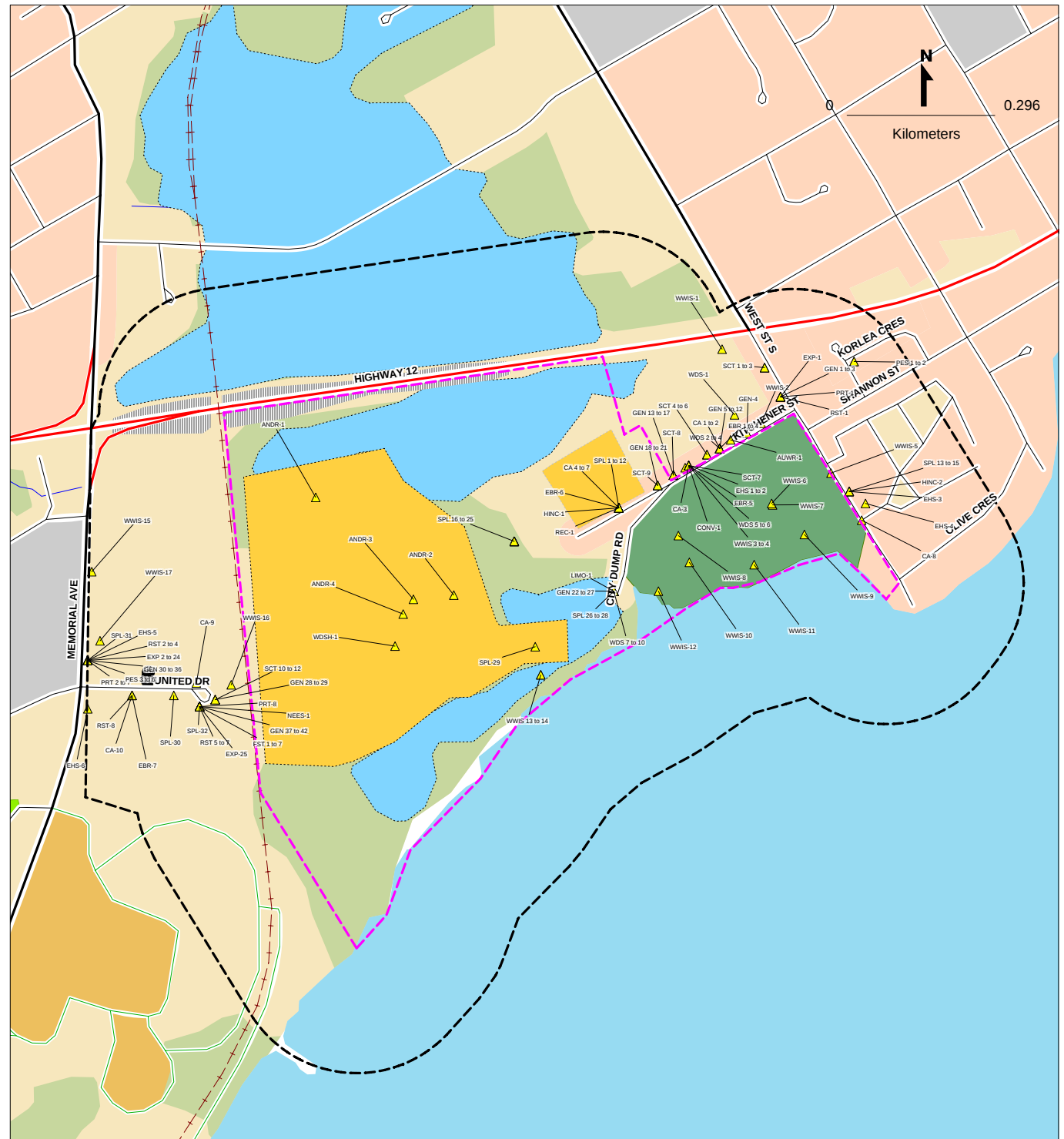
Rock Cut

Auto Wrecker

Lumber Yard

Pit

SITE DIAGRAM



This diagram is to be used solely for relative street location purposes.
It may not accurately portray street or site positions.

Site Report

Order Number: 20120322017
 Site Name: Historical Landfill Sites Orillia
 Site Address: Highway 12 Orillia, ON
 Report Type: Custom Report, 0.25 km Search Radius

FOR COMPLETE INFORMATION, REFER TO DETAIL REPORT

Ontario Regulation 347 Waste Receivers Summary

Map Key	Company Name	Address	City	Postal Code
REC-1	ORILLIA, CITY OF	WATER POLLUTION CONTROL PLANT 40 KITCHENER STREET	ORILLIA	L3V 6Z9

TSSA Historic Incidents

Map Key	Company Name	Address	City	Postal Code
HINC-1		40 KITCHENER STREET	ORILLIA	

Ontario Spills

Map Key	Company Name	Address	City	Postal Code
SPL-1	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-2	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-3	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-4	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-5	The Corporation of the City of Orillia	40 Kitchener St	Orillia	
SPL-6	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-7	The Corporation of the City of Orillia	40 Kitchener St	Orillia	
SPL-8	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-9	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-10	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-11	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-12	The Corporation of the City of Orillia	40 Kitchener St	Orillia	L3V 6Z9
SPL-16	ORILLIA PUC	LAKE SIMCOE ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-17	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-18	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-19	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	

Site Report

Order Number: 20120322017
 Site Name: Historical Landfill Sites Orillia
 Site Address: Highway 12 Orillia, ON
 Report Type: Custom Report, 0.25 km Search Radius

FOR COMPLETE INFORMATION, REFER TO DETAIL REPORT

Map Key	Company Name	Address	City	Postal Code
SPL-20	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-21	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-22	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-23	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-24	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-25	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET	ORILLIA CITY	
SPL-26	The Corporation of the City of Orillia	100 Kitchener St	Orillia	
SPL-27	The Corporation of the City of Orillia	100 Kitchener St	Orillia	
SPL-28	The Corporation of the City of Orillia	LOTS 11 & 12, CONC. 4	Orillia	
SPL-29	The Corporation of the City of Orillia	100 Kitchener St	Orillia	

Anderson's Waste Disposal Sites

Map Key	Company Name	Address	City	Postal Code
ANDR-1	Kitchener St Dump '10 (alt)		Orillia	L3V 6Z9
ANDR-2	Kitchener St Dump '01 1976		Orillia	L3V 6Z9
ANDR-3	Kitchener St Dump '01 1976		Orillia	L3V 6Z9
ANDR-4	Kitchener St Dump '01 (official)		Orillia	L3V 6Z9

Certificates of Approval

Map Key	Company Name	Address	City	Postal Code
CA-4	The Corporation of the City of Orillia	40 Kitchener Street	Orillia	
CA-5	The Corporation of the City of Orillia	40 Kitchener St	Orillia	
CA-6	The Corporation of the City of Orillia	40 Kitchener St	Orillia	

Site Report

Order Number: 20120322017
 Site Name: Historical Landfill Sites Orillia
 Site Address: Highway 12 Orillia, ON
 Report Type: Custom Report, 0.25 km Search Radius

FOR COMPLETE INFORMATION, REFER TO DETAIL REPORT

Map Key	Company Name	Address	City	Postal Code
CA-7	The Corporation of the City of Orillia	40 Kitchener Street	Orillia	
<u>Ontario Regulation 347 Waste Generators Summary</u>				
Map Key	Company Name	Address	City	Postal Code
GEN-18	BROCKWORTH INDUSTRIES LIMITED	34 KITCHENER STREET	ORILLIA	L3V 6Z9
GEN-19	BROCKWORTH INDUSTRIES 06-203	34 KITCHENER ST.	ORILLIA	L3V 6Z9
GEN-20	BROCKWORTH INDUSTRIES	34 KITCHENER STREET	ORILLIA	L3V 6Z9
GEN-21	BROCKWORTH INDUSTRIES	34 KITCHENER ST.	ORILLIA	L3V 6Z9
GEN-22	ORILLIA, CORPORATION OF THE CITY OF	ORILLIA WASTE DIVERSION SITE 100 KITCHENER STREET	ORILLIA	L3V 6Z9
GEN-23	ORILLIA, CORP. OF THE CITY OF	ORILLIA SANITARY LANDFILL SITE 100 KITCHENER ST.	ORILLIA	L3V 6J1
GEN-24	ORILLIA, CORP. OF THE CITY OF	ORILLIA SANITARY LANDFILL SITE 100 KITCHENER STREET	ORILLIA	
GEN-25	ORILLIA, CORPORATION OF THE CITY OF	ORILLIA SANITARY LANDFILL SITE 100 KITCHENER STREET	ORILLIA	
GEN-26	ORILLIA, CORP. OF THE CITY OF 29-516	ORILLIA SANITARY LANDFILL SITE 100 KITCHENER STREET	ORILLIA	
GEN-27	ORILLIA, CORPORATION OF THE CITY OF Public Works Dept	ORILLIA WASTE DIVERSION SITE 100 KITCHENER STREET	ORILLIA	L3V 6Z9
<u>Waste Disposal Sites - MOE 1991 Historical Approval Inventory</u>				
Map Key	Company Name	Address	City	Postal Code
WDSH-1		PT 11-12 4	ORILLIA	
<u>Waste Disposal Sites - MOE CA Inventory</u>				
Map Key	Company Name	Address	City	Postal Code

Site Report

Order Number: 20120322017
Site Name: Historical Landfill Sites Orillia
Site Address: Highway 12 Orillia, ON
Report Type: Custom Report, 0.25 km Search Radius

FOR COMPLETE INFORMATION, REFER TO DETAIL REPORT

Map Key	Company Name	Address	City	Postal Code
WDS-7		100 Kitchener Street Lots 11 & 12, Conc. 4	Orillia	
WDS-8	The Corporation of the City of Orillia	100 Kitchener Street	Orillia	
WDS-9	The Corporation of the City of Orillia	100 Kitchener Street	Orillia	
WDS-10	The Corporation of the City of Orillia	100 Kitchener St Lot 11 & 12, Concession 4	Orillia	

Water Well Information System

Map Key	Company Name	Address	City	Postal Code
WWIS-6				
WWIS-7			ORILLIA	
		lot 12 con 4		
WWIS-8			ORILLIA	
WWIS-9				
WWIS-10				
WWIS-11				
WWIS-12				
WWIS-13			Orillia	
WWIS-14				

Landfill Inventory Management Ontario

Map Key	Company Name	Address	City	Postal Code
LIMO-1	The Corporation of the City of Orillia	100 Kitchener Street; Lot 11-12, Conc 4	City of Orillia	

Scott's Manufacturing Directory

Map Key	Company Name	Address	City	Postal Code
SCT-9	BROCKWORTH INDUSTRIES LIMITED	34 KITCHENER ST	ORILLIA	L3V 6Z9

Environmental Registry

Map Key	Company Name	Address	City	Postal Code
EBR-6	The Corporation of the City of Orillia	40 Kitchener Street	Orillia	

Detail Report

Order Number: 20120322017
Site Name: Historical Landfill Sites Orillia
Site Address: Highway 12 Orillia ON
Report Type: Custom Report, 0.25 km Search Radius

If information is required for sites located beyond the selected address, please contact your ERIS representative.

Anderson's Waste Disposal Sites
Automobile Wrecking & Supplies
Certificates of Approval
Compliance and Convictions
Environmental Registry
ERIS Historical Searches
List of TSSA Expired Facilities
Fuel Storage Tank
Ontario Regulation 347 Waste Generators Summary
TSSA Historic Incidents
Landfill Inventory Management Ontario
National Analysis of Trends in Emergencies System (NATES)
National Environmental Emergencies System (NEES)
Pesticide Register
Private and Retail Fuel Storage Tanks
Ontario Regulation 347 Waste Receivers Summary
Retail Fuel Storage Tanks
Scott's Manufacturing Directory
Ontario Spills
Waste Disposal Sites - MOE CA Inventory
Waste Disposal Sites - MOE 1991 Historical Approval Inventory
Water Well Information System

Anderson's Waste Disposal Sites

Map Key	Name	Facility	Location	City/Town	Known Active Decade	Reference #
ANDR-1	Kitchener St Dump '10 (alt) Related Site(s)	Dump	Kitchener St; wooded swampy area 250m S of Highway 12, 100m N of marked dump area, 225m E of CNR R-O-W, 650m W of the end of Kitchener St*	Orillia	1960s	MOEE 4110 alt
ANDR-2	Kitchener St Dump '01 1976 Related Site(s)	Dump	approx. 450m S of Highway 12, 325m E of CNR R-O-W, at W end of 600m spur road leading from western end of Kitchener St*, W of filtration plant	Orillia	1970s	MOEE a250601 1976
ANDR-3	Kitchener St Dump '01 1976 Related Site(s)	Dump	marsh, shores of Lake Simcoe, S of Highway 12	Orillia	1960s, 1970s	MOEE a250601 1976

Anderson's Waste Disposal Sites

Map Key	Name	Facility	Location	City/Town	Known Active Decade	Reference #
	Related Site(s)					
ANDR-4	Kitchener St Dump '01 (official) Related Site(s)	Dump	approx. 450m S of Highway 12, 325m E of CNR R-O-W, at W end of 600m spur road leading from western end of Kitchener St*, W of filtration plant	Orillia	1970s, 1980s, 1990s	MOEE a250601
ANDR-5	Kitchener St Dump '10 (official) Related Site(s)	Dump	cleared area 400m E of 3rd Concession/Woodland Ave*, 960m to CNR ROW,	Orillia	1960s	MOEE 4110

Automobile Wrecking & Supplies

Map Key	Company	Address	Facility	Description
AUWR-1	F M RECYCLING	18 KITCHENER ST ORILLIA L3V 6Z9	SCRAP METALS	

Certificates of Approval

Map Key	Company	Address	Certificate #	Application Year	Issue Date	Approval Type	Status	Application Type
CA-1	DOUG ROE ENTERPRISES LIMITED	24 KITCHENER STREET ORILLIA CITY L3V 6Z9	8-1023-97-	97	4/3/1997	Industrial air	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: RECYCLING EMPTY AEROSOLS Contaminants: Dimethyl Ether Emission Control: No Controls					
CA-2	Doug Roe Enterprises Limited	24 Kitchener Street Orillia L3V 6Z9	A840222	2002	9/5/2002	Waste Management Systems	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
CA-3	948386 ONTARIO LTD., ONTARIO RECYCLER	30 KITCHEN ST., PT.LOT 12 ORILLIA CITY	8-1084-97-	97	4/14/1997	Industrial air	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: EXH.FOR A 200 HP GASOLINE POWERED ENGINE Contaminants: Emission Control:					
CA-4	The Corporation of the City of Orillia	40 Kitchener Street Orillia	4843-6AJHYB	2005	3/23/2005	Municipal and Private Sewage Works	Revoked and/or Replaced	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					

Certificates of Approval

Map Key	Company	Address	Certificate #	Application Year	Issue Date	Approval Type	Status	Application Type
CA-5	The Corporation of the City of Orillia	40 Kitchener St Orillia	4402-8L7PWT	2011	8/31/2011	Air	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
CA-6	The Corporation of the City of Orillia	40 Kitchener St Orillia	0286-758MW6	2007	7/25/2007	Municipal and Private Sewage Works	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
CA-7	The Corporation of the City of Orillia	40 Kitchener Street Orillia	0844-5ZKQE9	2004	6/14/2004	Municipal and Private Sewage Works	Revoked and/or Replaced	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
CA-8	ORILLIA CITY	OLIVE CRES./WEST ST. S ORILLIA CITY	3-0306-92-	92	4/23/1992	Municipal sewage	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					

Certificates of Approval

Map Key	Company	Address	Certificate #	Application Year	Issue Date	Approval Type	Status	Application Type
CA-9	BARRWOOD DEVELOPMENT LTD.	SWM-40 UNITED AVENUE ORILLIA CITY L3V 6H1	3-1782-97-	97	12/22/1997	Municipal sewage	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
CA-10	JIM L. SMITH O/A FIRST CHOICE AUTO BODY	1 UNITED DRIVE ORILLIA L3V 6H1	8-1263-98-	98	//	Industrial air	In progress	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: WASTE DERIVED FUEL HEATER Contaminants: Emission Control:					
n/a	ORILLIA CITY	KITCHENER STREET ORILLIA CITY	8-3370-90-	90	7/31/1991	Industrial air	Approved in 1991	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: OPERATIONS CENTRE-LAB. & VENT. EQUIPMENT Contaminants: Acetic Acid, Acetone, Hydrogen Chloride, Hydrogen Peroxide, Nitric Acid, Sulphuric Acid Emission Control: No Controls					
n/a	ORILLIA CITY - DIGESTER GAS MODS	KITCHENER ST./HWY. #12/WEST ST ORILLIA CITY	8-3201-91-	91	2/10/1992	Industrial air	Approved in 1992	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: REPLACE GAS BURNER, RELOCATE VAREC MODEL Contaminants: Nitrogen Oxides Emission Control: Flare					

Certificates of Approval

Map Key	Company	Address	Certificate #	Application Year	Issue Date	Approval Type	Status	Application Type
n/a	OTTO CSEKEY	WEST STREET ORILLIA CITY	3-0989-88-	88	8/11/1988	Municipal sewage	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	MEMORIAL AVENUE INVESTMENTS LIMITED	MEMORIAL AVE. COMMERCIAL DEVEL ORILLIA CITY	3-1872-88-	88	11/3/1988	Municipal sewage	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	CARL MCDAID ENTERPRISES LIMITED PRIVATE	LOT 1, REG. PLAN 395, WEST ST. ORILLIA CITY	3-0617-89-	89	7/25/1989	Municipal sewage	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	T. TSELIKIS - REG. PLAN 673	MEMORIAL AVENUE ORILLIA CITY	3-2132-89-	89	12/21/1989	Municipal sewage	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					

Certificates of Approval

Map Key	Company	Address	Certificate #	Application Year	Issue Date	Approval Type	Status	Application Type
n/a	A.H. DOUGLAS INVESTMENTS CORP. LTD.	S.W. CORNER MEMORIAL AVE. ORILLIA CITY	3-1027-89-	89	1/23/1990	Municipal sewage	Approved in 1990	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	INVERMARA BAY(DIVISION OF 731232 ONT.LTD	LOT 18, R.P.910 ,HWY 12 ORILLIA CITY	7-0615-88-	88	5/13/1988	Municipal water	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	CARL MCDAIDE ENTERPRISES LTD. PRIVATE	LOT 1, REG. PLAN 395, WEST ST. ORILLIA CITY	7-0543-89-	89	7/25/1989	Municipal water	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	ORILLIA CITY	WEST ST. SOUTH ORILLIA CITY	7-0320-89-	89	7/28/1989	Municipal water	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					

Certificates of Approval

Map Key	Company	Address	Certificate #	Application Year	Issue Date	Approval Type	Status	Application Type
n/a	GOLDWING FABRICATING LIMITED	WEST ST.S., LOTS 3&4 (SWM) ORILLIA CITY	3-0797-94-	94	7/12/1994	Municipal sewage	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	OTTO CSEKEY	WEST STREET ORILLIA CITY	7-0861-88-	88	8/11/1988	Municipal water	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	ORILLIA CITY	HIGH ST./SHANNON ST./OLIVE CRE ORILLIA	7-0148-98-	98	5/12/1998	Municipal water	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	1138806 ONTARIO LIMITED	PT.LOT 11/CON.3&4,S. ORLLIA ORILLIA CITY	3-1823-97-	97	1/5/1998	Municipal sewage	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					

Certificates of Approval

Map Key	Company	Address	Certificate #	Application Year	Issue Date	Approval Type	Status	Application Type
n/a	Memorial Avenue Storm Sewers	Lots 10 and 11, Concession 4 Orillia	4440-5ALQ9X	02	6/3/02	Municipal & Private sewage	Approved	New Certificate of Approval
			Client Name: The Corporation of the City of Orillia Client Address: 50 Andrew Street South Client City: Orillia Client Postal Code: L3V 7T5 Project Description: Approval is sought for the construction of storm sewers on Memorial Avenue and James Street. Contaminants: Emission Control:					
n/a	Bet-Ray Developments Limited	Kitchener Street Orillia	4122-6SSHGY	2006	8/25/2006	Municipal and Private Sewage Works	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					
n/a	The Corporation of the City of Orillia	West Street From Highway 12 Bypass to Shannon Street Orillia	2381-8MKLE5	2011	10/19/2011	Municipal and Private Sewage Works	Approved	
			Client Name: Client Address: Client City: Client Postal Code: Project Description: Contaminants: Emission Control:					

Compliance and Convictions

Map Key	Company	Address	File No.	Crown Brief No.	Ministry District	Region
CONV-1	948386 ONTARIO LTD.			98-0000-9001		SOUTH WEST REGION
Description: THIS IS THE SOUTHWEST BRIEF FOR ALL P.O.A. TICKETS.						
			<u>Date Charged</u>	<u>Fine</u>	<u>Act/Regulation/Section</u>	<u>Charge Disposition</u>
			5/25/98	\$300.00	EPA- -186(3)	SUSPENDED SENTENCE
			5/25/98	\$300.00	EPA- -186(3)	SUSPENDED SENTENCE

Environmental Registry

Map Key	Company	Address	Year	EBR Registry No.	Ministry Ref. No.	Type
EBR-1	MID Ontario Disposal Doug Roe Ent. Inc.	City of Orillia	1996	IA6E0622		Instrument
			Instrument Type:	EPA s. 27 - Approval for a waste disposal site.		
			Proposal Date:	4/29/96		
			Location:	City of Orillia		
			Proponent Address:	MID Ontario Disposal Doug Roe Ent. Inc., Doug Roe Enterprises Ltd., 377 BREWERY LANE, Orillia, Ontario, L3V 3Y7		
EBR-2	Doug Roe Enterprises Limited	24 KITCHENER STREET City of Orillia L3V 6Z9	1997	IA7E0123		Instrument
			Instrument Type:	EPA s. 9 - Approval for discharge into the natural environment other than water (i.e. Air)		
			Proposal Date:	2/4/97		
			Location:	City of Orillia		
			Proponent Address:	Doug Roe Enterprises Limited 377 Brewery Lane, Orillia, Ontario, L3V 7H8		
EBR-3	MID Ontario Disposal Doug Roe Ent. Inc. Doug Roe Enterprises Ltd.	City of Orillia	1999	IA9E0313		Instrument
			Instrument Type:	EPA s. 27 - Approval for a waste disposal site.		
			Proposal Date:	3/10/99		
			Location:	City of Orillia		
			Proponent Address:	MID Ontario Disposal Doug Roe Ent. Inc. Doug Roe Enterprises Ltd., 377 BREWERY LANE, Orillia, Ontario, L3V 3Y7		
EBR-4	Doug Roe Enterprises Limited	24 Kitchener Street Orillia L3V 6Z9	2005	IA05E1719	2168-6HDPN3	Instrument Decision
			Instrument Type:	Approval for a waste disposal site. - EPA s. 27		
			Proposal Date:			
			Location:	24 Kitchener Street Orillia Ontario L3V 6Z9		
			Proponent Address:	P.O. Box 9, Station Main Orillia Ontario L3V 6H9		
EBR-5	Capital Environmental Resources Inc	30 Kitchener Street (Lot 11) City of Orillia L3V 6Z9	1999	IA9E0503		Instrument
			Instrument Type:	EPA s. 27 - Approval for a waste disposal site.		
			Proposal Date:	4/21/99		
			Location:	City of Orillia		
			Proponent Address:	Capital Environmental Resources Inc. 1005 Skyview Drive, Burlington, Ontario, Ontario, L9P 5B1		
EBR-6	The Corporation of the City of Orillia	40 Kitchener Street Orillia	2011	011-3199	3652-88WPJD	Instrument Proposal
			Instrument Type:	(OWRA s. 53(1)) - Approval for sewage works		
			Proposal Date:	April 11, 2011		
			Location:	40 Kitchener Street Orillia, County of Simcoe L3V 6Z9		
			Proponent Address:	50 Andrew Street South Suite 300 Orillia Ontario Canada L3V 7T5		

Environmental Registry

Map Key	Company	Address	Year	EBR Registry No.	Ministry Ref. No.	Type
EBR-7	James SmithO/A First Choice Auto Body	1 United Drive City of Orillia L3V 6H1	1999	IA9E0160		Instrument
			Instrument Type:	EPA s. 9 - Approval for discharge into the natural environment other than water (i.e. Air)		
			Proposal Date:	2/4/99		
			Location:	City of Orillia		
			Proponent Address:	James SmithO/A First Choice Auto Body,1 United Drive, Unit 2,Orillia, Ontario, L3V 6H1		

ERIS Historical Searches

Map Key	Company	Address	Order No.	Report Date	Report Type	Search Radius (km)
EHS-1		30 Kitchener St Orillia L3V 6Z9	20010203016 Addit. Info Ordered:	2/13/01	Complete Report	0.25
EHS-2		30 Kitchener St. Orillia L3V 6Z9	20070622024 Addit. Info Ordered:	6/28/2007 Fire Insur. Maps And /or Site Plans; Aerials Photos	CAN - Complete Report	0.25
EHS-3		580 West Street South Orillia L3V 6L8	20050511006 Addit. Info Ordered:	5/12/2005		0.45
EHS-4		560 west st s Orillia L3V 5H6	20100520021 Addit. Info Ordered:	5/21/2010	Site Report	0.25
EHS-5		500 Memorial Avenue Orillia L3V 6H1	20070119003 Addit. Info Ordered:	1/29/2007 Fire Insur. Maps And /or Site Plans; City Directory	CAN - Complete Report	0.25
EHS-6		600 Memorial Avenue Orillia	20040331001 Addit. Info Ordered:	4/8/04 Fire Insur. Maps and/or Site Plans; Aerials Photos and/or Topographical Maps	Complete Report	0.25

List of TSSA Expired Facilities

Map Key	Company	Address	Instance ID	Instance Number	Context	Status:
EXP-1	MAYES-MARTIN LIMITED	609 WEST ST S ORILLIA L3V 5H7	384577	9599666	FS Facility	EXPIRED
			Description:	FS Bulk Plant (Small)		
EXP-2	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	20078	10465237	FS Highway Tank - Gas/Diesel	EXPIRED
			Description:	FS HIGHWAY TANK - GASOLINE/DIESEL		
EXP-3	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	11228	10060656	FS Facility	EXPIRED
			Description:	FS Gasoline Station - Full Serve		
EXP-4	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	19104	10465321	FS Highway Tank - Gas/Diesel	EXPIRED
			Description:	FS HIGHWAY TANK - GASOLINE/DIESEL		
EXP-5	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	19222	10465251	FS Highway Tank - Gas/Diesel	EXPIRED
			Description:	FS HIGHWAY TANK - GASOLINE/DIESEL		
EXP-6	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	73711	11228504	FS Propane Tank	EXPIRED
			Description:	FS Propane Tank		
EXP-7	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	20790	10465244	FS Highway Tank - Gas/Diesel	EXPIRED
			Description:	FS HIGHWAY TANK - GASOLINE/DIESEL		
EXP-8	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	20882	10465240	FS Highway Tank - Gas/Diesel	EXPIRED
			Description:	FS HIGHWAY TANK - GASOLINE/DIESEL		
EXP-9	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	391118	9567312	FS Facility	EXPIRED
			Description:	FS Propane Cylr Handling Facility		
EXP-10	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	11196	10059146	FS Facility	EXPIRED
			Description:	FS Propane Refill Cntr - Cylr Fill		

List of TSSA Expired Facilities

Map Key	Company	Address	Instance ID	Instance Number	Context	Status:
EXP-11	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	11229	10060684	FS Facility	EXPIRED
			Description:	FS Propane Refill Cntr - Cylr Fill		
EXP-12	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74203	11230966	FS Liquid Fuel Tank	EXPIRED
			Description:	FS Liquid Fuel Tank		
EXP-13	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74103	11231031	FS Liquid Fuel Tank	EXPIRED
			Description:	FS Liquid Fuel Tank		
EXP-14	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74200	11230996	FS Liquid Fuel Tank	EXPIRED
			Description:	FS Liquid Fuel Tank		
EXP-15	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74664	11231071	FS Liquid Fuel Tank	EXPIRED
			Description:	FS Liquid Fuel Tank		
EXP-16	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74736	11231126	FS Liquid Fuel Tank	EXPIRED
			Description:	FS Liquid Fuel Tank		
EXP-17	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74932	11231101	FS Liquid Fuel Tank	EXPIRED
			Description:	FS Liquid Fuel Tank		
EXP-18	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74212	11231051	FS Piping	EXPIRED
			Description:	FS Piping		
EXP-19	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74207	11231114	FS Piping	EXPIRED
			Description:	FS Piping		
EXP-20	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74220	11231139	FS Piping	EXPIRED
			Description:	FS Piping		

List of TSSA Expired Facilities

Map Key	Company	Address	Instance ID	Instance Number	Context	Status:
EXP-21	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74713	11230981	FS Piping	EXPIRED
			Description:	FS Piping		
EXP-22	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	75199	11231016	FS Piping	EXPIRED
			Description:	FS Piping		
EXP-23	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	73798	11231087	FS Piping	EXPIRED
			Description:	FS Piping		
EXP-24	UPI ENERGY LP*	500 MEMORIAL AV ORILLIA L3V 6H1	74774	11228522	FS Propane Tank	EXPIRED
			Description:	FS Propane Tank		
EXP-25	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V 6H1	399032	9929150	FS Facility	EXPIRED
			Description:	FS Bulk Plant (Small)		
n/a	ARCHIE DENNE	HWY 12 RR 2 RR 2 STN MAIN ORILLIA L3V 6H2	391918	9893028	FS Facility	EXPIRED
			Description:	FS Propane Refill Cntr - Cylr Fill		

Fuel Storage Tank

Map Key	Company	Address	License Issue Date	Tank Status	Tank Status As Of	Operation Type	Facility Type
FST-1	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V 6H1	12/3/2003 12:03:00 PM	Licensed	December 2008	Retail Fuel Outlet	Bulk Plant (medium)
			<u>Status</u>	<u>Capacity (L)</u>	<u>Year of Installation</u>	<u>Corrosion Protection</u>	<u>Tank Fuel Type</u>
			Active	45400	1990		Liquid Fuel Single Wall AST - Fuel Oil
			Active	45400	1989		Liquid Fuel Single Wall AST - Gasoline
			Active	45400	1989		Liquid Fuel Single Wall AST - Diesel
			Active	45400	1988		Liquid Fuel Single Wall AST - Fuel Oil
			Active	45400	1988		Liquid Fuel Single Wall AST - Gasoline
			Active	45400	1988		Liquid Fuel Single Wall AST - Diesel
			Active	45400	1988		Liquid Fuel Single Wall AST - Fuel Oil
			Active	45400	1990		Liquid Fuel Single Wall AST - Diesel
			Active	45400	1990		Liquid Fuel Single Wall AST - Fuel Oil
			Active	45400	1988		Liquid Fuel Single Wall AST - Fuel Oil
FST-2	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V 6H1			January 2010	Retail Fuel Outlet	FS BULK PLANT (MEDIUM)
			<u>Status</u>	<u>Capacity (L)</u>	<u>Year of Installation</u>	<u>Corrosion Protection</u>	<u>Tank Fuel Type</u>
			Active	45400	1988	Painted	Single Wall UST - Diesel
			Active	45400	1988	Painted	Single Wall UST - Fuel Oil
			Active	45400	1990	Painted	Single Wall UST - Diesel

Fuel Storage Tank

Map Key	Company	Address	License Issue Date	Tank Status	Tank Status As Of	Operation Type	Facility Type
FST-3	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V 6H1			January 2010	Retail Fuel Outlet	FS GASOLINE STATION - CARD/KEYLOCK
			<u>Status</u>	<u>Capacity (L)</u>	<u>Year of Installation</u>	<u>Corrosion Protection</u>	<u>Tank Fuel Type</u>
			Active	45400	1988	Painted	Liquid Fuel Single Wall AST - Gasoline
			Active	45400	1989	Painted	Liquid Fuel Single Wall AST - Diesel
			Active	45400	1989	Painted	Liquid Fuel Single Wall AST - Gasoline
FST-4	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V 6H1			June 2011	Retail Fuel Outlet	FS GASOLINE STATION - CARD/KEYLOCK
			<u>Status</u>	<u>Capacity (L)</u>	<u>Year of Installation</u>	<u>Corrosion Protection</u>	<u>Tank Fuel Type</u>
			Active	45400	1989	Painted	Liquid Fuel Single Wall AST - Gasoline
			Active	45400	1989	Painted	Liquid Fuel Single Wall AST - Diesel
			Active	45400	1988	Painted	Liquid Fuel Single Wall AST - Gasoline
FST-5	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V 6H1			June 2010	Retail Fuel Outlet	FS GASOLINE STATION - CARD/KEYLOCK
			<u>Status</u>	<u>Capacity (L)</u>	<u>Year of Installation</u>	<u>Corrosion Protection</u>	<u>Tank Fuel Type</u>
			Active	45400	1988	Painted	Liquid Fuel Single Wall AST - Gasoline
			Active	45400	1989	Painted	Liquid Fuel Single Wall AST - Diesel
			Active	45400	1989	Painted	Liquid Fuel Single Wall AST - Gasoline

Fuel Storage Tank

Map Key	Company	Address	License Issue Date	Tank Status	Tank Status As Of	Operation Type	Facility Type
FST-6	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V 6H1			June 2011	Retail Fuel Outlet	FS BULK PLANT (MEDIUM)
			<u>Status</u>	<u>Capacity (L)</u>	<u>Year of Installation</u>	<u>Corrosion Protection</u>	<u>Tank Fuel Type</u>
			Active	45400	1990	Painted	Single Wall UST - Diesel
			Active	45400	1988	Painted	Single Wall UST - Fuel Oil
			Active	45400	1988	Painted	Single Wall UST - Diesel
			Active	45400	1990	Painted	Single Wall UST - Diesel
			Active	45400	1988	Painted	Single Wall UST - Diesel
			Active	45400	1990	Painted	Single Wall UST - Diesel
			Active	45400	1988	Painted	Single Wall UST - Fuel Oil
FST-7	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V 6H1			June 2010	Retail Fuel Outlet	FS BULK PLANT (MEDIUM)
			<u>Status</u>	<u>Capacity (L)</u>	<u>Year of Installation</u>	<u>Corrosion Protection</u>	<u>Tank Fuel Type</u>
			Active	45400	1988	Painted	Single Wall UST - Diesel
			Active	45400	1988	Painted	Single Wall UST - Fuel Oil
			Active	45400	1990	Painted	Single Wall UST - Diesel

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
GEN-1	MAYES-MARTIN LIMITED	SHELL CANADA - SUPPLIER 609 WEST ST., SOUTH ORILLIA L3V 5H7	5111 Generator #: Approval Yrs:	PETROLEUM PROD., WH. ON0005135 98	221	LIGHT FUELS
GEN-2	MAYES-MARTIN LTD. 25-334	SHELL CANADA - SUPPLIER 609 WEST ST., SOUTH ORILLIA L3V 5H7	5111 Generator #: Approval Yrs:	PETROLEUM PROD., WH. ON0005135 92,93,94,95,96,97	221	LIGHT FUELS
GEN-3	MAYES-MARTIN LTD.	SHELL CANADA - SUPPLIER 609 WEST ST., SOUTH ORILLIA L3V 5H7	5111 Generator #: Approval Yrs:	PETROLEUM PROD., WH. ON0005135 86,87,88,89,90	221	LIGHT FUELS
GEN-4	1035139 ONTARIO LIMITED	14 KITCHENER STREET ORILLIA L3C 6K2	6351 Generator #: Approval Yrs:	GARAGES(GEN. REPAIR) ON2496400 99,00,01	252	WASTE OILS & LUBRICANTS
GEN-5	DOUG ROE ENTERPRISES LTD. 12-527	O/A MID ONTARIO DISPOSAL 24 KITCHENER ST. C/O 377 BREWERY LANE ORILLIA L3V 6Z9	4569 Generator #: Approval Yrs:	OTHER TRUCK./TRANS. ON1378800 94,95,96	252	WASTE OILS & LUBRICANTS
GEN-6	DOUG ROE ENTERPRISES LTD	24 KITCHENER STREET ORILLIA L3V 6Z9	4569 Generator #: Approval Yrs:	OTHER TRUCK./TRANS. ON1378800 92,93,97,98	252	WASTE OILS & LUBRICANTS
GEN-7	DOUG ROE ENTERPRISES	24 KITCHENER STREET ORILLIA L3V 6Z9	 Generator #: Approval Yrs:	 ON1378800 As of Oct 2010	251 252	Waste oils/sludges (petroleum based) Waste crankcase oils and lubricants
GEN-8	CENTRAL DISPOSAL SERVICE 08-270	24 KITCHENER ST. ORILLIA L3V 6Z9	4569 Generator #: Approval Yrs:	OTHER TRUCK./TRANS. ON0714500 92,93,94,95,96,97,98	213	PETROLEUM DISTILLATES
GEN-9	DOUG ROE ENTERPRISES LTD.	24 KITCHENER STREET C/O 377 BREWERY LAND ORILLIA L3V 6Z9	4569 Generator #: Approval Yrs:	OTHER TRUCK./TRANS. ON1378800 90	252	WASTE OILS & LUBRICANTS

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
GEN-10	CENTRAL DISPOSAL SERVICE	24 KITCHENER ST. ORILLIA L3V 6Z9	4569	OTHER TRUCK./TRANS.	213	PETROLEUM DISTILLATES
			Generator #:	ON0714500		
			Approval Yrs:	86,87,88,89,90		
GEN-11	MID ONTARIO DISPOSAL	24 KITCHENER STREET ORILLIA L3V 6Z9	4569	OTHER TRUCK./TRANS.	252	WASTE OILS & LUBRICANTS
			Generator #:	ON1378800		
			Approval Yrs:	99,00,01		
GEN-12	DOUG ROE ENTERPRISES	24 KITCHENER STREET ORILLIA L3V 6Z9			251	OIL SKIMMINGS & SLUDGES
			Generator #:	ON1378800	252	WASTE OILS & LUBRICANTS
			Approval Yrs:	02,03,04,05,06,07,08		
GEN-13	TEXACO CANADA INC	32 KITCHENER STREET ORILLIA L3V 6Z9	5111	PETROLEUM PROD., WH.	221	LIGHT FUELS
			Generator #:	ON0005228		
			Approval Yrs:	98		
GEN-14	TEXACO CANADA INC. 37-098	32 KITCHENER STREET ORILLIA L3V 6Z9	5111	PETROLEUM PROD., WH.	221	LIGHT FUELS
			Generator #:	ON0005228		
			Approval Yrs:	92,93,94,95,96,97		
GEN-15	TEXACO CANADA INC.	32 KITCHENER STREET ORILLIA L3V 6Z9	5111	PETROLEUM PROD., WH.	221	LIGHT FUELS
			Generator #:	ON0005228		
			Approval Yrs:	86,87,88,89,90		
GEN-16	Astek Composites Inc.	32 Kitchener St., Unit 2 Orillia L3V 6Z9	325510	Paint and Coating Manufacturing	232	POLYMERIC RESINS
			Generator #:	ON4850018		
			Approval Yrs:	07,08		
GEN-17	Orillia Tool and CNC	32 Kitchener Street Orillia L3V 6Z9	332710	Machine Shops		
			Generator #:	ON7379855		
			Approval Yrs:	04		
GEN-18	BROCKWORTH INDUSTRIES LIMITED	34 KITCHENER STREET ORILLIA L3V 6Z9	3053	INDUSTRIAL FASTENER	213	PETROLEUM DISTILLATES
			Generator #:	ON0702300	253	EMULSIFIED OILS
			Approval Yrs:	99,00,01		

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
GEN-19	BROCKWORTH INDUSTRIES 06-203	34 KITCHENER ST. ORILLIA L3V 6Z9	3053	INDUSTRIAL FASTENER	213	PETROLEUM DISTILLATES
					253	EMULSIFIED OILS
GEN-20	BROCKWORTH INDUSTRIES	34 KITCHENER STREET ORILLIA L3V 6Z9	3053	INDUSTRIAL FASTENER	253	EMULSIFIED OILS
					213	PETROLEUM DISTILLATES
GEN-21	BROCKWORTH INDUSTRIES	34 KITCHENER ST. ORILLIA L3V 6Z9	3053	INDUSTRIAL FASTENER	213	PETROLEUM DISTILLATES
					253	EMULSIFIED OILS
GEN-22	ORILLIA, CORPORATION OF THE CITY OF	ORILLIA WASTE DIVERSION SITE 100 KITCHENER STREET ORILLIA L3V 6Z9				
					112	ACID WASTE - HEAVY METALS
					146	OTHER SPECIFIED INORGANICS
					222	HEAVY FUELS
					261	PHARMACEUTICALS
					269	NON-HALOGENATED PESTICIDES
					145	PAINT/PIGMENT/COATING RESIDUES
					148	INORGANIC LABORATORY CHEMICALS
					212	ALIPHATIC SOLVENTS
					213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
					241	HALOGENATED SOLVENTS
					242	HALOGENATED PESTICIDES
					243	PCB'S
					252	WASTE OILS & LUBRICANTS
					263	ORGANIC LABORATORY CHEMICALS
					331	WASTE COMPRESSED GASES

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
GEN-23	ORILLIA, CORP. OF THE CITY OF	ORILLIA SANITARY LANDFILL SITE 100 KITCHENER ST. ORILLIA L3V 6J1	8375	REGION. PLAN./ DEV. Generator #: ON0906901 Approval Yrs: 90	145	PAINT/PIGMENT/COATING RESIDUES
					148	INORGANIC LABORATORY CHEMICALS
					213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
					222	HEAVY FUELS
					242	HALOGENATED PESTICIDES
					252	WASTE OILS & LUBRICANTS
					263	ORGANIC LABORATORY CHEMICALS
					269	NON-HALOGENATED PESTICIDES
					331	WASTE COMPRESSED GASES
GEN-24	ORILLIA, CORP. OF THE CITY OF	ORILLIA SANITARY LANDFILL SITE 100 KITCHENER STREET ORILLIA	4999	OTHER UTILITY IND. Generator #: ON0906901 Approval Yrs: 97,98	145	PAINT/PIGMENT/COATING RESIDUES
					148	INORGANIC LABORATORY CHEMICALS
					212	ALIPHATIC SOLVENTS
					213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
					222	HEAVY FUELS
					241	HALOGENATED SOLVENTS
					242	HALOGENATED PESTICIDES
					252	WASTE OILS & LUBRICANTS
					263	ORGANIC LABORATORY CHEMICALS
					269	NON-HALOGENATED PESTICIDES
					331	WASTE COMPRESSED GASES

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
GEN-25	ORILLIA, CORPORATION OF THE CITY OF	ORILLIA SANITARY LANDFILL SITE 100 KITCHENER STREET ORILLIA	4999	OTHER UTILITY IND.	145	PAINT/PIGMENT/COATING RESIDUES
					148	INORGANIC LABORATORY CHEMICALS
					212	ALIPHATIC SOLVENTS
					213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
					222	HEAVY FUELS
					241	HALOGENATED SOLVENTS
					242	HALOGENATED PESTICIDES
					252	WASTE OILS & LUBRICANTS
					263	ORGANIC LABORATORY CHEMICALS
					269	NON-HALOGENATED PESTICIDES
					331	WASTE COMPRESSED GASES
GEN-26	ORILLIA, CORP. OF THE CITY OF 29-516	ORILLIA SANITARY LANDFILL SITE 100 KITCHENER STREET ORILLIA	4999	OTHER UTILITY IND.	145	PAINT/PIGMENT/COATING RESIDUES
					148	INORGANIC LABORATORY CHEMICALS
					212	ALIPHATIC SOLVENTS
					213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
					222	HEAVY FUELS
					241	HALOGENATED SOLVENTS
					242	HALOGENATED PESTICIDES
					252	WASTE OILS & LUBRICANTS
					263	ORGANIC LABORATORY CHEMICALS
					269	NON-HALOGENATED PESTICIDES
					331	WASTE COMPRESSED GASES

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
GEN-27	ORILLIA, CORPORATION OF THE CITY OF Public Works Dept	ORILLIA WASTE DIVERSION SITE 100 KITCHENER STREET ORILLIA L3V 6Z9	Generator #: ON0906901 Approval Yrs: As of Oct 2010		112	Acid solutions - containing heavy metals
					121	Alkaline slutions - containing heavy metals
					145	Wastes from the use of pigments, coatings and paints
					146	Other specified inorganic sludges, slurries or solids
					147	Chemical fertilizer wastes
					148	Misc. wastes and inorganic chemicals
					212	Aliphatic solvents and residues
					213	Petroleum distillates
					221	Light fuels
					242	Halogenated pesticides and herbicides
					243	PCB
					252	Waste crankcase oils and lubricants
					261	Pharmaceuticals
					263	Misc. waste organic chemicals
					312	Pathological wastes
					331	Waste compressed gases including cylinders
GEN-28	HURONIA MACHINING SERVICES	45 UNITED DRIVE ORILLIA L3V 6H1	Generator #: ON4672644 Approval Yrs: As of Oct 2010		253	Emulsified oils
GEN-29	HURONIA MACHINING SERVICES	45 UNITED DRIVE ORILLIA L3V 6H1	Generator #: ON4672644 Approval Yrs: 02,03,04,06,07,08		253	EMULSIFIED OILS
GEN-30	UCO PETROLEUM INC. 39-177	500 MEMORIAL AVENUE, ORILLIA C/O 5600 CANCROSS CT.,P.O.BOX7030,STNA MISSISSAUGA L5B 2N6	5111	PETROLEUM PROD., WH.	213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
			Generator #: ON1446915 Approval Yrs: 94,95			

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
GEN-31	UPI INC.	39-177 500 MEMORIAL AVENUE ORILLIA L3V 6H8	5111	PETROLEUM PROD., WH.	213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
			Generator #:	ON1446915		
			Approval Yrs:	92,93,96,97,98		
GEN-32	UNITED CO-OPERATIVES OF ONTARIO	500 MEMORIAL AVE. ORILLIA L3V 6K4	5111	PETROLEUM PROD., WH.	213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
			Generator #:	ON0178423		
			Approval Yrs:	86,87,88,89,90		
GEN-33	UPI ENERGY LP	500 MEMORIAL AVENUE ORILLIA L3V 6H8	447190	Other Gasoline Stations	213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
			Generator #:	ON1446915		
			Approval Yrs:	04,06		
GEN-34	UNITED CO(SEE&USE ON1446915) 39-177	500 MEMORIAL AVE. ORILLIA L3V 6K4	5111	PETROLEUM PROD., WH.		
			Generator #:	ON0178423		
			Approval Yrs:	92,93,94,95,96,97		
GEN-35	UNITED CO-OPERATIVES (SEE&USE ON1446915)	500 MEMORIAL AVENUE ORILLIA L3V 6K4	5111	PETROLEUM PROD., WH.		
			Generator #:	ON0178423		
			Approval Yrs:	98		
GEN-36	UPI INC.	500 MEMORIAL AVENUE ORILLIA L3V 6H8	5111	PETROLEUM PROD., WH.	213	PETROLEUM DISTILLATES
					221	LIGHT FUELS
			Generator #:	ON1446915		
			Approval Yrs:	99,00,01,02,03		
GEN-37	GRANCO FUEL TERMINALS INC. 16-237	35 UNITED DRIVE P.O. BOX 366 ORILLIA L3V 6H1	3611	REFINED PETRO. PROD.	221	LIGHT FUELS
			Generator #:	ON1118000		
			Approval Yrs:	94,95,96		
GEN-38	GRANCO FUEL TERMINALS INCORPORATED	35 UNITED DRIVE ORILLIA L3V 6J9	3611	REFINED PETRO. PROD.	221	LIGHT FUELS
			Generator #:	ON1118000		
			Approval Yrs:	99,00,01,02,03,04,05		
GEN-39	GRANCO FUEL TERMINALS INCORPORATED	35 UNITED DRIVE P.O. BOX 366 ORILLIA L3V 6H1	412110	Petroleum Product Wholesaler-Distributors	221	LIGHT FUELS
			Generator #:	ON1118000		
			Approval Yrs:	06,07,08		

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
GEN-40	GRANCO FUEL TERMINALS INCORPORATED	35 UNITED DRIVE P.O. BOX 366 ORILLIA L3V 6H1	Generator #: Approval Yrs:	ON1118000 As of Oct 2010	221	Light fuels
GEN-41	GRANCO FUEL TERMINALS INC.	35 UNITED DRIVE ORILLIA L3V 6J9	3611	REFINED PETRO. PROD.	221	LIGHT FUELS
			Generator #: Approval Yrs:	ON1118000 92,93,97,98		
GEN-42	GRANCO FUEL TERMINALS INC.	35 UNITED DRIVE P.O. BOX 366 ORILLIA L3V 6H1	3611	REFINED PETRO. PROD.	221	LIGHT FUELS
			Generator #: Approval Yrs:	ON1118000 88,89		
n/a	FAHRAMET LTD.	KITCHENER STREET ORILLIA L3V 6J1	0007	LETTER ACKNOWLEDG.	146	OTHER SPECIFIED INORGANICS
			Generator #: Approval Yrs:	ON0478600 86,87,88,89,90		
n/a	FAHRAMET LTD.	KITCHENER STREET KITCHENER STREET ORILLIA L3V 6J1	2911	FERRO-ALLOYS IND.	146	OTHER SPECIFIED INORGANICS
			Generator #: Approval Yrs:	ON0478600 92,93,97,98		
n/a	FAHRAMET LTD. 107	15- KITCHENER STREET ORILLIA L3V 6J1	2911	FERRO-ALLOYS IND.	146	OTHER SPECIFIED INORGANICS
			Generator #: Approval Yrs:	ON0478600 94,95,96		
n/a	FAHRAMET LIMITED	KITCHENER STREET ORILLIA L3V 6J1	2911	FERRO-ALLOYS IND.	146	OTHER SPECIFIED INORGANICS
			Generator #: Approval Yrs:	ON0478600 99,00,01		
n/a	ORILLIA WATER, LIGHT & POWER COMM.	WEST STREET SOUTH PL. 269 C/O P.O.BOX 398, 360 WEST ST. SOUTH ORILLIA L3V 6J9	9911	IND. MACH. RENTAL	122	ALKALINE WASTES - OTHER METALS
			Generator #: Approval Yrs:	ON0535401 89	251	OIL SKIMMINGS & SLUDGES

Ontario Regulation 347 Waste Generators Summary

Map Key	Company	Address	SIC Code	SIC Description	Waste Code	Waste Description
n/a	ORILLIA WATER, LIGHT & POWER COMM.29-439	WEST STREET SOUTH PL. 269 C/O P.O.BOX 398, 360 WEST ST. SOUTH ORILLIA L3V 6J9	9911	IND. MACH. RENTAL	122	ALKALINE WASTES - OTHER METALS
			Generator #:	ON0535401	251	OIL SKIMMINGS & SLUDGES
			Approval Yrs:	94,95,96		
n/a	R.H. STEWART CONSTRUCTION CO. LTD.	SHOP #5 PLAN 171, PART LOT 11 ORILLIA	0821	SAND & GRAVEL PITS	213	PETROLEUM DISTILLATES
			Generator #:	ON0682601		
			Approval Yrs:	99,00,01		

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Landfill Inventory Management Ontario

Map Key	Company	Address	C of A Number	Operation Status:	C of A Issue Date:
LIMO-1	The Corporation of the City of Orillia	100 Kitchener Street; Lot 11-12, Conc 4 City of Orillia	A250601 Site Name MOE Region: MOE District: C of A Issued to: Landfill Type: Site County: Total Site Area: Footprint: Total Approved Capac: Fill Rate: Service Area: Contam. Atten. Zone: Approved Waste Type: Air Emmis. Monitor: Groundwater Monitor: Surf. Water Monitor: Landfill Gas Monitor: Natural Attenuation: Liners: Cover Material: Leachate Off Site: Leachate On Site: Landfill Gas Manag.(P) Landfill Gas Manag.(F): Landfill Gas Manag.(E) Financial Assurance: Req Coll. Landfill Gas: Landfill Gas Collected: Est Remain Capac(ERC ERC Date Last Determ. ERC Methodology: Total Waste Rec.(TWR) TWR Methodology: Last Reporting Year:	Closed	
			Kitchener Street Landfill Site (Orillia)		

National Analysis of Trends in Emergencies System (NATES)

Map Key	Company	Address	File No.	Spill Date	Lead Agency	DOE on Scene	Reported By
n/a	TEXACO	OROTWP	MOE83406	830808			Province
			Material Reaction: Basin: St. Lawrence River Drainage Air: Land: Y Fresh Water: Ground Water: Salt Water: Other Environment: Waterbody: Cause: Overflow Reason: Error Source: Service Station Sector: Petroleum Ship No.: Ship Name: Clean Up By: shared Disposal Method: unknown Recovery %: 100.00 Act Invoked: Unknown Enforcement Resp: Fish Kill: N Oiled Birds: N Other Kill: N Vegetation Damage: N Property Damage: N Drinking Water: N Income Loss: N Other Consequences: N No. of Injuries: No. of Evacuations: Fine: 0.00 No. of Dead: Cleanup Cost: Material: gasoline Amount (ton): 0.96 Volume (L): Concentration: Phase: Additional Info:				

National Environmental Emergencies System (NEES)

Map Key	Company	Address	Incident Date	Contaminant
NEES-1	GRANCO FUELS	ORILLIA CITY	4/14/89	PETROLEUMS
			Amount:	0
			Units:	Other
			Quantity:	
			Cause:	Other
			Source:	
			Reason:	
			Sector:	Petroleum
n/a	TEXACO	ORILLIA TWP.	1/25/88	GASOLINE
			Amount:	0
			Units:	Underground Tank Leak
			Quantity:	
			Cause:	Equipment Failure
			Source:	Service Station
			Reason:	
			Sector:	Petroleum
n/a	CP BULK SYSTEMS	ORILLIA CITY	4/28/88	DIESEL FUEL
			Amount:	0
			Units:	Overturn
			Quantity:	
			Cause:	Unknown
			Source:	Tank Truck
			Reason:	
			Sector:	Transportation
n/a	CP BULK SYSTEMS	ORILLIA CITY	4/28/88	GASOLINE
			Amount:	0
			Units:	Overturn
			Quantity:	
			Cause:	Unknown
			Source:	Tank Truck
			Reason:	
			Sector:	Transportation

National Environmental Emergencies System (NEES)

Map Key	Company	Address	Incident Date	Contaminant
n/a	CP BULK SYSTEMS	ORILLIA CITY	4/28/88	HEATING OIL
			Amount:	0
			Units:	Overturn
			Quantity:	
			Cause:	Unknown
			Source:	Tank Truck
			Reason:	
			Sector:	Transportation
n/a	TEXACO	OROTWP	8/8/83	gasoline
			Amount:	0.96
			Units:	Tonnes (Metric)
			Quantity:	
			Cause:	Overflow
			Source:	Service Station
			Reason:	Error
			Sector:	Petroleum

Pesticide Register

Map Key	Company	Address	Licence No.	Licence Type
PES-1	829622 ONTARIO LIMITED	14 KORLEA CRESCENT ORILLIA L3V 7K3		Operator
PES-2	PROCUT PROPERTY MAINTENANCE	14 KORLEA CRESCENT ORILLIA L3V 7K3		Operator
PES-3	TSC STORES L.P.	500 MEMORIAL AVE ORILLIA L3V6H1		Vendor
PES-4	SIMCOE DISTRICT CO- OPERATIVE (C#90220 - 02/2003)	500 MEMORIAL AVE ORILLIA L3V 6G8	22-01-01320-0	General Vendor
PES-5	UNITED COOPERATIVES OF ONTARIO	500 MEMORIAL AVE ORILLIA L3V 6G8		Vendor
PES-6	SIMCOE DISTRICT CO- OPERATIVE (V 23702 - 01/2008)	500 MEMORIAL AVE, PO BOX 536 ORILLIA L3V6K2		General Vendor

Private and Retail Fuel Storage Tanks

Map Key	Company	Address	Location ID	Type	Expiry Date	Capacity (L)	Licence #
PRT-1	MAYES MARTIN LTD	609 WEST ST S ORILLIA L3V 5H7	10609	retail	1995-05-31	240600	0030085001
PRT-2		500 MEMORIAL AV. ORILLIA	10588	retail			
PRT-3	UCO PETROLEUM INC C/O TRISHA FREEMAN	500 MEMORIAL AV ORILLIA	10600	retail	1993-12-31	0	0024052001
PRT-4	UCO PETROLEUM INC C/O SHIRLEY WONNELL	500 MEMORIAL AV ORILLIA	10600	retail	1996-02-28	122500	0048894001
PRT-5	UCO PETROLEUM INC C/O TRISHA FREEMAN	500 MEMORIAL AV ORILLIA	10600	retail	1994-05-31	2000	0028336016
PRT-6	UCO PETROLEUM INC C/O RAYMOND BRENNEMAN	500 MEMORIAL AV ORILLIA	10600	retail	1994-10-31	2000	0076394188
PRT-7	UCO PETROLEUM INC C/O TRISHA FREEMAN	500 MEMORIAL AV ORILLIA	10600	retail	1993-11-30	2000	0076377241
PRT-8	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V6H1	10603	retail	1995-11-30	317800	0030132001
n/a	ARCHIE DENNE	HWY 12 RR 2 ORILLIA L3V6H2	19553	retail	1993-01-31	1000	0076346857

Ontario Regulation 347 Waste Receivers Summary

Map Key	Company	Address	Receiver #:	Facility Type	Waste Code	Waste Description
REC-1	ORILLIA, CITY OF	WATER POLLUTION CONTROL PLANT 40 KITCHENER STREET ORILLIA L3V 6Z9	W120569 Approval Yrs:	WATER POLLUTION CONTROL PLANT 98,99,00,01,02,03,04,05,06 ,07,08	146	OTHER SPECIFIED INORGANICS

Retail Fuel Storage Tanks

Map Key	Company	Address	Facility	Description
RST-1	MAYES-MARTIN LTD	609 WEST ST S ORILLIA L3V 5H7	Oils-Fuel	Petroleum Products, Wholesale
RST-2	SIMCOE DISTRICT CO- OPERATIVE SERVICES- ORILLIA	MEMORIAL PO BOX 500 STN MAIN ORILLIA L3V 6K2	Propane Gas-Tanks & Refilling	
RST-3	SIMCOE DISTRICT CO- OPERATIVE SERVICES- ORILLIA	MEMORIAL PO BOX 500 STN MAIN ORILLIA L3V 6K2	Propane Gas	
RST-4	CO-OP GAS BAR	MEMORIAL PO BOX 500 STN MAIN ORILLIA L3V6K2	Service Stations-Gasoline, Oil & Natural Gas	
RST-5	GRANT'S FUEL PLUS	35 UNITED DR ORILLIA L3V 6H1	OILS-FUEL	
RST-6	GRANCO FUEL TERMINALS INC	35 UNITED DR ORILLIA L3V6H1	Oils-Petroleum	
RST-7	GRANT'S HEATING LIMITED	35 UNITED DR ORILLIA L3V 6H1	Oils-Fuel	Petroleum Products, Wholesale
RST-8	SUNSHINE CAR CARE	1 UNITED DR ORILLIA L3V 6H1	Oil Changes & Lubrication Service	
n/a	STARPORT LANDING	HWY 12 S ORILLIA L3V 6H7	MARINAS	
n/a	STARPORT MARINA INC	HWY 12 S ORILLIA L3V6H7	MARINAS	

Scott's Manufacturing Directory

Map Key	Company	Address	Established	Plant Size (ft²)	Employment	SIC/NAICS Code	Description
SCT-1	ELITE AWARDS & GIFTS	601 West St S Orillia L3V 5H7	1961	8000	22	321920	Wood Container and Pallet Manufacturing
						321999	All Other Miscellaneous Wood Product Manufacturing
						326198	All Other Plastic Product Manufacturing
						332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
						339990	All Other Miscellaneous Manufacturing
SCT-2	TROPHY WOOD MANUFACTURERS	601 WEST ST S ORILLIA L3V 5H7	1961	8000	18	2441	NAILED AND LOCK CORNER WOOD BOXES AND SHOOK
						2499	WOOD PRODUCTS, NOT ELSEWHERE CLASSIFIED
						3299	NONMETALLIC MINERAL PRODUCTS, NOT ELSEWHERE CLASSIFIED
						3999	MANUFACTURING INDUSTRIES, NOT ELSEWHERE CLASSIFIED
SCT-3	Elite Awards & Gifts Ltd.	601 West St S Orillia L3V 5H7	01-JUL-61	9000		323119	Other Printing
						339990	All Other Miscellaneous Manufacturing
						321999	All Other Miscellaneous Wood Product Manufacturing
						332810	Coating, Engraving, Heat Treating and Allied Activities
						321920	Wood Container and Pallet Manufacturing
						321999	All Other Miscellaneous Wood Product Manufacturing
SCT-5	ORILLIA FORM & FABRICATING INC	26 KITCHENER ST ORILLIA L3V 6Z9	1992	0	6	3443	FABRICATED PLATE WORK (BOILER SHOPS)
						3444	SHEET METAL WORK

Scott's Manufacturing Directory

Map Key	Company	Address	Established	Plant Size (ft ²)	Employment	SIC/NAICS Code	Description
SCT-6	ORILLIA FORM AND FABRICATING	26 Kitchener St Orillia L3V 6Z9	1992	0	6	332319	Other Plate Work and Fabricated Structural Product Manufacturing
						332329	Other Ornamental and Architectural Metal Products Manufacturing
SCT-7	ONTARIO RECYCLERS (ORILLIA)	30 KITCHENER ST ORILLIA L3V 6Z9	1996	10000	4	2952	ASPHALT FELTS AND COATINGS
						3299	NONMETALLIC MINERAL PRODUCTS, NOT ELSEWHERE CLASSIFIED
SCT-8	Astek Composites Inc.	32 Kitchener St Unit 2 Orillia L3V 6Z9	1999	3000		325510	Paint and Coating Manufacturing
						325999	All Other Miscellaneous Chemical Product Manufacturing
SCT-9	BROCKWORTH INDUSTRIES LIMITED	34 KITCHENER ST ORILLIA L3V 6Z9	1952	8500	25	332999	All Other Miscellaneous Fabricated Metal Product Manufacturing
						339990	All Other Miscellaneous Manufacturing
						3451	SCREW MACHINE PRODUCTS
SCT-10	Huron Machine Services	45 United Dr Orillia L3V 6H1	01-AUG-89	5000		332710	Machine Shops
						333519	Other Metalworking Machinery Manufacturing
						332710	Machine Shops
SCT-11	HURONIA MACHINE SERVICES	45 UNITED AVE RR 1 ORILLIA L3V 6H1	1989	5000	20	332710	Machine Shops
						333519	Other Metalworking Machinery Manufacturing
SCT-12	HURONIA TOOL & MACHINE	45 UNITED DR ORILLIA L3V 6H1	1989	5000	10	3544	SPECIAL DIES AND TOOLS, DIE SETS, JIGS AND FIXTURES, AND INDUSTRIAL MOLDS
						3599	INDUSTRIAL AND COMMERCIAL MACHINERY AND EQUIPMENT, NOT ELSEWHERE CLASSIFIED

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
SPL-1	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	8272-8JJKEU	7/7/2011	7/7/2011	SEWAGE,PRIMARY UNCHLORINATED	500 m³
				Incident Summary: BP:Orillia WWTC, partially trt, no chl, no UV to L Simcoe Incident Cause: Discharge Or Bypass To A Watercourse Incident Reason: Nature of Impact: Surface Water Pollution Receiving Medium: Environmental Impact: Confirmed			
SPL-2	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	1565-8L7KST	8/29/2011	8/29/2011	METHANE GAS	
				Incident Summary: Methane Gas to Atm, Orillia Wastewater Treatment Plant Incident Cause: Discharge or Emission to Air Incident Reason: Equipment Failure - Malfunction of system components Nature of Impact: Air Pollution Receiving Medium: Environmental Impact: Confirmed			
SPL-3	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	4705-8HTGEK	6/14/2011	6/14/2011	SEWAGE,SECONDARY UNCHLORINATED	
				Incident Summary: Orillia WWTP: no UV disinfection due to pwr fail Incident Cause: Incident Reason: Nature of Impact: Surface Water Pollution Receiving Medium: Environmental Impact: Confirmed			
SPL-4	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	6151-8HMQ3T	6/8/2011	6/8/2011	SEWAGE,SECONDARY UNCHLORINATED	974 m³
				Incident Summary: Orillia WWTP: secondary bypass to Lake Simcoe, ongoing Incident Cause: Discharge Or Bypass To A Watercourse Incident Reason: Power Interruption - Loss of electrical power Nature of Impact: Surface Water Pollution Receiving Medium: Environmental Impact:			
SPL-5	The Corporation of the City of Orillia	40 Kitchener St Orillia	2206-88YQW3		9/4/2010	SEWAGE,FINAL EFFLUENT NO UV DISINFECTION	0 other - see incident description
				Incident Summary: Orillia WWTP: final effl, no UV disinf L Simcoe pwr outage Incident Cause: Discharge Or Bypass To A Watercourse Incident Reason: Power Interruption - Loss of electrical power Nature of Impact: Surface Water Pollution Receiving Medium: Environmental Impact: Confirmed			

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
SPL-6	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	8157-82CSCB	2/4/2010	DIGESTER GAS		
SPL-7	The Corporation of the City of Orillia	40 Kitchener St Orillia	4126-7V52SA	8/20/2009	SEWAGE,SECONDARY UNCHLORINATED		
SPL-8	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	7822- 7VYKKN	9/17/2009	SEWAGE,SECONDARY CHLORINATED	667 m3	
SPL-9	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	5224-7GFH2J	7/11/2008	SLUDGE (N.O.S.)	500 L	
SPL-10	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	8118-7DTLEP	4/18/2008	SEWAGE,SECONDARY UNCHLORINATED	1330 m3	

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
SPL-11	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	3404-7CUP34		3/18/2008	SEWAGE,SECONDARY UNCHLORINATED	500 m3
			Incident Summary: Orillia WWTP;effluent bypassed UV treatment;power failure Incident Cause: Discharge Or Bypass To A Watercourse Incident Reason: Equipment Failure Nature of Impact: Surface Water Pollution Receiving Medium: Environmental Impact: Possible				
SPL-12	The Corporation of the City of Orillia	40 Kitchener St Orillia L3V 6Z9	4822-7BJLR6		2/5/2008	DIGESTER GAS	30 min (duration)
			Incident Summary: Orillia WWTC: Anaerobic Digester Gas to atm Incident Cause: Process Upset Incident Reason: Process upset Nature of Impact: Air Pollution Receiving Medium: Environmental Impact: Confirmed				
SPL-13	PRIVATE RESIDENCE	580 WEST STREET SOUTH, UNIT 79. FURNACE OIL TANK ORILLIA CITY L3V 6L8	88993	//	7/27/1993		
			Incident Summary: PRIVATE RESIDENCE-FURNACEOIL TANK LEAK TO GROUND. Incident Cause: UNDERGROUND TANK LEAK Incident Reason: MATERIAL FAILURE Nature of Impact: Soil contamination Receiving Medium: LAND Environmental Impact: CONFIRMED				
SPL-14		PARKSIDE ESTATES 580 WEST ST SOUTH.<UNOFFICIAL> Orillia L3V 6L8	1104-5LKTQV		4/13/2003	RAW SEWAGE	
			Incident Summary: Parkside Estates Trailer Homes-Sewage spill Incident Cause: Incident Reason: Nature of Impact: Receiving Medium: Land Environmental Impact:				
SPL-15		Unit 65, 580 West St. South Orillia L3V 6L8	7751-7DEQUH		4/5/2008	FURNACE OIL	450 L
			Incident Summary: 580 West St. South - less than 500 L furnace oil to grd Incident Cause: Tank (Above Ground) Leak Incident Reason: Equipment Failure Nature of Impact: Soil Contamination Receiving Medium: Environmental Impact: Confirmed				

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
SPL-16	ORILLIA PUC	LAKE SIMCOE ORILLIA WPCP KITCHENER STREET ORILLIA CITY	244322	11/25/2002	11/25/2002		
			Incident Summary:	WPCP - UNCHLORINATED EFFLUENT DISCHARGE DUE TO PROB ON CHLORINATOR.			
			Incident Cause:	WASTEWATER DISCHARGE TO WATERCOURSE			
			Incident Reason:	EQUIPMENT FAILURE			
			Nature of Impact:				
			Receiving Medium:	WATER			
			Environmental Impact:	NOT ANTICIPATED			
SPL-17	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET ORILLIA CITY	109861	2/7/1995	2/7/1995		
			Incident Summary:	ORILLIA WPCP- 90 MIN METHANE GAS TO ATM FROM DIGESTOR, FROZEN VALVE.			
			Incident Cause:	VALVE/FITTING LEAK OR FAILURE			
			Incident Reason:	ICE/FROST DAMAGE			
			Nature of Impact:	Air Pollution			
			Receiving Medium:	AIR			
			Environmental Impact:	POSSIBLE			
SPL-18	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET ORILLIA CITY	125014	4/16/1996	4/16/1996		
			Incident Summary:	ORILLIA WPCP-90 L DIESEL TO GND FROM STORAGE TANK.HOSE RUPTURE.TO BE CLEAND			
			Incident Cause:	PIPE/HOSE LEAK			
			Incident Reason:	OVERSTRESS/OVERPRESSURE			
			Nature of Impact:	Soil contamination			
			Receiving Medium:	LAND			
			Environmental Impact:	CONFIRMED			
SPL-19	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET ORILLIA CITY	26745	10/19/1989	10/19/1989		
			Incident Summary:	PUC - 169 M3 2NDARY SEWAGE BYPASS OVER 30 MINCHLORINE INCREASED.			
			Incident Cause:	VALVE/FITTING LEAK OR FAILURE			
			Incident Reason:	EQUIPMENT FAILURE			
			Nature of Impact:	Water course or lake			
			Receiving Medium:	WATER			
			Environmental Impact:	POSSIBLE			
SPL-20	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET ORILLIA CITY	53145	6/27/1991	6/27/1991		
			Incident Summary:	ORILLIA PUC: FAULTY VALVERELEASED DIGESTER GAS TO AIR			
			Incident Cause:	VALVE/FITTING LEAK OR FAILURE			
			Incident Reason:	EQUIPMENT FAILURE			
			Nature of Impact:	Other			
			Receiving Medium:	AIR			
			Environmental Impact:	POSSIBLE			

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
SPL-21	ORILLIA PUC	ORILLIA WPCP ORILLIA WPCP KITCHENER STREET ORILLIA CITY	115075	6/29/1995	6/29/1995		
			Incident Summary:	ORILLIA WPCP:SEWAGE GRIT TO ROADWAY ON PLANT PROPERTY: CLEANED			
			Incident Cause:	UNKNOWN			
			Incident Reason:	UNKNOWN			
			Nature of Impact:	Other			
			Receiving Medium:	LAND			
			Environmental Impact:	POSSIBLE			
SPL-22	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET ORILLIA CITY	38538	7/31/1990	8/1/1990		
			Incident Summary:	ORILLIA PUC (WPCP): 2 MILLION LITRE SEWAGE BYPASS			
			Incident Cause:	WASTEWATER DISCHARGE TO WATERCOURSE			
			Incident Reason:	EQUIPMENT FAILURE			
			Nature of Impact:	Water course or lake			
			Receiving Medium:	WATER			
			Environmental Impact:	POSSIBLE			
SPL-23	ORILLIA PUC	LAKE SIMCOE ORILLIA WPCP KITCHENER STREET ORILLIA CITY	38648	8/2/1990	8/2/1990		
			Incident Summary:	WPCP -SECONDARY SEWAGE BYPASS (CHLORINATED) DUE TO EQUIPMENT FAILURE.			
			Incident Cause:	WASTEWATER DISCHARGE TO WATERCOURSE			
			Incident Reason:	EQUIPMENT FAILURE			
			Nature of Impact:				
			Receiving Medium:	WATER			
			Environmental Impact:	NOT ANTICIPATED			
SPL-24	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET ORILLIA CITY	19863	6/7/1989	6/7/1989		
			Incident Summary:	ORILLIA SECONDARY SEWAGE SPILL, 15000 GAL			
			Incident Cause:	WASTEWATER DISCHARGE TO WATERCOURSE			
			Incident Reason:	OTHER			
			Nature of Impact:				
			Receiving Medium:	WATER			
			Environmental Impact:				
SPL-25	ORILLIA PUC	ORILLIA WPCP KITCHENER STREET ORILLIA CITY	23605	8/14/1989	8/14/1989		
			Incident Summary:	ORILLIA WTP - 45,000 L OF SEWAGE BYPASSED TO LAKE SIMCOE.			
			Incident Cause:	WASTEWATER DISCHARGE TO WATERCOURSE			
			Incident Reason:	EQUIPMENT FAILURE			
			Nature of Impact:				
			Receiving Medium:	WATER			
			Environmental Impact:	NOT ANTICIPATED			

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Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
SPL-31	UNITED CO-OP	AT UNITED CO-OP AT 500 MEMORIAL DRIVE CHESLEY BULK PLANT ORILLIA CITY	78919	11/17/1992	11/17/1992		
			Incident Summary: UNITED CO-OP - 50 L OF OF DIESEL FUEL TO CEMENT FROM FAULTY NOZZLE. Incident Cause: PIPE/HOSE LEAK Incident Reason: EQUIPMENT FAILURE Nature of Impact: Receiving Medium: LAND Environmental Impact: NOT ANTICIPATED				
SPL-32	Granco Fuel Terminals<UNOFFICIAL>	35 United Drive Orillia L3V 6H1	8806-5N9LEQ	6/5/2003	6/6/2003	DIESEL FUEL	910 L
			Incident Summary: Granco Fuel - 200 gal of clear diesel Incident Cause: Tank (Above Ground) Leak Incident Reason: Error- Operator error Nature of Impact: Other Impact(s) Receiving Medium: Land Environmental Impact: Possible				
n/a	TRANSPORT TRUCK	HWY 12 NEAR PRICES CORNERS IN PARKING LOT OF FORMER RANCHERO RESTAURANT. MOTOR VEHICLE (OPERATING FLUID) ORO-MEDONTE TOWNSHIP	97085	3/6/1994	3/6/1994		
			Incident Summary: MCKEVITT TRUCKING LTD.- 10-20 L DIESEL TO ROADWAYCONTAINED,CLEANED. Incident Cause: OTHER CONTAINER LEAK Incident Reason: MATERIAL FAILURE Nature of Impact: Multi Media Pollution Receiving Medium: LAND Environmental Impact: POSSIBLE				
n/a	PRIVATE OWNER	MEMORIAL AVE/CO-OP DRIVE. MOTOR VEHICLE (OPERATING FLUID) ORILLIA CITY	111549	4/1/1995	4/1/1995		
			Incident Summary: PRIVATE OWNERS-4 L OPERA-TING FLUIDS TO GROUND,MVACLEANED UP BY FD. Incident Cause: OTHER TRANSPORTATION ACCIDENT Incident Reason: UNKNOWN Nature of Impact: Receiving Medium: LAND Environmental Impact: NOT ANTICIPATED				
n/a	TRANSPORT TRUCK	HWY #11 SOUTHBOUND, BETWEEN COLD WATER RD & WEST ST. MOTOR VEHICLE (OPERATING FLUID) ORILLIA CITY	111687	4/6/1995	4/6/1995		
			Incident Summary: POOLE TRUCKING - 225 L DIESEL TO HWY #11 FROM JACKKNIFED TRUCK,FD, MTO. Incident Cause: OTHER TRANSPORTATION ACCIDENT Incident Reason: UNKNOWN Nature of Impact: Soil contamination Receiving Medium: LAND Environmental Impact: CONFIRMED				

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
n/a	TRANSPORT TRUCK	FROM WEST ST NORTH UP TO REGENT ST. MOTOR VEHICLE (OPERATING FLUID) ORILLIA CITY	114541	6/16/1995	6/16/1995		
			Incident Summary:	HAMMOND TRANSPORT- 15 L DIESEL ALONG 4 KM FROM SCHOOL BUS, ERROR, WORKS.			
			Incident Cause:	OTHER CONTAINER LEAK			
			Incident Reason:	ERROR			
			Nature of Impact:	Soil contamination			
			Receiving Medium:	LAND			
			Environmental Impact:	POSSIBLE			
n/a	CONSTRUCTION COMPANY	MEMORIAL AVENUE ORILLIA CITY	116999	8/10/1995	8/10/1995		
			Incident Summary:	PCL CONSTRUCTION: 90 L CALCIUM CHLORIDE TO PARKING LOT			
			Incident Cause:	ABOVE-GROUND TANK LEAK			
			Incident Reason:	UNKNOWN			
			Nature of Impact:				
			Receiving Medium:	LAND			
			Environmental Impact:	NOT ANTICIPATED			
n/a	PRIVATE OWNER	LAKE RAND INN PARKING LOT, MEMORIAL AVE MOTOR VEHICLE (OPERATING FLUID) ORILLIA CITY	118776	9/21/1995	9/21/1995		
			Incident Summary:	PRIVATE MOTOR VEHICLE-45LGAS TO PVMT.NO ENV IMPACT-CITY ORILLIA WD CLEANING			
			Incident Cause:	OTHER CONTAINER LEAK			
			Incident Reason:	ERROR			
			Nature of Impact:				
			Receiving Medium:	LAND / AIR			
			Environmental Impact:	NOT ANTICIPATED			
n/a	UNKNOWN	MEMORIAL AVE. ORILLIA CITY	120208	10/30/1995	10/30/1995		
			Incident Summary:	SOURCE UNKNOWN-50 L GASO-LINE DUMPED ON PRIVATE PROPERTY,WORKS,CLEANED UP			
			Incident Cause:	OTHER CONTAINER LEAK			
			Incident Reason:	INTENTIONAL/PLANNED			
			Nature of Impact:	Soil contamination			
			Receiving Medium:	LAND			
			Environmental Impact:	CONFIRMED			
n/a	UNKNOWN	HWY 12 THROUGH CITY ON BYPASS, OUT TOWARDS THERLEY ORILLIA CITY	1310	6/14/1988	6/14/1988		
			Incident Summary:	UNKNOWN MAT'L. ON HWY 12.			
			Incident Cause:	UNKNOWN			
			Incident Reason:	UNKNOWN			
			Nature of Impact:				
			Receiving Medium:	LAND			
			Environmental Impact:				

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
n/a	DOLLAR SNACK BAR	CENTRAL DISPOSAL DUMPSTER LEASED BY DOLLAR SNACK BAR BEHIND RESTAURANT ORILLIA CITY	8464	8/22/1988	8/22/1988		
			Incident Summary:	DOLLAR SNACK BAR-SMALL QUANTITY OF OIL TO GROUND FROM DUMPSTER			
			Incident Cause:	OTHER CAUSE (N.O.S.)			
			Incident Reason:	OTHER			
			Nature of Impact:				
			Receiving Medium:	LAND			
			Environmental Impact:	NOT ANTICIPATED			
n/a	UNKNOWN	HWYS. 11&12, GILL ST. & WEST ST. ORILLIA CITY	10460	10/14/1988	10/14/1988		
			Incident Summary:	OPP -UNKNOWN OILY SUBSTANCE ON ROAD.			
			Incident Cause:	OTHER CAUSE (N.O.S.)			
			Incident Reason:	OTHER			
			Nature of Impact:				
			Receiving Medium:	LAND			
			Environmental Impact:				
n/a	UNKNOWN	KITCHENER ST. SANITARY LANDFILL SITE ORILLIA CITY	12304	11/29/1988	11/29/1988		
			Incident Summary:				
			Incident Cause:	OTHER CONTAINER LEAK			
			Incident Reason:	EQUIPMENT FAILURE			
			Nature of Impact:				
			Receiving Medium:	LAND			
			Environmental Impact:				
n/a	GRANCO FUELS	TANK TRUCK (CARGO) ORILLIA CITY	20389	4/14/1989	4/14/1989		
			Incident Summary:	BACKENTRY - GRANCO FUELS 20L OIL IN RAILWAY DITCH			
			Incident Cause:	OTHER CAUSE (N.O.S.)			
			Incident Reason:	OTHER			
			Nature of Impact:				
			Receiving Medium:	LAND			
			Environmental Impact:	NOT ANTICIPATED			
n/a	CONSUMERS' GAS CO. LTD., THE	12 CONC,MEDONTE & HWY 12 WEST NATURAL GAS PIPELINE ORO-MEDONTE TOWNSHIP	45400	1/5/1991	1/6/1991		
			Incident Summary:	CONSUMERS GAS-UG PIPELINE LEAK, VENTING TO AIR, NO REPAIR UNTILL MONDAY			
			Incident Cause:	PIPE/HOSE LEAK			
			Incident Reason:	ICE/FROST DAMAGE			
			Nature of Impact:	Air Pollution			
			Receiving Medium:	AIR			
			Environmental Impact:	POSSIBLE			

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
n/a	TRANSPORT TRUCK	HWY 12B & MEMORIAL AVE. MOTOR VEHICLE (OPERATING FLUID) ORILLIA CITY	53701	7/8/1991	7/8/1991		
			Incident Summary:	TRANSPORT TRUCK: DIESEL FUEL LEAK FROM SADDLE TANK			
			Incident Cause:	OTHER CONTAINER LEAK			
			Incident Reason:	DAMAGE BY MOVING EQUIPMENT			
			Nature of Impact:	Soil Contamination			
			Receiving Medium:	LAND / WATER			
			Environmental Impact:	NOT ANTICIPATED			
n/a	MITCHELL FUELS	LOT 11, CON 6 SIMCOE TOWN	65564	//	12/26/1991		
			Incident Summary:	ELGIN MITCHELL: 15,000 M3NATURAL GAS TO ATM FROM PIPELINE LEAK.			
			Incident Cause:	PIPE/HOSE LEAK			
			Incident Reason:	EQUIPMENT FAILURE			
			Nature of Impact:	Air Pollution			
			Receiving Medium:	AIR			
			Environmental Impact:	CONFIRMED			
n/a	MOTOR VEHICLE	WEST ST. MOTOR VEHICLE (OPERATING FLUID) ORILLIA CITY	68374	3/23/1992	3/25/1992		
			Incident Summary:	MOTOR VEHICLE: 90L DIESELFUEL LEAK TO PARKING LOT			
			Incident Cause:	OTHER CONTAINER LEAK			
			Incident Reason:	UNKNOWN			
			Nature of Impact:				
			Receiving Medium:	LAND			
			Environmental Impact:	NOT ANTICIPATED			
n/a	TRANSPORT TRUCK	HWY 12 AND ATHERLY RD MOTOR VEHICLE (OPERATING FLUID) ORILLIA CITY	85212	5/6/1993	5/7/1993		
			Incident Summary:	TRANSPORT TRUCK - 60 L OFDIESEL FUEL TO GROUND ANDDITCH			
			Incident Cause:	OTHER CONTAINER LEAK			
			Incident Reason:	ERROR			
			Nature of Impact:	Soil contamination			
			Receiving Medium:	LAND / WATER			
			Environmental Impact:	CONFIRMED			
n/a	UNKNOWN	FROM PROPERTY AT MEMORIAL AVE. & PROGRESS DR. TO MILL CREEK. ORILLIA CITY	125374	4/22/1996	4/22/1996		
			Incident Summary:	PRIVATE PROPERTY: OIL SHEEN WASHING INTO CREEK,WORKS DEPT. BOOMED.			
			Incident Cause:	OTHER CAUSE (N.O.S.)			
			Incident Reason:	OTHER			
			Nature of Impact:	Water course or lake			
			Receiving Medium:	LAND / WATER			
			Environmental Impact:	POSSIBLE			

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
n/a	ONTARIO HYDRO	CONC 2, LOT 11, FIRE # 1279, ORO TWP. TRANSFORMER ORO-MEDONTE TOWNSHIP	158034	7/15/1998	7/16/1998		
			Incident Summary: ONTARIO HYDRO-4 L TRANS-FORMER OIL ONTO SAND,WIND BLEW POLE, WILL CLEANUP. Incident Cause: COOLING SYSTEM LEAK Incident Reason: STORM/FLOOD/WIND Nature of Impact: Soil contamination Receiving Medium: LAND Environmental Impact: CONFIRMED				
n/a	MILLER PAVING	ATHERLY RD, CLOSE TO HWY 12 BY THE LEACOCK MUSEUM ORILLIA CITY	226611	5/29/2002	5/29/2002		
			Incident Summary: MILLER PAVING (PETROLEUM) MVA: 30-40L DIESEL TO WET DITCH. Incident Cause: TRUCK/TRAILER OVERTURN Incident Reason: UNKNOWN Nature of Impact: Soil contamination Receiving Medium: LAND Environmental Impact: POSSIBLE				
n/a	RJM Truckline<UNOFFICIAL>	OFF OF HWY 12 BYPASS BETWEEN HWY 11 AND MEMORIAL AVE.<UNOFFICIAL> Orillia	8613-66EJ4T	11/4/2004	11/4/2004	HYDRAULIC OIL	25 L
			Incident Summary: RJM Truckline,25 L hydraulic fluid to ditch,cln Incident Cause: Other Discharges Incident Reason: Nature of Impact: Soil Contamination Receiving Medium: Land Environmental Impact: Possible				
n/a	Rumball Excavation & Haulage<UNOFFICIAL>	Between Memorial Dr. and Highway 12, near exit 131A NORTH BOUND- HIGHWAY 11<UNOFFICIAL> Orillia	1204- 6QZGSC	6/22/2006	6/22/2006	DIESEL FUEL	110 L
			Incident Summary: MVA- saddle tank rupture - 25 gals to ditch - Hwy. 11 Incident Cause: Other Transport Accident Incident Reason: Damage By Moving Equipment - Containers damaged by moving Nature of Impact: Soil Contamination Receiving Medium: Land Environmental Impact: Confirmed				
n/a	Peter Hay Trucking<UNOFFICIAL>	HWY 12 AND WEST RIDGE IN ORILLIA<UNOFFICIAL> Orillia	8235-6VEVPP	11/10/2006	11/10/2006	DIESEL FUEL	100 l
			Incident Summary: Transport Truck(s)-100 L Diesel to Ditch,Contained,MVA. Incident Cause: Incident Reason: Nature of Impact: Soil Contamination Receiving Medium: Land Environmental Impact: Possible				

Ontario Spills

Map Key	Company	Address	Ref No.	Incident Dt	MOE Reported Dt	Contaminant Name	Contaminant Quantity
n/a		385 Memorial Ave. Orillia L3V 6H1	6540- 7DWR7U		4/21/2008	DIESEL FUEL	200 L
			Incident Summary: Orillia: Diesel spill to ground Incident Cause: Other Discharges Incident Reason: Unknown - Reason not determined Nature of Impact: Other Kill; Soil Contamination; Surface Water Pollution Receiving Medium: Environmental Impact: Possible				
n/a	Mid Ontario Disposal<UNOFFICIAL>	514 Line 11 South<UNOFFICIAL>; 12 Cedarbrook Crescent<UNOFFICIAL> Oro-Medonte; Oro-Medonte	7823- 893QDM		9/7/2010	ORGANIC MATERIAL	other - see incident description
			Incident Summary: Mid Ontario Disposal Organics spill onto road - 3L total Incident Cause: Unknown Incident Reason: Spill Nature of Impact: Other Impact(s); Soil Contamination Receiving Medium: Environmental Impact: Not Anticipated				

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-1		MID ONTARIO DISPOSAL	, , ORILLIA
		Certificate No.: A252604	Mobile Units:
		Issue Date: 07/05/1999	Mobile Description:
		Status: Approved	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type:
		Lot: 12, Pt. of E. Half 24 Kitchener St., Orillia	Waste Type Other: No
			Waste Class:
		Region/County: SIMCOE	Other Approvals/Permits:
		Proponent: DOUG ROE ENTERPRISES LTD.	
		Address: 377 Brewery Lane	Project Description:
		City: Orillia, Ontario	
		Facility Type: Transfer Station, Processing	
		District Office: Barrie	
		Municipalities Served:	Approval Description:
		Total Area (ha): 0	
		Landfill Capacity (m³): 0	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A252604
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-2		Doug Roe Enterprises Limited	24 Kitchener St, , Orillia
		Certificate No.: A252604	Mobile Units:
		Issue Date: 12/13/2011	Mobile Description:
		Status: Approved	Mobile Capacity:
		Application Status:	Mobile Unit Cert. No.:
		Concession:	Waste Type:
		Lot:	Waste Type Other:
			Waste Class:
			Other Approvals/Permits:
		Region/County:	
		Proponent:	
			Project Description:
		Address:	
		City:	
		Facility Type:	
		District Office:	
		Municipalities Served:	Approval Description:
		Total Area (ha):	
		Landfill Capacity (m³):	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha)	Site Closing Description: A252604
		Transfer Capacity (m³):	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha):	
		Incinerator Capacity (t):	
		Processing Area (m³):	
		Processing Capacity (m³/d):	
		Processing Volume (m³):	
		Processing Feed (m³):	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-3		Doug Roe Enterprises Limited	24 Kitchener St, , Orillia
		Certificate No.: A252604	Mobile Units:
		Issue Date: 12/13/2011	Mobile Description:
		Status: Approved	Mobile Capacity:
		Application Status:	Mobile Unit Cert. No.:
		Concession:	Waste Type:
		Lot:	Waste Type Other:
			Waste Class:
		Region/County: Orillia	Other Approvals/Permits:
		Proponent:	
		Address:	Project Description:
		City:	
		Facility Type:	
		District Office:	
		Municipalities Served:	Approval Description:
		Total Area (ha):	
		Landfill Capacity (m³):	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha)	Site Closing Description: A252604
		Transfer Capacity (m³):	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha):	
		Incinerator Capacity (t):	
		Processing Area (m³):	
		Processing Capacity (m³/d):	
		Processing Volume (m³):	
		Processing Feed (m³):	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-4		Doug Roe Enterprises Limited	24 Kitchener Street , , Orillia
		Certificate No.: A252604	Mobile Units:
		Issue Date: 3/21/2006	Mobile Description:
		Status: Approved	Mobile Capacity:
		Application Status:	Mobile Unit Cert. No.:
		Concession:	Waste Type:
		Lot:	Waste Type Other:
			Waste Class:
			Other Approvals/Permits:
		Region/County:	
		Proponent:	
			Project Description:
		Address:	
		City:	
		Facility Type:	
		District Office:	
		Municipalities Served:	Approval Description:
		Total Area (ha):	
		Landfill Capacity (m³):	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha)	Site Closing Description: A252604
		Transfer Capacity (m³):	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha):	
		Incinerator Capacity (t):	
		Processing Area (m³):	
		Processing Capacity (m³/d):	
		Processing Volume (m³):	
		Processing Feed (m³):	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-5			30 Kitchener, , Orillia
		Certificate No.: A740139	Mobile Units:
		Issue Date: 1/30/2001	Mobile Description:
		Status: Approved	Mobile Capacity:
		Application Status: Revocation	Mobile Unit Cert. No.:
		Concession:	Waste Type:
		Lot:	Waste Type Other:
			Waste Class:
			Other Approvals/Permits:
		Region/County: County Of Simcoe	
		Proponent: Capital Environmental Resource Inc.	
			Project Description: Application to revoke Certificate of Approval A74039 to allow new tenants to access the property.
		Address: 1005 Skyview Drive	
		City: Burlington	
		Facility Type: Processing	
		District Office: Barrie	
		Municipalities Served: Province of Ontario	Approval Description:
		Total Area (ha): 0.5	
		Landfill Capacity (m³):	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha)	Site Closing Description: A740139
		Transfer Capacity (m³): 400	
		Transfer Sites Cert. No.: any MOE approved site and any site approved by its j	
		Incinerator Area (ha):	
		Incinerator Capacity (t):	
		Processing Area (m³):	
		Processing Capacity (m³/d):	
		Processing Volume (m³):	
		Processing Feed (m³):	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-6		CAPITAL ENVIRONMENTAL RESOURCE	30 KITCHENER STREET, , ORILLIA
		Certificate No.: A740139	Mobile Units:
		Issue Date: 06/03/1999	Mobile Description:
		Status: Approved	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type:
		Lot:	Waste Type Other: No
			Waste Class:
			Other Approvals/Permits:
		Region/County: SIMCOE	
		Proponent: CAPITAL ENVIRONMENTAL RESOURCE	
			Project Description:
		Address: 1005 SKYVIEW DRIVE	
		City: BURLINGTON, ONTARIO	
		Facility Type: Transfer Station, Processing	
		District Office: Barrie	
		Municipalities Served:	Approval Description:
		Total Area (ha): 0	
		Landfill Capacity (m³): 0	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A740139
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-7			100 Kitchener Street, Lots 11 & 12, Conc. 4, Orillia
		Certificate No.: A252606 Issue Date: 7/25/2001 Status: Approved Application Status: Notice Concession: 4 Lot: 11-12	Mobile Units: Mobile Description: Mobile Capacity: Mobile Unit Cert. No.: Waste Type: Waste Type Other: Waste Class: Other Approvals/Permits:
		Region/County: County Of Simcoe Proponent: Corporation of the City of Orillia	
		Address: 50 Andrew Street South, 3rd Floor City: Orillia Facility Type: Processing District Office: Barrie Municipalities Served: City of Orillia	Project Description: This application is for replacing the words "fruit and vegetable wastes" with the words "organic food wastes" in the existing certificate of approval for a windrow composting facility at the Kitchener Street Landfill Site. Approval Description:
		Total Area (ha): 40 Landfill Capacity (m³): Landfill Monitoring: Landfill Control Type: Est. Closure Date: Transfer Area (ha) Transfer Capacity (m³): 200 Transfer Sites Cert. No.: N/A Incinerator Area (ha): Incinerator Capacity (t): 200 tonnes Processing Area (m³): Processing Capacity (m³/d): Processing Volume (m³): Processing Feed (m³):	Waste Description: Site Closing Description: A252606

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-8		The Corporation of the City of Orillia	100 Kitchener Street, , Orillia
		Certificate No.: A250601	Mobile Units:
		Issue Date: 10/14/2011	Mobile Description:
		Status: Approved	Mobile Capacity:
		Application Status:	Mobile Unit Cert. No.:
		Concession:	Waste Type:
		Lot:	Waste Type Other:
			Waste Class:
			Other Approvals/Permits:
		Region/County:	
		Proponent:	
		Address:	Project Description:
		City:	
		Facility Type:	
		District Office:	
		Municipalities Served:	Approval Description:
		Total Area (ha):	
		Landfill Capacity (m³):	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha)	Site Closing Description: A250601
		Transfer Capacity (m³):	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha):	
		Incinerator Capacity (t):	
		Processing Area (m³):	
		Processing Capacity (m³/d):	
		Processing Volume (m³):	
		Processing Feed (m³):	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-9		The Corporation of the City of Orillia	100 Kitchener Street, , Orillia
		Certificate No.: A250601	Mobile Units:
		Issue Date: 10/14/2011	Mobile Description:
		Status: Approved	Mobile Capacity:
		Application Status:	Mobile Unit Cert. No.:
		Concession:	Waste Type:
		Lot:	Waste Type Other:
			Waste Class:
			Other Approvals/Permits:
		Region/County:	
		Proponent:	
			Project Description:
		Address:	
		City:	
		Facility Type:	
		District Office:	
		Municipalities Served:	Approval Description:
		Total Area (ha):	
		Landfill Capacity (m³):	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha)	Site Closing Description: A250601
		Transfer Capacity (m³):	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha):	
		Incinerator Capacity (t):	
		Processing Area (m³):	
		Processing Capacity (m³/d):	
		Processing Volume (m³):	
		Processing Feed (m³):	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
WDS-10		The Corporation of the City of Orillia	100 Kitchener St Lot 11 & 12, Concession 4 , , Orillia
		Certificate No.: A252603	Mobile Units:
		Issue Date: 1/6/2009	Mobile Description:
		Status: Approved	Mobile Capacity:
		Application Status:	Mobile Unit Cert. No.:
		Concession:	Waste Type:
		Lot:	Waste Type Other:
			Waste Class:
			Other Approvals/Permits:
		Region/County:	
		Proponent:	
		Address:	Project Description:
		City:	
		Facility Type:	
		District Office:	
		Municipalities Served:	Approval Description:
		Total Area (ha):	
		Landfill Capacity (m³):	Waste Description:
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha)	Site Closing Description: A252603
		Transfer Capacity (m³):	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha):	
		Incinerator Capacity (t):	
		Processing Area (m³):	
		Processing Capacity (m³/d):	
		Processing Volume (m³):	
		Processing Feed (m³):	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2		, Lot 11 and 12 , Concession 4, Orillia
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 6/16/2000	Mobile Description:
		Status: Approved	Mobile Capacity:
		Application Status: Notice	Mobile Unit Cert. No.:
		Concession: 4	Waste Type:
		Lot: 11-12	Waste Type Other:
			Waste Class:
			Other Approvals/Permits:
		Region/County: County Of Simcoe	
		Proponent: Corporation of the City of Orillia	
		Address: 50 Andrew Street South, 3rd Floor	Project Description: In September 10, 1998, the City of Orillia requested an amendment for use of alternative daily cover. This amendment was granted as a one-year trial. A report was provided March 8, 2000. This application is to request this amendment be approved on an on-going basis.
		City: Orillia	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served:	Approval Description:
		Total Area (ha): 40.5	
		Landfill Capacity (m³):	Waste Description:
		Landfill Monitoring: none	
		Landfill Control Type: none	
		Est. Closure Date:	
		Transfer Area (ha)	Site Closing Description: A250601
		Transfer Capacity (m³):	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha):	
		Incinerator Capacity (t):	
		Processing Area (m³):	
		Processing Capacity (m³/d):	
		Processing Volume (m³):	
		Processing Feed (m³):	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 02/23/1971	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
		Region/County: CENTRAL/SIMCOE	Other Approvals/Permits:
		Proponent: CITY OF ORILLIA	
			Project Description:
		Address: PO BOX 7	
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA POPULATION SERVED: 21,500	Approval Description:
		Total Area (ha): 28.3	
		Landfill Capacity (m³): 163000	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 01/19/1972	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
		Region/County: CENTRAL/SIMCOE	Other Approvals/Permits:
		Proponent: CITY OF ORILLIA	
		Address: PO BOX 7	Project Description:
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA POPULATION SERVED: 21,500	Approval Description:
		Total Area (ha): 28.3	
		Landfill Capacity (m³): 163000	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 11/08/1972	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
			Other Approvals/Permits:
		Region/County: CENTRAL/SIMCOE	
		Proponent: CITY OF ORILLIA	
			Project Description:
		Address: PO BOX 7	
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA POPULATION SERVED: 21,500	Approval Description: CONDITION ADDED - TO CREATE A BUFFER ZONE BETWEEN THE DISPOSAL AREA AND THE SURROUNDING BRUSH AND TREES.
		Total Area (ha): 28.3	
		Landfill Capacity (m³): 163000	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 11/16/1973	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
			Other Approvals/Permits:
		Region/County: CENTRAL/SIMCOE	
		Proponent: CITY OF ORILLIA	
			Project Description:
		Address: PO BOX 7	
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA POPULATION SERVED: 21,500	Approval Description: CONDITION ADDED - TO CREATE A BUFFER ZONE BETWEEN THE DISPOSAL AREA AND THE SURROUNDING BRUSH AND TREES.
		Total Area (ha): 28.3	
		Landfill Capacity (m³): 163000	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 10/01/1974	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
			Other Approvals/Permits:
		Region/County: CENTRAL/SIMCOE	
		Proponent: CITY OF ORILLIA	
			Project Description:
		Address: PO BOX 7	
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA POPULATION SERVED: 21,500	Approval Description: CONDITION ADDED - TO CREATE A BUFFER ZONE BETWEEN THE DISPOSAL AREA AND THE SURROUNDING BRUSH AND TREES.
		Total Area (ha): 28.3	
		Landfill Capacity (m³): 163000	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 04/29/1981	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
		Region/County: CENTRAL/SIMCOE	Other Approvals/Permits:
		Proponent: CITY OF ORILLIA	
		Address: PO BOX 7	Project Description:
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA POPULATION SERVED:23,768 [1980]	Approval Description:
		Total Area (ha): 28.3	
		Landfill Capacity (m³): 163000	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m²): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 12/19/1986	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
		Region/County: CENTRAL/SIMCOE	Other Approvals/Permits:
		Proponent: CITY OF ORILLIA	
		Address: PO BOX 7	Project Description:
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA POPULATION SERVED: 23,768 IN 1980	Approval Description:
		Total Area (ha): 40.5	
		Landfill Capacity (m³): 602575	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 06/14/1988	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
		Region/County: CENTRAL/SIMCOE	Other Approvals/Permits:
		Proponent: CITY OF ORILLIA	
		Address: PO BOX 7	Project Description:
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA --- EMERGENCY CERTIFICATE INCLUDES TOWNSHIPS OF RAMA AND ORILLIA. POPULATION SERVED: 23,768 IN 1980	Approval Description:
		Total Area (ha): 40.5	
		Landfill Capacity (m³): 602575	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 06/25/1990	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
			Other Approvals/Permits:
		Region/County: CENTRAL/SIMCOE	
		Proponent: CITY OF ORILLIA	
			Project Description:
		Address: PO BOX 7	
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA, TOWNSHIPS OF RAMA AND ORILLIA. POPULATION SERVED: 23,040 IN 1984	Approval Description: NOTICE : CONDITION #2 REVOKED AND REPLACED TO EXTEND THE COFA ISSUED JUNE 14 1988. THIS SITE MAY STILL OPERATE FOR THE TOWNSHIPS OF RAMA & ORILLIA UNTIL DATE OF DECEMBER 31/1990 TO ALLOW TIME FOR THE APPLICANT TO OBTAIN COFAs
		Total Area (ha): 40.5	
		Landfill Capacity (m³): 602575	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring: groundwater, surface water	
		Landfill Control Type: surface water, groundwater	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 12/27/1990	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
			Other Approvals/Permits:
		Region/County: CENTRAL/SIMCOE	
		Proponent: CITY OF ORILLIA	
		Address: PO BOX 7	Project Description:
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA, TOWNSHIPS OF RAMA AND ORILLIA. POPULATION SERVED: 23,040 IN 1984	Approval Description: NOTICE : CONDITION #2 REVOKED AND REPLACED TO EXTEND THE COFA ISSUED JUN 14/88. THIS SITE MAY STILL OPERATE FOR THE TOWNSHIPS OF RAMA & ORILLIA UNTIL DATE OF MAY 1/1991 TO ALLOW TIME FOR THE APPLICANT TO OBTAIN COFAs
		Total Area (ha): 40.5	
		Landfill Capacity (m³): 602575	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring: groundwater, surface water	
		Landfill Control Type: surface water, groundwater	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 04/30/1991	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
			Other Approvals/Permits:
		Region/County: CENTRAL/SIMCOE	
		Proponent: CITY OF ORILLIA	
		Address: PO BOX 7	Project Description:
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA, TOWNSHIPS OF RAMA AND ORILLIA. POPULATION SERVED: 23,040 IN 1984	Approval Description: NOTICE : CONDITION #2 REVOKED AND REPLACED TO EXTEND THE COFA ISSUED JUN 14/88 . THIS SITE MAY STILL OPERATE FOR THE TOWNSHIPS OF RAMA & ORILLIA UNTIL DATE OF NOVEMBER 1/1991 TO ALLOW TIME FOR THE APPLICANT TO OBTAIN COFAs
		Total Area (ha): 40.5	
		Landfill Capacity (m³): 602575	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring: groundwater, surface water	
		Landfill Control Type: surface water, groundwater	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER LANDFILL SITE	KITCHENER ST., , ORILLIA, CITY OF
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 11/04/1991	Mobile Description:
		Status:	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
			Other Approvals/Permits:
		Region/County: CENTRAL/SIMCOE	
		Proponent: ORILLIA, CITY OF	
			Project Description:
		Address: PO BOX 7	
		City: ONTARIO ORILLIA	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA, TOWNSHIPS OF RAMA AND ORILLIA. POPULATION SERVED: 23,040 IN 1984	Approval Description: NOTICE : CONDITION #2 REVOKED AND REPLACED TO EXTEND THE COFA ISSUED JUN 14/88 . THIS SITE MAY STILL OPERATE FOR THE TOWNSHIPS OF RAMA & ORILLIA UNTIL DATE OF NOVEMBER 1/1991 TO ALLOW TIME FOR THE APPLICANT TO OBTAIN COFAs
		Total Area (ha): 40.5	
		Landfill Capacity (m³): 602575	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring: groundwater, surface water	
		Landfill Control Type: surface water, groundwater	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER STREET LANDFILL SITE	KITCHENER ST., , ORILLIA, CITY OF
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 03/19/1999	Mobile Description:
		Status: Approved	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
			Other Approvals/Permits:
		Region/County: SIMCOE	
		Proponent: ORILLIA, CITY OF	
			Project Description:
		Address: 50 Andrew St. S., Box 340	
		City: Orillia, Ontario	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA, TOWNSHIPS OF RAMA AND ORILLIA. POPULATION SERVED: 23,040 IN 1984	Approval Description: NOTICE : CONDITION #2 REVOKED AND REPLACED TO EXTEND THE COFA ISSUED JUN 14/88 . THIS SITE MAY STILL OPERATE FOR THE TOWNSHIPS OF RAMA & ORILLIA UNTIL DATE OF NOVEMBER 1/1991 TO ALLOW TIME FOR THE APPLICANT TO OBTAIN COFAs
		Total Area (ha): 40.5	
		Landfill Capacity (m³): 602575	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring: groundwater, surface water	
		Landfill Control Type: surface water, groundwater	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE CA Inventory

Map Key	Related Site(s)	Operation Name	Site Address
n/a	ANDR-2	KITCHENER STREET LANDFILL SITE	KITCHENER ST., , CITY OF ORILLIA
	ANDR-3	Certificate No.: A250601	Mobile Units:
	ANDR-4	Issue Date: 11/11/1111	Mobile Description:
		Status: 114	Mobile Capacity: 0
		Application Status:	Mobile Unit Cert. No.:
		Concession: 4	Waste Type: domestic, commercial, non-hazardous solid-industrial
		Lot: 11 & 12 LOCATED AT WESTERLY END OF KITCHENER ST	Waste Type Other: Yes
			Waste Class:
		Region/County: SIMCOE	Other Approvals/Permits:
		Proponent: ORILLIA, CITY OF	
		Address: 50 Andrew St. S., Box 340	Project Description:
		City: Orillia, Ontario	
		Facility Type: Landfill	
		District Office: Barrie	
		Municipalities Served: CITY OF ORILLIA POPULATION SERVED: 21,500	Approval Description:
		Total Area (ha): 28.3	
		Landfill Capacity (m³): 163000	Waste Description: DOM. 60% COM 15% IND. WASTE 18% OTHER 7% [INCLUDES TREES, BRUSH, DEBRIS]
		Landfill Monitoring:	
		Landfill Control Type:	
		Est. Closure Date:	
		Transfer Area (ha) 0	Site Closing Description: A250601
		Transfer Capacity (m³): 0	
		Transfer Sites Cert. No.:	
		Incinerator Area (ha): 0	
		Incinerator Capacity (t): 0	
		Processing Area (m³): 0	
		Processing Capacity (m³/d): 0	
		Processing Volume (m³): 0	
		Processing Feed (m³): 0	

Waste Disposal Sites - MOE 1991 Historical Approval Inventory

**Note: Status as of October 30, 1990.

Map Key	Company	Address	Site No.	Region	County	Concession	Lot
WDSH-1		PT 11-12 4 ORILLIA	A250601	CENTRAL	SIMCOE	4	PT 11-12
			Easting:		625680		
			Northing:		4938210		
			Zone:		17		
			Date Closed		n/a		
			Status:		ACTIVE		
			Classification:		A3 - POTENTIAL HUMAN IMPACT-URBAN MUNICIPAL/DOMESTIC WASTE		
			%CommercialWste:		10		
			%DomesticWste Rec:		55		
			%LiquidWste Rec:		0		
			%HazardousWste Rec:		0		
			%Non-haz.Wste Rec:		18		
			%Sewage/Sludge Rec:		0		
			%Other Wste Rec:		17		

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-1			5711943				SIMCOE	ORILLIA CITY
			Easting Nad83: 626321.6 Northing Nad83: 4939034 Zone: 17 Utm Reliability: margin of error : 30 m - 100 m Construction Date: 4/3/1974 Primary Water Use: Commerical Secondary Water Use: Well Depth: 47 ft Pump Rate: 6 GPM Static Water Level: 30 ft Flow Rate: Clear/Cloudy: CLOUDY Specific Capacity: Final Well Status: Water Supply Construction Method: Cable Tool Flowing (y/n): N Elevation (m): 217.194625 Elevation Reliability: Depth to Bedrock: 0 Overburden/Bedrock: Mixed in a Layer Water Type: FRESH Casing Material: STEEL, OPEN HOLE					
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>	<u>Material</u>		
			25 ft	25 ft	BROWN	CLAY, SANDSTONE, BOULDERS		
			4 ft	29 ft	GREY	LIMESTONE, SHALE		
			18 ft	47 ft	GREY	LIMESTONE		

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-2		ORILLIA	7154933				SIMCOE	ORILLIA CITY
Easting Nad83: 626403 Northing Nad83: 4938887 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: Primary Water Use: Monitoring Secondary Water Use: Well Depth: 5.2 m Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Observation Wells Construction Method: Boring Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material: PLASTIC								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			1.6 m	1.6 m	BROWN		SAND, FILL	
			3.6 m	5.2 m	BROWN		TILL, FRACTURED, WATER-BEARING	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-3		30 KITCHENER STREET Orillia	7052025				SIMCOE	ORILLIA CITY
Easting Nad83: 651361 Northing Nad83: 7853191 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 7/11/2007 Primary Water Use: Monitoring Secondary Water Use: Well Depth: Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Observation Wells Construction Method: Boring Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material: PLASTIC Thickness Original Depth Material Colour Material								

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-4		ORILLIA	7154935				SIMCOE	ORILLIA CITY
Easting Nad83: 626252 Northing Nad83: 4938795 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: Primary Water Use: Monitoring Secondary Water Use: Well Depth: 10 m Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Observation Wells Construction Method: Boring Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material: PLASTIC								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			2.2 m	2.2 m	BLACK		PEAT, GRAVEL, WATER-BEARING	
			2.9 m	5.1 m	GREY		SILT, CLAY, WATER-BEARING	
			1.6 m	6.7 m	GREY		SAND, SILT, FINE SAND	
			3.3 m	10 m	GREY		TILL, SAND, SILT	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-5			7154939				SIMCOE	ORILLIA CITY
			Easting Nad83: 626545					
			Northing Nad83: 4938790					
			Zone: 17					
			Utm Reliability: margin of error : 10 - 30 m					
			Construction Date: 9/24/2010					
			Primary Water Use:					
			Secondary Water Use:					
			Well Depth:					
			Pump Rate:					
			Static Water Level:					
			Flow Rate:					
			Clear/Cloudy:					
			Specific Capacity:					
			Final Well Status:					
		Construction Method:						
		Flowing (y/n):						
		Elevation (m):						
		Elevation Reliability:						
		Depth to Bedrock:						
		Overburden/Bedrock:						
		Water Type:						
		Casing Material:						
			Thickness	Original Depth		Material Colour	Material	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-6			7154938				SIMCOE	ORILLIA CITY
			Easting Nad83: 626427 Northing Nad83: 4938727 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 9/23/2010 Primary Water Use: Secondary Water Use: Well Depth: Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Construction Method: Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material:					
			<u>Thickness</u>	<u>Original Depth</u>		<u>Material Colour</u>	<u>Material</u>	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-7		lot 12 con 4 ORILLIA	7132873	012	04	SD	SIMCOE	ORILLIA TOWNSHIP
Easting Nad83: 626429 Northing Nad83: 4938724 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 9/10/2009 Primary Water Use: Monitoring Secondary Water Use: Well Depth: 34 ft Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Observation Wells Construction Method: Rotary (Convent.) Flowing (y/n): Elevation (m): 219.295562 Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Untested Casing Material: PLASTIC								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			2.5 ft	2.5 ft	BROWN		SAND, GRAVEL, DENSE	
			2.5 ft	5 ft	BROWN		SAND, CLAY, PACKED	
			4 ft	9 ft	GREY		SAND, GRAVEL, LOOSE	
			6 ft	15 ft	BROWN		SAND, CLAY, LOOSE	
			10 ft	25 ft	GREY		SILT, SAND, PACKED	
			5 ft	30 ft	BROWN		SAND, SILT, LOOSE	
			4 ft	34 ft	GREY		GRAVEL, ROCK, FRACTURED	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-8		ORILLIA	7154934				SIMCOE	ORILLIA CITY
Easting Nad83: 626241 Northing Nad83: 4938659 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 9/15/2010 Primary Water Use: Monitoring Secondary Water Use: Well Depth: 4.2 m Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Observation Wells Construction Method: Boring Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material: PLASTIC								
			Thickness	Original Depth		Material Colour		Material
			1.2 m	1.2 m		BROWN		SAND, GRAVEL, WATER-BEARING
			3 m	4.2 m				

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-9			7154937				SIMCOE	ORILLIA CITY
			Easting Nad83: 626494 Northing Nad83: 4938666 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 9/24/2010 Primary Water Use: Secondary Water Use: Well Depth: Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Construction Method: Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material:					
			<u>Thickness</u>	<u>Original Depth</u>		<u>Material Colour</u>	<u>Material</u>	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-10			7154940				SIMCOE	ORILLIA CITY
			Easting Nad83: 626264 Northing Nad83: 4938606 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 9/21/2010 Primary Water Use: Secondary Water Use: Well Depth: Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Construction Method: Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material:					
			<u>Thickness</u>	<u>Original Depth</u>		<u>Material Colour</u>	<u>Material</u>	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-11			5702664				SIMCOE	ORILLIA CITY
			Easting Nad83: 626394.6					
			Northing Nad83: 4938604					
			Zone: 17					
			Utm Reliability: unknown UTM					
			Construction Date: 3/29/1958					
			Primary Water Use: Domestic					
			Secondary Water Use:					
			Well Depth: 28 ft					
			Pump Rate: 4 GPM					
		Static Water Level: 4 ft						
		Flow Rate:						
		Clear/Cloudy: CLEAR						
		Specific Capacity:						
		Final Well Status: Water Supply						
		Construction Method: Cable Tool						
		Flowing (y/n): N						
		Elevation (m): 218.514526						
		Elevation Reliability:						
		Depth to Bedrock: 17						
		Overburden/Bedrock: Bedrock						
		Water Type: FRESH						
		Casing Material: STEEL, OPEN HOLE						
			Thickness	Original Depth		Material Colour	Material	
			17 ft	17 ft		BLUE	CLAY	
			11 ft	28 ft		GREY	LIMESTONE	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-12			7154941				SIMCOE	ORILLIA CITY
			Easting Nad83: 626203 Northing Nad83: 4938547 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: Primary Water Use: Secondary Water Use: Well Depth: Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Construction Method: Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material:					
			<u>Thickness</u>	<u>Original Depth</u>		<u>Material Colour</u>	<u>Material</u>	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-13		Orillia	7154931				SIMCOE	ORILLIA CITY
Easting Nad83: 625970 Northing Nad83: 4938375 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 10/4/2010 Primary Water Use: Monitoring Secondary Water Use: Well Depth: Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Abandoned-Other Construction Method: Boring Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material:								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-14			7154936				SIMCOE	ORILLIA CITY
			Easting Nad83: 625970					
			Northing Nad83: 4938375					
			Zone: 17					
			Utm Reliability: margin of error : 10 - 30 m					
			Construction Date:					
			Primary Water Use:					
			Secondary Water Use:					
			Well Depth:					
			Pump Rate:					
			Static Water Level:					
			Flow Rate:					
			Clear/Cloudy:					
			Specific Capacity:					
		Final Well Status:						
		Construction Method:						
		Flowing (y/n):						
		Elevation (m):						
		Elevation Reliability:						
		Depth to Bedrock:						
		Overburden/Bedrock:						
		Water Type:						
		Casing Material:						
			<u>Thickness</u>	<u>Original Depth</u>		<u>Material Colour</u>	<u>Material</u>	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-15		400 MEMORIAL AVE	5739854				SIMCOE	ORILLIA CITY
Easting Nad83: Northing Nad83: Zone: Utm Reliability: Construction Date: 6/15/2005 Primary Water Use: Secondary Water Use: Well Depth: 20 ft Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Observation Wells Construction Method: Boring Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Overburden Water Type: Casing Material:								
			Thickness	Original Depth	Material Colour		Material	
			5 ft	5 ft	BROWN		GRAVEL, FILL, LOOSE	
			15 ft	20 ft	BROWN		CLAY, SILT	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-16		ORILLIA	7154932				SIMCOE	ORILLIA CITY
Easting Nad83: 625349 Northing Nad83: 4938343 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 9/29/2010 Primary Water Use: Monitoring Secondary Water Use: Well Depth: 2.1 m Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: Specific Capacity: Final Well Status: Observation Wells Construction Method: Boring Flowing (y/n): Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Water Type: Casing Material: PLASTIC								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>	<u>Material</u>		
			1.2 m	1.2 m	BLACK	PEAT, SOFT, WATER-BEARING		
			0.9 m	2.1 m	GREY	PEAT, CLAY, WATER-BEARING		

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
WWIS-17		ORILLIA	5740869				SIMCOE	ORILLIA CITY
Easting Nad83: 625084 Northing Nad83: 4938426 Zone: 17 Utm Reliability: margin of error : 10 - 30 m Construction Date: 5/30/2006 Primary Water Use: Secondary Water Use: Well Depth: 5.5 m Pump Rate: Static Water Level: Flow Rate: Clear/Cloudy: OTHER Specific Capacity: Final Well Status: Observation Wells Construction Method: Boring Flowing (y/n): N Elevation (m): 224.788696 Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Overburden Water Type: Casing Material: PLASTIC								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			3 m	3 m	BROWN		SAND, CLAY	
			1.5 m	4.5 m	GREY		SAND, SILT, CLAY	
			1 m	5.5 m	GREY		CLAY, SILTY	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 11	5718665	011		ND	SIMCOE	ORILLIA TOWNSHIP
Easting Nad83: Northing Nad83: Zone: 17 Utm Reliability: unknown UTM Construction Date: 9/19/1983 Primary Water Use: Domestic Secondary Water Use: Well Depth: 75 ft Pump Rate: 15 GPM Static Water Level: 10 ft Flow Rate: Clear/Cloudy: CLOUDY Specific Capacity: Final Well Status: Water Supply Construction Method: Cable Tool Flowing (y/n): N Elevation (m): Elevation Reliability: Depth to Bedrock: 49 Overburden/Bedrock: Bedrock Water Type: FRESH Casing Material: OPEN HOLE, STEEL								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			12 ft	12 ft			PREVIOUSLY DUG	
			36 ft	48 ft	BROWN		SILT, SAND	
			1 ft	49 ft	BROWN		SAND, GRAVEL	
			5 ft	54 ft	BROWN		LIMESTONE	
			21 ft	75 ft	BLUE		LIMESTONE	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 12	5720177	012			SIMCOE	ORILLIA TOWNSHIP
Easting Nad83: Northing Nad83: Zone: 17 Utm Reliability: unknown UTM Construction Date: 8/20/1985 Primary Water Use: Commerical Secondary Water Use: Well Depth: 49 ft Pump Rate: 4 GPM Static Water Level: 10 ft Flow Rate: Clear/Cloudy: CLEAR Specific Capacity: Final Well Status: Water Supply Construction Method: Cable Tool Flowing (y/n): N Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Overburden Water Type: FRESH Casing Material: STEEL								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			4 ft	4 ft	BROWN		SAND, STONES	
			42 ft	46 ft	GREY		CLAY, THICK	
			3 ft	49 ft	GREY		SAND, GRAVEL	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 11 con 9	5722507	011	09		SIMCOE	ORILLIA TOWNSHIP
Easting Nad83: Northing Nad83: Zone: 17 Utm Reliability: unknown UTM Construction Date: 8/8/1987 Primary Water Use: Domestic Secondary Water Use: Well Depth: 88 ft Pump Rate: 20 GPM Static Water Level: 10 ft Flow Rate: Clear/Cloudy: CLEAR Specific Capacity: Final Well Status: Water Supply Construction Method: Cable Tool Flowing (y/n): N Elevation (m): Elevation Reliability: Depth to Bedrock: 40 Overburden/Bedrock: Bedrock Water Type: FRESH Casing Material: STEEL, OPEN HOLE								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			10 ft	10 ft	BROWN		CLAY	
			10 ft	20 ft	BROWN		SAND	
			3 ft	23 ft			BOULDERS	
			17 ft	40 ft	BROWN		CLAY	
			4 ft	44 ft	BROWN		LIMESTONE, STONES	
			31 ft	75 ft	BROWN		LIMESTONE, LAYERED	
			13 ft	88 ft	RED		LIMESTONE	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 11	5733466	011		SD	SIMCOE	ORILLIA TOWNSHIP
Easting Nad83: Northing Nad83: Zone: 17 Utm Reliability: unknown UTM Construction Date: 1/5/1998 Primary Water Use: Domestic Secondary Water Use: Well Depth: 220 ft Pump Rate: 5 GPM Static Water Level: 205 ft Flow Rate: Clear/Cloudy: CLEAR Specific Capacity: Final Well Status: Water Supply Construction Method: Cable Tool Flowing (y/n): N Elevation (m): Elevation Reliability: Depth to Bedrock: 188 Overburden/Bedrock: Bedrock Water Type: MINERIAL Casing Material: STEEL, OPEN HOLE								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			90 ft	90 ft			CLAY, HARDPAN, BOULDERS	
			50 ft	140 ft			GRAVEL, CLAY, SANDY	
			48 ft	188 ft			HARDPAN, CLAY, BOULDERS	
			32 ft	220 ft			LIMESTONE	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 12	5734234	012			SIMCOE	ORILLIA CITY
Easting Nad83: Northing Nad83: Zone: 17 Utm Reliability: unknown UTM Construction Date: 6/28/1999 Primary Water Use: Domestic Secondary Water Use: Well Depth: 62 ft Pump Rate: 4 GPM Static Water Level: 8 ft Flow Rate: Clear/Cloudy: CLEAR Specific Capacity: Final Well Status: Water Supply Construction Method: Air Percussion Flowing (y/n): N Elevation (m): Elevation Reliability: Depth to Bedrock: 35 Overburden/Bedrock: Bedrock Water Type: FRESH Casing Material: STEEL, OPEN HOLE								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>	<u>Material</u>		
			6 ft	6 ft	BROWN	CLAY, STONEY		
			24 ft	30 ft	GREY	HARDPAN, STONEY		
			5 ft	35 ft	GREY	CLAY, GRAVEL		
			27 ft	62 ft	GREY	LIMESTONE, ROCK		

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 11	5734771	011		ND	SIMCOE	ORILLIA TOWNSHIP
Easting Nad83: Northing Nad83: Zone: 17 Utm Reliability: unknown UTM Construction Date: 6/16/1999 Primary Water Use: Domestic Secondary Water Use: Well Depth: 255 ft Pump Rate: Static Water Level: 5 ft Flow Rate: Clear/Cloudy: CLOUDY Specific Capacity: Final Well Status: Water Supply Construction Method: Rotary (Air) Flowing (y/n): N Elevation (m): Elevation Reliability: Depth to Bedrock: 19 Overburden/Bedrock: Bedrock Water Type: FRESH Casing Material: STEEL								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			15 ft	15 ft	RED		TOPSOIL, SAND, SOFT	
			4 ft	19 ft	GREY		SAND	
			51 ft	70 ft	GREY		GRANITE	
			17 ft	87 ft	RED		GRANITE	
			33 ft	120 ft	BLACK		GRANITE	
			135 ft	255 ft	GREY		GRANITE	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 12	5735051	012		ND	SIMCOE	ORILLIA TOWNSHIP
Easting Nad83:								
Northing Nad83:								
Zone: 17								
Utm Reliability: unknown UTM								
Construction Date: 10/27/1999								
Primary Water Use: Domestic								
Secondary Water Use:								
Well Depth: 253 ft								
Pump Rate: 8 GPM								
Static Water Level: 6 ft								
Flow Rate:								
Clear/Cloudy: CLEAR								
Specific Capacity:								
Final Well Status: Water Supply								
Construction Method: Air Percussion								
Flowing (y/n): N								
Elevation (m):								
Elevation Reliability:								
Depth to Bedrock: 14								
Overburden/Bedrock: Bedrock								
Water Type: FRESH								
Casing Material: STEEL								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			4 ft	4 ft	BROWN		TOPSOIL, SAND, WATER-BEARING	
			3 ft	7 ft	BROWN		SAND, PACKED	
			7 ft	14 ft	GREY		CLAY, PACKED, HARD	
			118 ft	132 ft	GREY		GRANITE, HARD	
			15 ft	147 ft	RED		GRANITE, HARD	
			106 ft	253 ft	GREY		GRANITE, HARD	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 12	5735426	012			SIMCOE	ORO TOWNSHIP
Easting Nad83: Northing Nad83: Zone: 17 Utm Reliability: unknown UTM Construction Date: 8/22/2000 Primary Water Use: Domestic Secondary Water Use: Well Depth: 122 ft Pump Rate: 15 GPM Static Water Level: 18 ft Flow Rate: Clear/Cloudy: CLEAR Specific Capacity: Final Well Status: Water Supply Construction Method: Rotary (Convent.) Flowing (y/n): N Elevation (m): Elevation Reliability: Depth to Bedrock: Overburden/Bedrock: Overburden Water Type: FRESH Casing Material: STEEL								
			<u>Thickness</u>	<u>Original Depth</u>	<u>Material Colour</u>		<u>Material</u>	
			2 ft	2 ft	BROWN		FILL	
			6 ft	8 ft	BROWN		SAND, GRAVEL	
			27 ft	35 ft	GREY		CLAY, GRAVEL, STONES	
			60 ft	95 ft	GREY		CLAY, GRAVEL, HARD	
			22 ft	117 ft	GREY		CLAY, GRAVEL	
			5 ft	122 ft	BROWN		SAND, WATER-BEARING	

Water Well Information System

Map Key	Company	Address	Well Id	Lot	Concession	Concession Name	County	Municipality
n/a		lot 12	5735586	012		ND	SIMCOE	ORILLIA TOWNSHIP
Easting Nad83: Northing Nad83: Zone: 17 Utm Reliability: unknown UTM Construction Date: 5/31/2000 Primary Water Use: Domestic Secondary Water Use: Livestock Well Depth: 57 ft Pump Rate: 10 GPM Static Water Level: 45 ft Flow Rate: Clear/Cloudy: CLEAR Specific Capacity: Final Well Status: Water Supply Construction Method: Cable Tool Flowing (y/n): N Elevation (m): Elevation Reliability: Depth to Bedrock: 48 Overburden/Bedrock: Bedrock Water Type: FRESH Casing Material: STEEL, OPEN HOLE Thickness Original Depth Material Colour Material 48 ft 48 ft HARDPAN, CLAY, BOULDERS 9 ft 57 ft LIMESTONE								

Appendix: Ontario Database Descriptions

EcoLog Environmental Risk Information Services Ltd can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to EcoLog ERIS at the time of update. **Note:** Databases denoted with “*” indicates that the database will no longer be updated. See the individual database descriptions for more information.

Provincial Government Source Databases:

Abandoned Aggregate Inventory Up to Sept 2002

AAGR

The MAAP Program maintains a database of all abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.

Aggregate Inventory Up to Jun 2011

AGR

The Ontario Ministry of Natural Resources maintains a database of all active pits and quarries. Please note that the database is only referenced by lot/concession and city/town location. The database provides information regarding the registered owner/operator, location, status, licence type, and maximum tonnage.

Abandoned Mines Information System 1800-Jan 2012

AMIS

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: “the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete”. Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Borehole 1875-Aug 2011

BORE

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc.

For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Certificates of Approval 1985-Oct 30, 2011*

CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CofA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

TSSA Commercial Fuel Oil Tanks 1948-Aug 2011**CFOT**

Since May 2002, Ontario developed a new act where it became mandatory for fuel oil tanks to be registered with Technical Standards & Safety Authority (TSSA). This data would include all commercial underground fuel oil tanks in Ontario with fields such as location, registration number, tank material, age of tank and tank size.

Inventory of Coal Gasification Plants and Coal Tar Sites April 1987 and November 1988***COAL**

This inventory includes both the “Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987” and the “Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.*

Compliance and Convictions 1989-Feb 2012**CONV**

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Certificates of Property Use 1994-Feb 2012**CPU**

This is a subset taken from Ontario’s Environmental Registry (EBR) database. It will include all CPU’s on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Drill Holes 1886-Oct 2011**DRL**

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a “Report of Work”.

Environmental Activity and Sector Registry Oct 31, 2011-Feb 2012**EASR**

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren’t subject to the EASR may apply for an ECA (Environmental Compliance Approval), Please see our ECA database.

Environmental Registry 1994-Feb 2012**EBR**

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Environmental Compliance Approval Oct 31, 2011-Feb 2012**ECA**

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For CofA's prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

List of TSSA Expired Facilities Current to Feb 2012**EXP**

This is a list of all expired facilities that fall under the TSSA (TSS Act & Safety Regulations), including the six regulations that exist under the Fuels Safety Division. It will include facilities such as private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc. These tanks have been removed and automatically fall under the expired facilities inventory held by TSSA.

TSSA Fuel Storage Tanks Current to Jun 2011**FST**

The Technical Standards & Safety Authority (TSSA), under the *Technical Standards & Safety Act* of 2000 maintains a database of registered private and retail fuel storage tanks in Ontario with fields such as location, tank status, license date, tank type, tank capacity, fuel type, installation year and facility type.

Ontario Regulation 347 Waste Generators Summary 1986-Oct 2010**GEN**

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

TSSA Historic Incidents 2006-June 2009**HINC**

This database will cover all incidences recorded by TSSA with their older system, before they moved to their new management system. TSSA's Fuels Safety Program administers the *Technical Standards & Safety Act* 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. We also work to protect the public, the environment and property from fuel-related hazards such as spills, fires and explosions. This database will include spills and leaks from pipelines, diesel, fuel oil, gasoline, natural gas, propane and hydrogen recorded by the TSSA.

TSSA Incidents June 2009-Mar 2012**INC**

TSSA's Fuels Safety Program administers the *Technical Standards & Safety Act* 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Includes incidents from fuel-related hazards such as spills, fires and explosions. This database will include spills and leaks from diesel, fuel oil, gasoline, natural gas, propane and hydrogen recorded by the TSSA.

Landfill Inventory Management Ontario 2010**LIMO**

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the ministry compiles new and updated information. The inventory will include small and large landfills. Additionally, each year the ministry will request operators of the larger landfills complete a landfill data collection form that will be used to update LIMO and will include the following information from the previous operating year. This will include additional information such as estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills will include information such as site owner, site location and certificate of approval # and status.

Mineral Occurrences 1846-Nov 2011**MNR**

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the planimetric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Non-Compliance Reports 1992(water only), 1994-2010**NCPL**

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Ontario Oil and Gas Wells 1800-Jun 2011**OOGW**

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSRL Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, well cap date, licence no., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Ontario Inventory of PCB Storage Sites 1987-Oct 2004**OPCB**

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Orders 1994-Feb 2012**ORD**

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Pesticide Register 1988-Mar 2011**PES**

The Ontario Ministry of Environment maintains a database of all manufacturers and vendors of registered pesticides.

TSSA Pipeline Incidents June 2009-Mar 2012**PINC**

TSSA's Fuels Safety Program administers the *Technical Standards & Safety Act* 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. This database will include spills, strike and leaks from recorded by the TSSA.

Private and Retail Fuel Storage Tanks 1989-1996***PRT**

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Permit to Take Water 1994-Feb 2012**PTTW**

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all PTTW's on the registry such as OWRA s. 34 - Permit to take water.

Ontario Regulation 347 Waste Receivers Summary 1986-2008**REC**

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Record of Site Condition 1997-Sept 2001, Oct 2004-Feb 2012**RSC**

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up. RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Ontario Spills 1988-2011**SPL**

This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X.

Wastewater Discharger Registration Database 1990-2010**SRDS**

Information under this heading is combination of the following 2 programs. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment maintained a database of all direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation; Mining; Petroleum Refining; Organic Chemicals; Inorganic Chemicals; Pulp & Paper; Metal Casting; Iron & Steel; and Quarries. All sampling information is now collected and stored within the Sample Result Data Store (SRDS).

TSSA Variances for Abandonment of Underground Storage Tanks Current to October 2011**VAR**

The TSSA, Under the Liquid Fuels Handling Code and the Fuel Oil Code, all underground storage tanks must be removed within two years of disuse. If removal of a tank is not feasible, you may apply to seek a variance from this code requirement. This is a list of all variances granted for abandoned tanks.

Waste Disposal Sites - MOE CA Inventory 1970-Feb 2012**WDS**

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Waste Disposal Sites - MOE 1991 Historical Approval Inventory Up to Oct 1990***WDSH**

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Water Well Information System 1955-2011**WWIS**

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Federal Government Source Databases:**Diagram Identifier:****Environmental Effects Monitoring 1992-2007*****EEM**

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Environmental Issues Inventory System 1992-2001***EIIS**

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Federal Convictions 1988-Jun 2007**FCON**

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Contaminated Sites on Federal Land June 2000-Jan 2012**FCS**

The Treasury Board of Canada Secretariat maintains an inventory of all known contaminated sites held by various Federal departments and agencies. This inventory does not include properties owned by Crown corporations, but does contain non-federal sites for which the Government of Canada has accepted some or all financial responsibility. All sites have been classified through a system developed by the Canadian Council of Ministers of the Environment. The database provides information on company name, location, site ID #, property use, classification, current status, contaminant type and plan of action for site remediation.

Fisheries & Oceans Fuel Tanks 1964-Sept 2003**FOFT**

Fisheries & Oceans Canada maintains an inventory of all aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Indian & Northern Affairs Fuel Tanks 1950-Aug 2003**IAFT**

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of all aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

National Analysis of Trends in Emergencies System (NATES) 1974-1994***NATE**

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

National Defence & Canadian Forces Fuel Tanks Up to May 2001***NDFT**

The Department of National Defence and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

National Defence & Canadian Forces Spills Mar 1999-Aug 2010**NDSP**

The Department of National Defence and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

National Defence & Canadian Forces Waste Disposal Sites 2001-April 2007**NDWD**

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

National Environmental Emergencies System (NEES) 1974-2003**NEES**

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for all previous Environment Canada spill datasets. NEES is composed of the historic datasets – or Trends – which dates from approximately 1974 to present. **NEES Trends** is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

National PCB Inventory 1988-2008**NPCB**

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. All federal out-of-service PCB containing equipment and all PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites.

National Pollutant Release Inventory 1993-2009**NPRI**

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Parks Canada Fuel Storage Tanks 1920-Jan 2005**PCFT**

Canadian Heritage maintains an inventory of all known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Transport Canada Fuel Storage Tanks 1970-March 2007**TCFT**

With the provinces of BC, MB, NB, NF, ON, PE, and QC; Transport Canada currently owns and operates 90 fuel storage tanks. This inventory will also include The Pickering Lands, which refers to the 7,530 hectares (18,600 acres) of land in Pickering, Markham and Uxbridge - owned by the Government of Canada since 1972. Properties on this land has been leased by the government since 1975, falls under the Site Management Policy of Transport Canada, but administered by Public Works and Government Services Canada. Our inventory provides information on the site name, location, tank age, capacity and fuel type.

Private Source Databases:**Anderson's Waste Disposal Sites 1860s-Present****ANDR**

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the *Ontario MOE Waste Disposal Site Inventory*, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. *Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.*

Automobile Wrecking & Supplies 2001-Jun 2010

AUWR

This database provides an inventory of all known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Chemical Register 1992, 1999-Jun 2010

CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

ERIS Historical Searches 1999-Sept 2011

EHS

EcoLog ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Canadian Mine Locations 1998-2009

MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Oil and Gas Wells Oct 2001-2011

OGW

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickles' database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Canadian Pulp and Paper 1999, 2002, 2004, 2005, 2009

PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Retail Fuel Storage Tanks 2000-Jun 2010

RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks. Information is provided on company name, location and type of business.

Scott's Manufacturing Directory 1992-Mar 2011

SCT

Scott's Directories is a data bank containing information on over 70,000 manufacturers in Ontario. Even though Scott's listings are voluntary, it is the most comprehensive database of Ontario manufacturers available. Information concerning a company's address, plant size, and main products are included in this database. This database begins with 1992 information and is updated annually.

Anderson's Storage Tanks 1915-1953*

TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. *Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.*



APPENDIX E

Site Photographs



Photograph 1: View of Wastewater Treatment Centre looking southwest from the Snow Dump



Photograph 2: Looking south at a wastewater treatment pond



Photograph 3: Looking west across the Snow Dump



Photograph 4: Looking north across the Snow Dump



Photograph 5: View of a berm at the northern portion of the Snow Dump



Photograph 6: Looking north from the Site. Note: Highway 12



APPENDIX F

Record of Borehole Log Sheets

PROJECT: 11-1170-0079

RECORD OF BOREHOLE: GP12-1

SHEET 1 OF 1

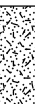
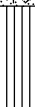
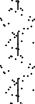
LOCATION: N :E

BORING DATE: 25-Jul-2012

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		Methane Gas Concentration (ppm)				ADDITIONAL LAB. TESTING	PIEZOMETER DETAILS			
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	100 200 300 400				NOTE:		
								PID						
								2	4	6	8			
0	M75-2 Track Mount 25-Jul-2012	GROUND SURFACE		223.17									MP Elevation (masl) 224.13	
		WASTE (glass, concrete and plastic noted) (SW) Sand, fine, trace sand and silt, brown; FILL, dry, compact		0.00	1	DO	15	⊕	□				Concrete	
														Bentonite
1			(ML) SILT, some sand and clay silt layers (5 mm), grey brown, interbedded; cohesive, w-PL, soft		221.80	2	DO	14	⊕	□				#2 Silica Sand
					1.37									
2		(SW) SAND, some silt, brown, laminated, moist, very loose to loose		221.04	3	DO	4		⊕				VOCs, metals, inorganics, PAHs, PHC F1-F4	
				2.13										
3					4	DO	6	⊕	□				10 Slot PVC Screen	
					5	DO	3	⊕	□				Dry 11-Sept-12 220.12	
4		End of Borehole		219.51										
				3.66										
5														
6														
7														
8														
9														
10														

BAR ENV SIMPLE 1111700079 LOG.GPJ GAL-CANADA.GDT 8-23-13 STB

DEPTH SCALE

1 : 50



LOGGED: SMF

CHECKED: NLP

PROJECT: 11-1170-0079

RECORD OF BOREHOLE: MW12-2 / GP12-2

SHEET 1 OF 1

LOCATION: N :E

BORING DATE: 25-Jul-2012

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES			Methane Gas Concentration (ppm)				ADDITIONAL LAB. TESTING	PIEZOMETER DETAILS		
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	⊕					NOTE: PIEZOMETER CONSTRUCTION DEPTHS ADJUSTED TO GRADE AT DEEPEST SCREEN		
								100 200 300 400							
								PID							
								2	4	6	8		Screen Number	GP12-2	MW12-2
0		GROUND SURFACE		223.14									MP Elevation	224.11	224.32
	MT5-2 Track Mount 25-Jul-2012	(SM) Silty sand and gravel, trace rootlets, light brown; FILL, dry, compact		0.00	1	DO	20	⊕	□						
1					2	DO	24		□		⊕				
			WASTE (glass,metal, and cloth noted)		221.77										
			(SM) Silty sand, trace clayey chunks, dark brown and orange; FILL, moist, loose		1.37	3	DO	6		⊕	⊕		VOCs, metals, inorganics		
2						4	DO	10		□	⊕				
3		(SM) SILTY SAND, grey and orange, rootlets, moist, compact		220.24											
		Organic sandy silt noted at 3.4 m		2.90	5	DO	8			⊕	□	VOCs, PHE F1-F4, PAHs			
4		(MH) CLAYEY SILT to (ML) SILT, some sand, organics noted throughout, grey; cohesive, w~PL, soft to very stiff		219.48											
				3.66	6	DO	3			□		⊕			
5		(SW) SAND, fine to coarse, trace gravel, brown, wet, compact		218.26							⊕	□	VOCs		
				4.88											
					8	DO	11		⊕	□					
6		End of Borehole		217.20											
				5.94											
7															
8															
9															
10															

Bentonite

#2 Silica Sand

10 Slot PVC Screen

Dry

11-Sept-2012

220.24

Bentonite

#1 Silica Sand

10 Slot PVC Screen

11-Sept-2012

219.02

221.76

220.70

220.24

217.65

Bentonite

#2 Silica Sand

Bentonite

10 Slot PVC Screen

#1 Silica Sand

Dry
11-Sept-2012
220.24

VOCs, PHC F1-F4, PAHs

10 Slot PVC Screen

11-Sept-2012
219.02

VOCs

BAR ENV SIMPLE 1111700079 LOG.GPJ GAL-CANADA.GDT 8-23-13 STB

DEPTH SCALE

1 : 50



LOGGED: SMF

CHECKED: NLP

PROJECT: 11-1170-0079

RECORD OF BOREHOLE: GP12-3

SHEET 1 OF 1

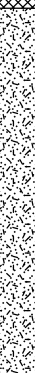
LOCATION: N ;E

BORING DATE: 25-Jul-2012

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES		Methane Gas Concentration (ppm)				ADDITIONAL LAB. TESTING	PIEZOMETER DETAILS			
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	100 200 300 400				NOTE:		
								PID						
								2	4	6	8			
0		GROUND SURFACE		221.72									MP Elevation (masl) 222.74	
	M75-2 Track Mount 25-Jul-2012	(SM) Silty sand and gravel, plastic noted, brown; FILL, dry, compact		0.00	1	DO	27						Bentonite	
		WASTE (ash, brick, and plastic noted)		221.11									#2 Silica Sand	
1		(SM) Silty sand and gravel, clayey chunks, black to brown, moist to wet, loose to compact		0.61	2	DO	11							
2						3	DO	5						VOCs, metals, inorganics, PHC F1-F4
						4	DO	5						
3														10 Slot PVC Screen
														11-Sept-2012 219
		(CI) SILTY CLAY to (ML) CLAYEY SILT, rootlets noted, grey with orange staining; cohesive, w~PL, firm to very stiff		218.67	5	DO	7							
				3.05										
4					6	DO	21							
		End of Borehole		217.45										
				4.27										
5														
6														
7														
8														
9														
10														

Bentonite

#2 Silica Sand

10 Slot PVC Screen

11-Sept-2012
219

217.91

DEPTH SCALE

1 : 50



LOGGED: SMF

CHECKED: NLP

BAR ENV SIMPLE 1111700079 LOG.GPJ GAL-CANADA.GDT 8-23-13 STB

PROJECT: 11-1170-0079

RECORD OF BOREHOLE: BH12-14

SHEET 1 OF 1

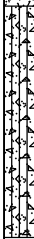
LOCATION: N :E

BORING DATE: 25-Jul-2012

DATUM: Geodetic

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE		SAMPLES			Methane Gas Concentration (ppm)				ADDITIONAL LAB. TESTING	PIEZOMETER DETAILS	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	100 200 300 400				NOTE:	
								PID					
								2	4	6	8		
0	M75-2 Track Mount 25-Jul-2012	GROUND SURFACE										MP Elevation (masl)	
		(SM) Silty sand and gravel, trace rootlets, light brown; FILL, dry, compact		0.00	1	DO	24	⊕		□			
		WASTE (brick and glass noted)		0.61									
1		(SM) Silty sand and gravel, dark brown, moist, very dense			2	DO	63	⊕		□			
		(ML) SILT and SAND, some gravel, grey; TILL, moist, loose to compact		1.37									
2													
								</					

DEPTH SCALE

1 : 50



LOGGED: SMF

CHECKED: NLP

BAR ENV SIMPLE 1111700079 LOG.GPJ GAL-CANADA.GDT 8-23-13 STB

PROJECT: 1211700017

RECORD OF BOREHOLE: BH13-01

SHEET 1 OF 1

LOCATION: 5 North of Access Road, KSWDS

BORING DATE: 8-Jul-2013

DATUM:

SAMPLER HAMMER, 64kg; DROP, 760mm

PENETRATION TEST HAMMER, 64kg; DROP, 760mm

DEPTH SCALE METRES	BORING METHOD	SOIL PROFILE			SAMPLES		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				ADDITIONAL LAB. TESTING	PIEZOMETER DETAILS	
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	SHEAR STRENGTH		nat V. + Q -			
								Cu, kPa		rem V. ⊕ ⊖			
								20	40	60		80	
0	B-45 HD (Track) 8.25" Hollow Stem Auger08-Jul-2013	GROUND SURFACE										MP Elevation (masl)	
		TOPSOIL		0.00									
		WASTE- (SP) Sand and Gravel, some silt; brown and black stained; glass, metal, plastic, cloth, newspaper, wood noted; dry to wet; loose		0.15	1	DO	9						Concrete / above ground casing
													Bentonite
													Silica Sand
1						2	DO	4					
						3	DO	5					
2													
			(SW) SAND, some silt; very fine; grey with black staining; wet; compact		2.44	4	DO	19					
3													
		(SM) Sandy SILT and GRAVEL; brown to grey; TILL; damp to moist; very dense		3.20	5	DO	52						
4					6	DO	50/ 0.10 m						
					7	DO	93						
5		End of Borehole		5.18									
6													
7													
8													
9													
10													

DEPTH SCALE

1 : 50



LOGGED: SMF

CHECKED:

BAR ENV SIMPLE 1211700017 LOG.GPJ GAL-CANADA.GDT 7-12-13 STB



APPENDIX G

MOE Well Records

Ontario

Ministry of
the EnvironmentWell Record for Well Cluster - Part 1 of
(Only for Multiple Test Holes or Dewatering Wells)
Regulation 903 Ontario Water Resources Act

Page 1 of 3

All measurements recorded in: ☒ Metric ☐ Imperial

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

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

Well # on Drawing of Deepest Well Tag#: A134149

Well Cluster Location Information

Address of Well Location (Street Number(s)/Name(s), RR, if available)

40 Kitchener St

Lot(s)

Concession(s)

Geographic Township

County/District/Upper Tier Municipality

City, Town, Village or Hamlet

Orillia

Province

Ontario

GPS Unit Make

Magellan

Model

100

Unit Mode of Operation

☐ Undifferentiated☒ Averaged☐ Differentiated, specify:

Mandatory Attachments/Additional Information

☒ Land Owner Consent Form must be attached.☒ Detailed Drawing of All Well Locations must be attached.

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

Signature of Technician/Contractor

Date (yyyy/mm/dd)

Well Details

Well # on Drawing	UTM Coordinates		Hole Depth (m/ft)	Hole Diameter (cm/in)	Method of Construction	Casing Material; Diameter (cm/in)	Casing (m/ft)		Screen Interval (m/ft)		Annular Space Material (m/ft)		Overburden/Bedrock or Abandonment Filling Material Intervals (m/ft)	Static Water Level (m/ft)	Date of Completion (yyyy/mm/dd)
	Zone	Easting					From	To	From	To	From	To			
18-2	17	626048	5.5	21	boring	plastic 6.4	0	2.5	2.5	5.5	0	2	0-2M Fill Silt/sand 5.5 tag	N/A	2012/07/25
18-1	17	626016	3	21	↓	↓	0	1.5	1.5	3	0	1	↓	↓	↓
12-3	17	626048	3.8	21	↓	↓	0	.8	.8	3.8	0	.5	0-2M Fill Silt/sand 3.8	↓	2012/07/25
12-2	17	625941	2.8	21	↓	↓	0	1.3	1.3	3.8	0	.8	↓	↓	↓

Well Contractor and Well Technician Information

Business Name of Well Contractor	Business Address (Street Number/Name, RR)	Municipality	Province
Geo-Environmental	1 Manswood Ct	Hastings Hill	Ont
Postal Code	Bus. Telephone No.	Well Contractor's Licence No.	Business E-mail Address
L7R 9A1	905-876-3388	6607	
Name of Well Technician (First Name, Last Name)	Well Technician's Licence No.	Signature of Well Technician	Date Submitted (yyyy/mm/dd)
Jeremy Ward	3108	8108	2012/07/25

Date First Well in Cluster Constructed or Abandoned (yyyy/mm/dd)

2012/07/24

Date Last Well in Cluster Completed (yyyy/mm/dd)

2012/07/25

Ministry Use Only

Date Received (yyyy/mm/dd)

Audit No.

Comments:

C 19033

Well Abandonment

Person Abandoning the Wells:

Name

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



Ontario

Ministry of
the Environment

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

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

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

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

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

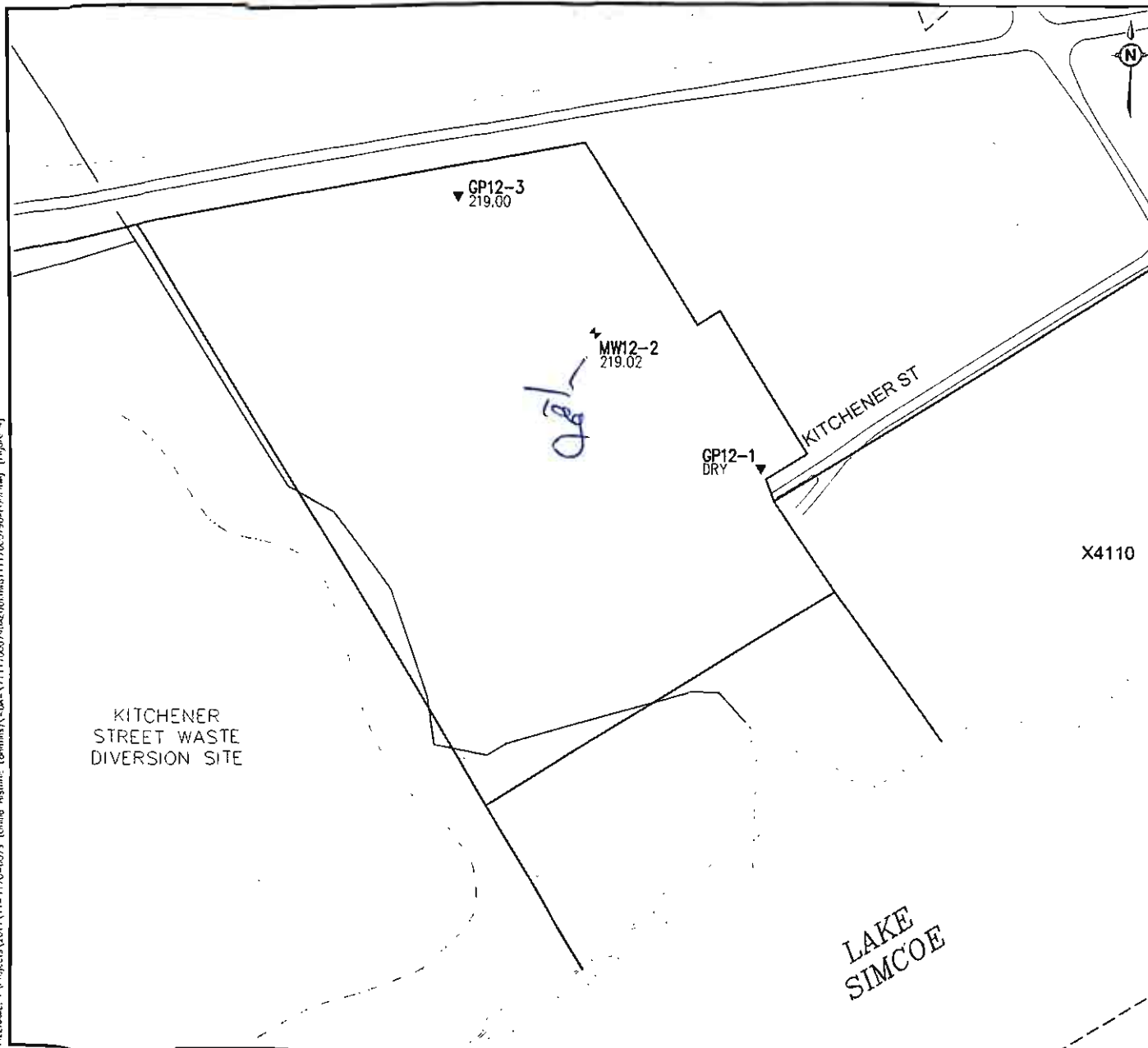
* Please PRINT if completing by hand.

Well Tag Number: # A134149

"Well Record for Well Cluster" Audit Number: # C19033

Well # on Detailed Drawing	Property Location Description	Land Owner's Name	Signature of Land Owner	Date Signed (yyyy/mm/dd)
MW 12-2	40 Kitchener St Orillia	City of Orillia		
GP 12-1	↓	↓		
GP 12-3				
GP 12-2	↓	↓		

PLOT DATE: November 26, 2012
 FILENAME: I:\Projects\2011\11-1170-0079 (Orillia Region: Landfills)\DWG\111700079DAEQUI.dwg [Figure 4]



LEGEND:

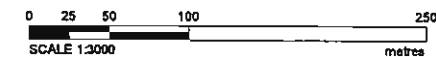
- Landfill Limits (Approximate)
- - - 250 m Offset
- ▼ Borehole / Gas Probe
- ⬆ Monitoring Well / Gas Probe
- - - Interpolated Equipotential Line
- ➔ Interpolated Groundwater Flow Direction

NOTES:

1. DATUM IS UTM NAD83 Zone 17

REFERENCES:

1. MAPPING BASED ON CITY OF ORILLIA ASSESSMENT, 2009



TITLE			
GROUNDWATER ELEVATIONS SEPT. 11, 2012			
HISTORICAL LANDFILL SITES CITY OF ORILLIA			
 Golder Associates Barrie, Ontario, Canada	SCALE	AS SHOWN	
	DATE	16 NOV 2012	
	CAD	S BOWERMAN	
	CHECK	FIGURE	
FILE NO.	1111700079DAEQUI.dwg	REV.	
PROJECT No.	11-1170-0079	REVIEW	4



APPENDIX H

Hydraulic Testing

Data Set: N:\Active\2011\11-1170-0079 Orillia Historic Waste Sites Orillia\Field\AQTESOLV\Graphs\MW12-2_Logg
Date: 12/13/12
Time: 14:46:43

PROJECT INFORMATION

Company: Golder Associates
Client: Orillia Historic Waste Sites
Project: 11-1170-0079
Location: Orillia
Test Date: 11-Sept-2012
Test Well: MW12-2

AQUIFER DATA

Saturated Thickness: 0.64 m
Anisotropy Ratio (Kz/Kr): 1.

SLUG TEST WELL DATA

Test Well: MW12-2

X Location: 0. m
Y Location: 0. m

Initial Displacement: 0.639 m
Static Water Column Height: 0.189 m
Casing Radius: 0.0255 m
Well Radius: 0.0255 m
Well Skin Radius: 0.0255 m
Screen Length: 3.05 m
Total Well Penetration Depth: 5.49 m

No. of Observations: 91

Observation Data			
<u>Time (sec)</u>	<u>Displacement (m)</u>	<u>Time (sec)</u>	<u>Displacement (m)</u>
5.	0.62	235.	0.11
10.	0.6	240.	0.11
15.	0.58	245.	0.1
20.	0.56	250.	0.1
25.	0.54	255.	0.1
30.	0.53	260.	0.1
35.	0.51	265.	0.09
40.	0.5	270.	0.09
45.	0.48	275.	0.09
50.	0.47	280.	0.09
55.	0.46	285.	0.08
60.	0.44	290.	0.08
65.	0.43	295.	0.08
70.	0.42	300.	0.08
75.	0.41	305.	0.08
80.	0.4	310.	0.08
85.	0.39	315.	0.07
90.	0.38	320.	0.07
95.	0.37	325.	0.07
100.	0.36	330.	0.07
105.	0.34	335.	0.07
110.	0.33	340.	0.06
115.	0.32	345.	0.06
120.	0.3	350.	0.06
125.	0.29	355.	0.06
130.	0.28	360.	0.06
135.	0.27	365.	0.06
140.	0.26	370.	0.06
145.	0.25	375.	0.06
150.	0.24	380.	0.05

<u>Time (sec)</u>	<u>Displacement (m)</u>	<u>Time (sec)</u>	<u>Displacement (m)</u>
155.	0.23	385.	0.05
160.	0.23	390.	0.05
165.	0.21	395.	0.05
170.	0.21	400.	0.05
175.	0.2	405.	0.05
180.	0.19	410.	0.05
185.	0.18	415.	0.05
190.	0.17	420.	0.05
195.	0.16	425.	0.05
200.	0.16	430.	0.05
205.	0.15	435.	0.05
210.	0.14	440.	0.05
215.	0.13	445.	0.05
220.	0.13	450.	0.05
225.	0.12	455.	0.05
230.	0.12		

SOLUTION

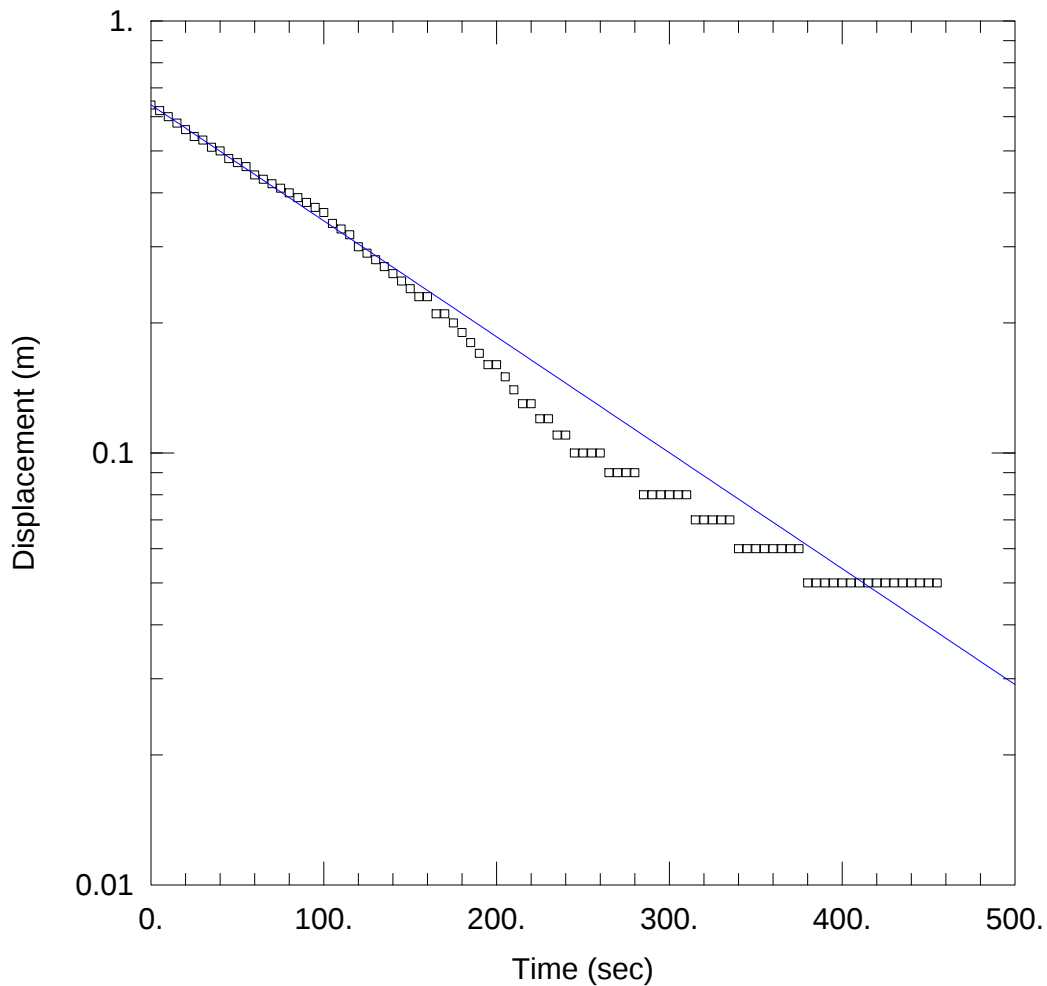
Slug Test
Aquifer Model: Confined
Solution Method: Bouwer-Rice
ln(Re/rw): 3.608

VISUAL ESTIMATION RESULTS

Estimated Parameters

<u>Parameter</u>	<u>Estimate</u>	
K	0.001133	cm/sec
y0	0.6391	m

$$T = K \cdot b = 0.0725 \text{ cm}^2/\text{sec}$$



WELL TEST ANALYSIS

Data Set: N:\...\MW12-2_LoggerData.aqt

Date: 12/13/12

Time: 14:47:38

PROJECT INFORMATION

Company: Golder Associates

Client: Orillia Historic Waste Sites

Project: 11-1170-0079

Location: Orillia

Test Well: MW12-2

Test Date: 11-Sept-2012

AQUIFER DATA

Saturated Thickness: 0.64 m

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MW12-2)

Initial Displacement: 0.639 m

Static Water Column Height: 0.189 m

Total Well Penetration Depth: 5.49 m

Screen Length: 3.05 m

Casing Radius: 0.0255 m

Well Radius: 0.0255 m

SOLUTION

Aquifer Model: Confined

Solution Method: Bouwer-Rice

K = 0.001133 cm/sec

y0 = 0.6391 m



APPENDIX I

Groundwater Elevations

Table I-1
Groundwater Elevations
Wastewater Treatment Centre and Snow Dump

Well ID	Ground Elevation (masl)	Monitoring Pipe Elevation (masl)	Depth to Bottom of Well (mbgs)	Base of Well Elevation (masl)	Top of Screen Elevation (masl)	Date	Depth to Groundwater (mbmp)	Depth to Groundwater (mbgs)	Groundwater Elevation (masl)
GP12-1	223.17	224.13	3.05	220.12	221.64	8/23/2012	dry	dry	NA
						9/11/2012	dry	dry	NA
						1/9/2013	dry	dry	NA
MW12-2	223.14	224.32	5.49	217.65	220.70	8/1/2012	5.30	4.13	219.02
						8/23/2012	5.21	4.03	219.11
						8/27/2012	5.23	4.06	219.09
						9/11/2012	5.30	4.13	219.02
GP12-2	223.14	224.11	2.90	220.24	221.76	8/23/2012	dry	dry	NA
						8/27/2012	dry	dry	NA
						9/11/2012	dry	dry	NA
						1/9/2013	dry	dry	NA
GP12-3	221.72	222.74	3.81	217.91	220.96	8/23/2012	3.72	2.70	219.02
						8/27/2012	3.78	2.77	218.96
						9/11/2012	3.74	2.72	219.00
						1/9/2013	3.12	2.11	219.62

Notes:
masl
mbmp
mbgs



APPENDIX J

Laboratory Certificates of Analysis - Soil

CLIENT NAME: GOLDER ASSOCIATES LTD.
121 COMMERCE PARK DRIVE, UNIT L
BARRIE, ON L4N8X1
(705) 722-4492

ATTENTION TO: Christi Groves

PROJECT NO: 11-1170-0079

AGAT WORK ORDER: 12T624906

SOIL ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Jacky Takeuchi, BScH (Chem Eng), BSc (Bio), C.Chem, Laboratory Manager

DATE REPORTED: Aug 03, 2012

PAGES (INCLUDING COVER): 14

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



Certificate of Analysis

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE SAMPLED: Jul 25, 2012

DATE RECEIVED: Jul 27, 2012

DATE REPORTED: Aug 03, 2012

SAMPLE TYPE: Soil

Parameter	Unit	G / S	RDL	GP12-1-3	BH12-2-3	GP12-3-2	GP12-3-3
				3562206	3562207	3562213	3562224
Antimony	µg/g	40	0.8	<0.8	15.9	<0.8	<0.8
Arsenic	µg/g	18	1	1	31	2	2
Barium	µg/g	670	2	72	697	73	52
Beryllium	µg/g	8	0.5	<0.5	1.0	<0.5	<0.5
Boron	µg/g	120	5	6	35	6	5
Boron (Hot Water Soluble)	µg/g	2	0.10	0.57	0.80	0.30	0.41
Cadmium	µg/g	1.9	0.5	<0.5	9.5	0.6	<0.5
Chromium	µg/g	160	2	19	84	19	13
Cobalt	µg/g	80	0.5	6.2	22.2	4.8	3.8
Copper	µg/g	230	1	18	406	25	17
Lead	µg/g	120	1	8	3550	236	27
Molybdenum	µg/g	40	0.5	<0.5	9.7	1.1	<0.5
Nickel	µg/g	270	1	12	102	11	8
Selenium	µg/g	5.5	0.4	<0.4	3.0	<0.4	0.5
Silver	µg/g	40	0.2	<0.2	2.5	<0.2	<0.2
Thallium	µg/g	3.3	0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	33	0.5	<0.5	0.8	<0.5	<0.5
Vanadium	µg/g	86	1	35	36	21	22
Zinc	µg/g	340	5	35	1280	74	49
Chromium VI	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2
Cyanide	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	3.9	0.10	<0.10	1.67	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	1.4	0.005	0.122	0.239	0.284	0.373
Sodium Adsorption Ratio	NA	12	NA	0.261	0.225	3.04	2.18
pH, 2:1 CaCl2 Extraction	pH Units		NA	7.26	7.31	7.21	7.23

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(ICC) - Current

3562206-3562224 EC & SAR were determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract prepared at 2:1 ratio.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - PAHs (Soil)						
DATE SAMPLED: Jul 25, 2012		DATE RECEIVED: Jul 27, 2012		DATE REPORTED: Aug 03, 2012		SAMPLE TYPE: Soil
Parameter	Unit	G / S	RDL	GP12-1-3 3562206	BH12-2-5 3562209	GP12-3-2 3562213
Naphthalene	µg/g	9.6	0.05	<0.05	<0.05	0.10
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	21	0.05	<0.05	<0.05	0.13
Fluorene	µg/g	62	0.05	<0.05	<0.05	0.29
Phenanthrene	µg/g	12	0.05	<0.05	<0.05	2.0
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	0.49
Fluoranthene	µg/g	9.6	0.05	<0.05	<0.05	1.8
Pyrene	µg/g	96	0.05	<0.05	<0.05	1.3
Benz(a)anthracene	µg/g	0.96	0.05	<0.05	<0.05	0.88
Chrysene	µg/g	9.6	0.05	<0.05	<0.05	0.60
Benzo(b)fluoranthene	µg/g	0.96	0.05	<0.05	<0.05	0.75
Benzo(k)fluoranthene	µg/g	0.96	0.05	<0.05	<0.05	0.20
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	0.64
Indeno(1,2,3-cd)pyrene	µg/g	0.76	0.05	<0.05	<0.05	0.32
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	0.07
Benzo(g,h,i)perylene	µg/g	9.6	0.05	<0.05	<0.05	0.28
2-and 1-methyl Naphthalene	µg/g	30	0.05	<0.05	<0.05	0.14
Moisture Content	%		0.1	20.8	15.1	22.1
Surrogate	Unit	Acceptable Limits				
Chrysene-d12	%	50-140		77	67	76

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(ICC) - Current

3562206-3562213 Results are based on the dry weight of the soil.

Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By:

Jacky Takewhi



Certificate of Analysis

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Soil)

DATE SAMPLED: Jul 25, 2012

DATE RECEIVED: Jul 27, 2012

DATE REPORTED: Aug 03, 2012

SAMPLE TYPE: Soil

GP12-3-3 3562224				
Parameter	Unit	G / S	RDL	
F1 (C6 to C10)	µg/g		5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5
F2 (C10 to C16)	µg/g	230	10	<10
F3 (C16 to C34)	µg/g	1700	50	<50
F4 (C34 to C50)	µg/g	3300	50	<50
Gravimetric Heavy Hydrocarbons	µg/g	3300	50	NA
Moisture Content	%		0.1	15.3
Surrogate	Unit	Acceptable Limits		
Terphenyl	%	60-140	93	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(ICC) - Current

3562224

Results are based on sample dry weight.

The C6-C10 fraction is calculated using toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.

Total C6 - C50 results are corrected for BTEX contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Fractions 1-4 are quantified without the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE SAMPLED: Jul 25, 2012

DATE RECEIVED: Jul 27, 2012

DATE REPORTED: Aug 03, 2012

SAMPLE TYPE: Soil

Parameter	Unit	G / S	RDL	GP12-1-3	BH12-2-5
				3562206	3562209
F1 (C6 to C10)	µg/g		5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5
F2 (C10 to C16)	µg/g	230	10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g	230	10	<10	<10
F3 (C16 to C34)	µg/g	1700	50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g	1700	50	<50	<50
F4 (C34 to C50)	µg/g	3300	50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	3300	50	NA	NA
Moisture Content	%		0.1	20.8	15.1
Surrogate	Unit	Acceptable Limits			
Terphenyl	%	60-140		76	76

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(ICC) - Current

3562206-3562209 Results are based on sample dry weight.

The C6-C10 fraction is calculated using toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.

Total C6 - C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 + nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Soil)									
DATE SAMPLED: Jul 25, 2012		DATE RECEIVED: Jul 27, 2012			DATE REPORTED: Aug 03, 2012			SAMPLE TYPE: Soil	
Parameter	Unit	G / S	RDL	GP12-1-3 3562206	BH12-2-3 3562207	BH12-2-5 3562209	BH12-2-7 3562211	GP12-3-2 3562213	GP12-3-3 3562224
Dichlorodifluoromethane	µg/g	16	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.032	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Acetone	ug/g	16	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.064	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	1.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	1.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	1.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	0.47	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	70	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	1.9	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.47	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	6.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.21	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.32	0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.16	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.55	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	1.5	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	31	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Toluene	ug/g	6.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Dibromochloromethane	ug/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	1.9	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.087	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	1.1	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Bromoform	ug/g	0.61	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Styrene	ug/g	34	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Certified By:

Jacky Takewhi



Certificate of Analysis

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Soil)									
DATE SAMPLED: Jul 25, 2012			DATE RECEIVED: Jul 27, 2012			DATE REPORTED: Aug 03, 2012			SAMPLE TYPE: Soil
Parameter	Unit	G / S	RDL	GP12-1-3 3562206	BH12-2-3 3562207	BH12-2-5 3562209	BH12-2-7 3562211	GP12-3-2 3562213	GP12-3-3 3562224
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	9.6	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	1.2	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Xylene Mixture	ug/g	26	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene	µg/g	0.059	0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
n-Hexane	µg/g	46	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	20.8	23.3	15.1	15.9	22.1	15.3
Surrogate	Unit	Acceptable Limits							
Toluene-d8	% Recovery	50-140		103	101	107	108	111	107
4-Bromofluorobenzene	% Recovery	50-140		81	81	90	84	85	85

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(ICC) - Current

3562206-3562224 The sample was analysed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.

Certified By:



Guideline Violation

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
3562207	BH12-2-3	T2(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Arsenic	18	31
3562207	BH12-2-3	T2(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Barium	670	697
3562207	BH12-2-3	T2(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Cadmium	1.9	9.5
3562207	BH12-2-3	T2(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Copper	230	406
3562207	BH12-2-3	T2(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Lead	120	3550
3562207	BH12-2-3	T2(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Zinc	340	1280
3562213	GP12-3-2	T2(ICC) - Current	O. Reg. 153(511) - Metals & Inorganics (Soil)	Lead	120	236
3562213	GP12-3-2	T2(ICC) - Current	O. Reg. 153(511) - PAHs (Soil)	Benzo(a)pyrene	0.3	0.64

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T624906

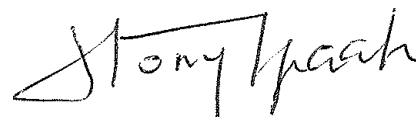
PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Soil Analysis															
RPT Date: Aug 03, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	1	3562206	< 0.8	< 0.8	0.0%	< 0.8	112%	70%	130%	87%	80%	120%	86%	70%	130%
Arsenic	1	3562206	1	1	0.0%	< 1	101%	70%	130%	113%	80%	120%	113%	70%	130%
Barium	1	3562206	72	70	2.8%	< 2	100%	70%	130%	103%	80%	120%	99%	70%	130%
Beryllium	1	3562206	< 0.5	< 0.5	0.0%	< 0.5	89%	70%	130%	112%	80%	120%	106%	70%	130%
Boron	1	3562206	6	6	0.0%	< 5	79%	70%	130%	109%	80%	120%	104%	70%	130%
Boron (Hot Water Soluble)	1		0.26	0.26	2.3%	< 0.10	81%	60%	140%	90%	70%	130%	97%	60%	140%
Cadmium	1	3562206	< 0.5	< 0.5	0.0%	< 0.5	100%	70%	130%	105%	80%	120%	103%	70%	130%
Chromium	1	3562206	19	18	5.4%	< 2	99%	70%	130%	107%	80%	120%	108%	70%	130%
Cobalt	1	3562206	6.2	6.0	3.3%	< 0.5	96%	70%	130%	108%	80%	120%	105%	70%	130%
Copper	1	3562206	18	17	5.7%	< 1	98%	70%	130%	109%	80%	120%	101%	70%	130%
Lead	1	3562206	8	8	0.0%	< 1	98%	70%	130%	99%	80%	120%	92%	70%	130%
Molybdenum	1	3562206	< 0.5	< 0.5	0.0%	< 0.5	102%	70%	130%	111%	80%	120%	109%	70%	130%
Nickel	1	3562206	12	12	0.0%	< 1	100%	70%	130%	106%	80%	120%	101%	70%	130%
Selenium	1	3562206	< 0.4	< 0.4	0.0%	< 0.4	103%	70%	130%	105%	80%	120%	103%	70%	130%
Silver	1	3562206	< 0.2	< 0.2	0.0%	< 0.2	83%	70%	130%	105%	80%	120%	102%	70%	130%
Thallium	1	3562206	< 0.4	< 0.4	0.0%	< 0.4	104%	70%	130%	108%	80%	120%	98%	70%	130%
Uranium	1	3562206	< 0.5	< 0.5	0.0%	< 0.5	99%	70%	130%	106%	80%	120%	101%	70%	130%
Vanadium	1	3562206	35	36	2.8%	< 1	100%	70%	130%	105%	80%	120%	107%	70%	130%
Zinc	1	3562206	35	35	0.0%	< 5	96%	70%	130%	110%	80%	120%	112%	70%	130%
Chromium VI	1		< 0.2	< 0.2	0.0%	< 0.2	98%	70%	130%	92%	80%	120%	95%	70%	130%
Cyanide	1		< 0.040	< 0.040	0.0%	< 0.040	100%	70%	130%	107%	80%	120%	110%	70%	130%
Mercury	1	3562206	< 0.10	< 0.10	0.0%	< 0.10	99%	70%	130%	95%	80%	120%	95%	70%	130%
Electrical Conductivity (2:1)	1	3562206	0.122	0.121	0.8%	< 0.005	100%	90%	110%	NA			NA		
Sodium Adsorption Ratio	1	3562206	0.261	0.257	1.6%	NA	NA			NA			NA		
pH, 2:1 CaCl2 Extraction	1		7.41	7.58	2.3%	NA	98%	90%	110%	NA			NA		

Comments: NA signifies Not Applicable.

Certified By:



Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Trace Organics Analysis															
RPT Date: Aug 03, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	1		< 0.05	< 0.05	0.0%	< 0.05	121%	50%	140%	80%	50%	140%	76%	50%	140%
Vinyl Chloride	1		< 0.02	< 0.02	0.0%	< 0.02	124%	50%	140%	98%	50%	140%	93%	50%	140%
Bromomethane	1		< 0.05	< 0.05	0.0%	< 0.05	116%	50%	140%	114%	50%	140%	99%	50%	140%
Trichlorofluoromethane	1		< 0.05	< 0.05	0.0%	< 0.05	121%	50%	140%	100%	50%	140%	99%	50%	140%
Acetone	1		< 0.50	< 0.50	0.0%	< 0.50	119%	50%	140%	110%	50%	140%	108%	50%	140%
1,1-Dichloroethylene	1		< 0.05	< 0.05	0.0%	< 0.05	95%	50%	140%	84%	60%	130%	92%	50%	140%
Methylene Chloride	1		< 0.05	< 0.05	0.0%	< 0.05	111%	50%	140%	117%	60%	130%	114%	50%	140%
Trans- 1,2-Dichloroethylene	1		< 0.05	< 0.05	0.0%	< 0.05	120%	50%	140%	97%	60%	130%	89%	50%	140%
Methyl tert-butyl Ether	1		< 0.05	< 0.05	0.0%	< 0.05	95%	50%	140%	73%	60%	130%	76%	50%	140%
1,1-Dichloroethane	1		< 0.02	< 0.02	0.0%	< 0.02	113%	50%	140%	101%	60%	130%	101%	50%	140%
Methyl Ethyl Ketone	1		< 0.50	< 0.50	0.0%	< 0.50	79%	50%	140%	86%	50%	140%	87%	50%	140%
Cis- 1,2-Dichloroethylene	1		< 0.02	< 0.02	0.0%	< 0.02	104%	50%	140%	82%	60%	130%	95%	50%	140%
Chloroform	1		< 0.04	< 0.04	0.0%	< 0.04	118%	50%	140%	99%	60%	130%	94%	50%	140%
1,2-Dichloroethane	1		< 0.03	< 0.03	0.0%	< 0.03	110%	50%	140%	92%	60%	130%	99%	50%	140%
1,1,1-Trichloroethane	1		< 0.05	< 0.05	0.0%	< 0.05	112%	50%	140%	92%	60%	130%	93%	50%	140%
Carbon Tetrachloride	1		< 0.05	< 0.05	0.0%	< 0.05	114%	50%	140%	101%	60%	130%	97%	50%	140%
Benzene	1		< 0.02	< 0.02	0.0%	< 0.02	118%	50%	140%	85%	60%	130%	86%	50%	140%
1,2-Dichloropropane	1		< 0.03	< 0.03	0.0%	< 0.03	120%	50%	140%	85%	60%	130%	99%	50%	140%
Trichloroethylene	1		< 0.03	< 0.03	0.0%	< 0.03	103%	50%	140%	111%	60%	130%	102%	50%	140%
Bromodichloromethane	1		< 0.05	< 0.05	0.0%	< 0.05	121%	50%	140%	95%	60%	130%	92%	50%	140%
Methyl Isobutyl Ketone	1		< 0.50	< 0.50	0.0%	< 0.50	92%	50%	140%	97%	50%	140%	91%	50%	140%
1,1,2-Trichloroethane	1		< 0.04	< 0.04	0.0%	< 0.04	119%	50%	140%	93%	60%	130%	102%	50%	140%
Toluene	1		< 0.05	< 0.05	0.0%	< 0.05	120%	50%	140%	102%	60%	130%	95%	50%	140%
Dibromochloromethane	1		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	107%	60%	130%	111%	50%	140%
Ethylene Dibromide	1		< 0.04	< 0.04	0.0%	< 0.04	101%	50%	140%	98%	60%	130%	87%	50%	140%
Tetrachloroethylene	1		< 0.05	< 0.05	0.0%	< 0.05	109%	50%	140%	101%	60%	130%	104%	50%	140%
1,1,1,2-Tetrachloroethane	1		< 0.04	< 0.04	0.0%	< 0.04	NA	50%	140%	106%	60%	130%	105%	50%	140%
Chlorobenzene	1		< 0.05	< 0.05	0.0%	< 0.05	112%	50%	140%	96%	60%	130%	98%	50%	140%
Ethylbenzene	1		< 0.05	< 0.05	0.0%	< 0.05	117%	50%	140%	84%	60%	130%	82%	50%	140%
m & p-Xylene	1		< 0.05	< 0.05	0.0%	< 0.05	114%	50%	140%	87%	60%	130%	89%	50%	140%
Bromoform	1		< 0.05	< 0.05	0.0%	< 0.05	110%	50%	140%	87%	60%	130%	94%	50%	140%
Styrene	1		< 0.05	< 0.05	0.0%	< 0.05	102%	50%	140%	77%	60%	130%	73%	50%	140%
1,1,2,2-Tetrachloroethane	1		< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	76%	60%	130%	70%	50%	140%
o-Xylene	1		< 0.05	< 0.05	0.0%	< 0.05	111%	50%	140%	84%	60%	130%	94%	50%	140%
1,3-Dichlorobenzene	1		< 0.05	< 0.05	0.0%	< 0.05	93%	50%	140%	77%	60%	130%	81%	50%	140%
1,4-Dichlorobenzene	1		< 0.05	< 0.05	0.0%	< 0.05	110%	50%	140%	84%	60%	130%	92%	50%	140%
1,2-Dichlorobenzene	1		< 0.05	< 0.05	0.0%	< 0.05	114%	50%	140%	79%	60%	130%	87%	50%	140%
Xylene Mixture	1		< 0.05	< 0.05	0.0%	< 0.05	111%	50%	140%	84%	60%	130%	94%	50%	140%
1,3-Dichloropropene	1		< 0.04	< 0.04	0.0%	< 0.04	115%	50%	140%	77%	60%	130%	73%	50%	140%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T624906

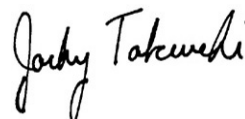
PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Trace Organics Analysis (Continued)

RPT Date: Aug 03, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
n-Hexane	1		< 0.05	< 0.05	0.0%	< 0.05	NA	50%	140%	84%	60%	130%	90%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
F1 (C6 to C10)	1		< 25	< 25	0.0%	< 5	91%	60%	140%	80%	80%	120%	86%	60%	140%
F2 (C10 to C16)	1		< 10	< 10	0.0%	< 10	103%	60%	140%	81%	80%	120%	93%	60%	140%
F3 (C16 to C34)	1		< 50	< 50	0.0%	< 50	100%	60%	140%	88%	80%	120%	115%	60%	140%
F4 (C34 to C50)	1		< 50	< 50	0.0%	< 50	99%	60%	140%	101%	80%	120%	94%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	1		< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	78%	50%	140%	82%	50%	140%
Acenaphthylene	1		< 0.05	< 0.05	0.0%	< 0.05	97%	50%	140%	72%	50%	140%	74%	50%	140%
Acenaphthene	1		< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	71%	50%	140%	73%	50%	140%
Fluorene	1		< 0.05	< 0.05	0.0%	< 0.05	98%	50%	140%	74%	50%	140%	79%	50%	140%
Phenanthrene	1		< 0.05	< 0.05	0.0%	< 0.05	94%	50%	140%	75%	50%	140%	84%	50%	140%
Anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	99%	50%	140%	80%	50%	140%	82%	50%	140%
Fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	98%	50%	140%	73%	50%	140%	93%	50%	140%
Pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	100%	50%	140%	74%	50%	140%	90%	50%	140%
Benz(a)anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	115%	50%	140%	86%	50%	140%	106%	50%	140%
Chrysene	1		< 0.05	< 0.05	0.0%	< 0.05	112%	50%	140%	82%	50%	140%	90%	50%	140%
Benzo(b)fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	72%	50%	140%	86%	50%	140%	69%	50%	140%
Benzo(k)fluoranthene	1		< 0.05	< 0.05	0.0%	< 0.05	100%	50%	140%	68%	50%	140%	72%	50%	140%
Benzo(a)pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	127%	50%	140%	70%	50%	140%	87%	50%	140%
Indeno(1,2,3-cd)pyrene	1		< 0.05	< 0.05	0.0%	< 0.05	123%	50%	140%	80%	50%	140%	93%	50%	140%
Dibenz(a,h)anthracene	1		< 0.05	< 0.05	0.0%	< 0.05	117%	50%	140%	83%	50%	140%	95%	50%	140%
Benzo(g,h,i)perylene	1		< 0.05	< 0.05	0.0%	< 0.05	111%	50%	140%	75%	50%	140%	77%	50%	140%
2-and 1-methyl Naphthalene	1		< 0.05	< 0.05	0.0%	< 0.05	96%	50%	140%	72%	50%	140%	75%	50%	140%

Certified By:



Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron (Hot Water Soluble)	MET-93-6104	EPA SW 846 6010C; MSA, Part 3, Ch.21	ICP/OES
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium VI	INOR-93-6029	SM 3500 B; MSA Part 3, Ch. 25	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE CN-3015 & E 3009 A; SM 4500 CN	TECHNICON AUTO ANALYZER
Mercury	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6036	McKeague 4.12, SM 2510 B	EC METER
Sodium Adsorption Ratio	INOR-93-6007	McKeague 4.12 & 3.26 & EPA SW-846 6010C	ICP/OES
pH, 2:1 CaCl ₂ Extraction	INOR-93-6031	MSA part 3 & SM 4500-H+ B	PH METER

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Acenaphthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluorene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Phenanthrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Chrysene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
Moisture Content	Org 5506	EPA SW-846 3540 & 8270	BALANCE
Chrysene-d12	ORG-91-5106	EPA SW846 3541 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method, SW846 5035	P & T GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method, SW846 5035	P & T GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	GRAVIMETRIC ANALYSIS
Moisture Content	VOL-91-5009	CCME Tier 1 Method, SW846 5035,8015	BALANCE
Terphenyl	VOL-91-5009		GC/FID
F1 (C6 to C10)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34)	VOL-91-5009	CCME Tier 1 Method	GC / FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	CCME Tier 1 Method	GC / FID
F4 (C34 to C50)	VOL-91-5009	CCME Tier 1 Method	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5009	CCME Tier 1 Method	GRAVIMETRIC ANALYSIS
Moisture Content	VOL-91-5009	CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009		GC/FID
Dichlorodifluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Acetone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T624906

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Cis- 1,2-Dichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Benzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Styrene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	EPA SW-846 5035 & 8260	(P&T)GC/MS
Moisture Content	VOL-91-5002	MOE E3139	BALANCE



APPENDIX K

Laboratory Certificates of Analysis - Groundwater

CLIENT NAME: GOLDER ASSOCIATES LTD.
121 COMMERCE PARK DRIVE, UNIT L
BARRIE, ON L4N8X1
(705) 722-4492

ATTENTION TO: Christi Groves

PROJECT NO: 11-1170-0079

AGAT WORK ORDER: 12T635314

TRACE ORGANICS REVIEWED BY: Inga Kuzmina, Organic Laboratory Supervisor

WATER ANALYSIS REVIEWED BY: Mike Muneswar, BSc (Chem), Senior Inorganic Analyst

DATE REPORTED: Sep 05, 2012

PAGES (INCLUDING COVER): 17

VERSION*: 2

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

***NOTES**

VERSION 2:

Revised Report: Including Alkalinity (December 21st 2012)

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



Certificate of Analysis

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - PAHs (Water)

DATE RECEIVED: 2012-08-28

DATE REPORTED: 2012-09-05

		SAMPLE DESCRIPTION:		MW12-2
		SAMPLE TYPE:		Water
		DATE SAMPLED:		8/27/2012
Parameter	Unit	G / S	RDL	3652347
Naphthalene	µg/L	11	0.20	0.27
Acenaphthylene	µg/L	1	0.20	<0.20
Acenaphthene	µg/L	4.1	0.20	<0.20
Fluorene	µg/L	120	0.20	<0.20
Phenanthrene	µg/L	1	0.10	0.44
Anthracene	µg/L	2.4	0.10	0.14
Fluoranthene	µg/L	0.41	0.20	<0.20
Pyrene	µg/L	4.1	0.20	<0.20
Benz(a)anthracene	µg/L	1.0	0.20	<0.20
Chrysene	µg/L	0.1	0.10	<0.10
Benzo(b)fluoranthene	µg/L	0.1	0.10	<0.10
Benzo(k)fluoranthene	µg/L	0.1	0.10	<0.10
Benzo(a)pyrene	µg/L	0.01	0.01	<0.01
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20
Dibenz(a,h)anthracene	µg/L	0.2	0.20	<0.20
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20
2-and 1-methyl Naphthalene	µg/L	3.2	0.20	0.68
Surrogate	Unit	Acceptable Limits		
Chrysene-d12	%	50-140	103	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current
3652347-3652397 Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&(j)Fluoranthene isomers because the isomers co-elute on the GC column.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)

DATE RECEIVED: 2012-08-28

DATE REPORTED: 2012-09-05

		SAMPLE DESCRIPTION:		MW12-2
		SAMPLE TYPE:		Water
		DATE SAMPLED:		8/27/2012
Parameter	Unit	G / S	RDL	3652347
F1 (C6 to C10)	µg/L		25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25
F2 (C10 to C16)	µg/L	150	100	<100
F2 (C10 to C16) minus Naphthalene	µg/L	150	100	<100
F3 (C16 to C34)	µg/L	500	100	110
F3 (C16 to C34) minus PAHs	µg/L	500	100	110
F4 (C34 to C50)	µg/L	500	100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA
Surrogate	Unit	Acceptable Limits		
Terphenyl	%	60-140		110

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current

3652347-3652397 The C6-C10 fraction is calculated using Toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.

Total C6-C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2012-08-28

DATE REPORTED: 2012-09-05

		SAMPLE DESCRIPTION: MW12-2			Dup1
		SAMPLE TYPE: Water			Water
		DATE SAMPLED: 8/27/2012			8/27/2012
Parameter	Unit	G / S	RDL	3652347	3652415
Dichlorodifluoromethane	µg/L	590	0.40	<0.40	<0.40
Vinyl Chloride	µg/L	0.5	0.34	<0.34	<0.34
Bromomethane	µg/L	0.89	0.40	<0.40	<0.40
Trichlorofluoromethane	µg/L	150	0.80	<0.80	<0.80
Acetone	µg/L	2700	2.0	<2.0	<2.0
1,1-Dichloroethylene	µg/L	1.6	0.60	<0.60	<0.60
Methylene Chloride	µg/L	50	0.60	<0.60	<0.60
trans- 1,2-Dichloroethylene	µg/L	1.6	0.40	<0.40	<0.40
Methyl tert-butyl ether	µg/L	15	0.40	<0.40	<0.40
1,1-Dichloroethane	µg/L	5	0.60	<0.60	<0.60
Methyl Ethyl Ketone	µg/L	1800	2.0	<2.0	<2.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.40	<0.40	<0.40
Chloroform	µg/L	2.4	0.40	<0.40	<0.40
1,2-Dichloroethane	µg/L	1.6	0.40	<0.40	<0.40
1,1,1-Trichloroethane	µg/L	200	0.60	<0.60	<0.60
Carbon Tetrachloride	µg/L	0.79	0.40	<0.40	<0.40
Benzene	µg/L	5.0	0.40	<0.40	<0.40
1,2-Dichloropropane	µg/L	5	0.40	<0.40	<0.40
Trichloroethylene	µg/L	1.6	0.40	<0.40	<0.40
Bromodichloromethane	µg/L	16	0.40	<0.40	<0.40
Methyl Isobutyl Ketone	µg/L	640	2.0	<2.0	<2.0
1,1,2-Trichloroethane	µg/L	4.7	0.40	<0.40	<0.40
Toluene	µg/L	24	0.40	<0.40	<0.40
Dibromochloromethane	µg/L	25	0.20	<0.20	<0.20
Ethylene Dibromide	µg/L	0.2	0.20	<0.20	<0.20
Tetrachloroethylene	µg/L	1.6	0.40	<0.40	<0.40
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.20	<0.20	<0.20
Chlorobenzene	µg/L	30	0.20	<0.20	<0.20
Ethylbenzene	µg/L	2.4	0.20	<0.20	<0.20
m & p-Xylene	µg/L		0.40	<0.40	<0.40
Bromoform	µg/L	25	0.20	<0.20	<0.20

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2012-08-28

DATE REPORTED: 2012-09-05

		SAMPLE DESCRIPTION: MW12-2			Dup1
		SAMPLE TYPE: Water			Water
		DATE SAMPLED: 8/27/2012			8/27/2012
Parameter	Unit	G / S	RDL	3652347	3652415
Styrene	µg/L	5.4	0.20	<0.20	<0.20
1,1,2,2-Tetrachloroethane	µg/L	1	0.20	<0.20	<0.20
o-Xylene	µg/L		0.20	<0.20	<0.20
1,3-Dichlorobenzene	µg/L	59	0.20	<0.20	<0.20
1,4-Dichlorobenzene	µg/L	1	0.20	<0.20	<0.20
1,2-Dichlorobenzene	µg/L	3	0.20	<0.20	<0.20
1,3-Dichloropropene	µg/L	0.5	0.60	<0.60	<0.60
Xylene Mixture	µg/L	300	0.40	<0.40	<0.40
n-Hexane	µg/L	51	0.40	<0.40	<0.40
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		82	83
4-Bromofluorobenzene	% Recovery	50-140		86	100

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ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2012-08-28

DATE REPORTED: 2012-09-05

Parameter	Unit	SAMPLE DESCRIPTION:		FieldBlank	TripBlank
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		8/27/2012	8/22/2012
		G / S	RDL	3652425	3652429
Dichlorodifluoromethane	µg/L	590	0.20	<0.20	<0.20
Vinyl Chloride	µg/L	0.5	0.17	<0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30	<0.30
Methylene Chloride	µg/L	50	0.30	<0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.20	<0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20	<0.20
Chloroform	µg/L	2.4	0.20	<0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.30	<0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20	<0.20
Benzene	µg/L	5.0	0.20	<0.20	<0.20
1,2-Dichloropropane	µg/L	5	0.20	<0.20	<0.20
Trichloroethylene	µg/L	1.6	0.20	<0.20	<0.20
Bromodichloromethane	µg/L	16	0.20	<0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20	<0.20
Toluene	µg/L	24	0.20	<0.20	<0.20
Dibromochloromethane	µg/L	25	0.10	<0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10	<0.10
Chlorobenzene	µg/L	30	0.10	<0.10	<0.10
Ethylbenzene	µg/L	2.4	0.10	<0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20	<0.20
Bromoform	µg/L	25	0.10	<0.10	<0.10

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ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Water)

DATE RECEIVED: 2012-08-28

DATE REPORTED: 2012-09-05

		SAMPLE DESCRIPTION:		FieldBlank	TripBlank
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		8/27/2012	8/22/2012
Parameter	Unit	G / S	RDL	3652425	3652429
Styrene	µg/L	5.4	0.10	<0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10	<0.10
o-Xylene	µg/L		0.10	<0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	<0.30
Xylene Mixture	µg/L	300	0.20	<0.20	<0.20
n-Hexane	µg/L	51	0.20	<0.20	<0.20
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		98	99
4-Bromofluorobenzene	% Recovery	50-140		89	87

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current
3652347 Dilution factor=2
The sample was diluted because it was foamy. The reporting detection limit has been corrected for the dilution factor used.
3652415 Dilution factor=2
The sample was diluted because it was foamy. The reporting detection limit has been corrected for the dilution factor used.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

Inorganic Chemistry (Water) - Revised Final Report

DATE RECEIVED: 2012-08-28

DATE REPORTED: 2012-09-05

		SAMPLE DESCRIPTION: MW12-2			Dup1
		SAMPLE TYPE: Water			Water
		DATE SAMPLED: 8/27/2012			8/27/2012
Parameter	Unit	G / S	RDL	3652347	3652415
Mercury	µg/L	0.29	0.02	<0.02	<0.02
Chromium VI	µg/L	25	5	<5	<5
Cyanide	µg/L	66	2	<2	<2
Sodium	µg/L	490000	500	92600	93700
Chloride	µg/L	790000	100	73700	74900
Nitrate as N	µg/L		50	<50	<50
Nitrite as N	µg/L		50	<50	<50
Electrical Conductivity	uS/cm		2	1650	1670
pH	pH Units		NA	7.92	8.01
Sodium Adsorption Ratio				1.62	1.63
Calcium	µg/L		50	205000	208000
Magnesium	µg/L		50	24300	24700
Ammonia as N	µg/L		20	49800	44400
Potassium	µg/L		50	20900	21200
Sulphate	µg/L		100	3750	3880
Alkalinity (as CaCO3)	mg/L		5	835	838

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current
3652347 Revised Dec 21, 2012.
Revision: This report replaces the Certificate of Analysis issued on SEp 05, 2012 - Values for Alkalinity are included in this report.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - Metals (Abbrev) (Water)

DATE RECEIVED: 2012-08-28

DATE REPORTED: 2012-09-05

SAMPLE DESCRIPTION: MW12-2					Dup1
SAMPLE TYPE: Water					Water
DATE SAMPLED: 8/27/2012					8/27/2012
Parameter	Unit	G / S	RDL	3652347	3652415
Barium	µg/L	1000	2.0	402	406
Beryllium	µg/L	4.0	0.5	<0.5	<0.5
Boron	µg/L	5000	10.0	1150	1160
Cadmium	µg/L	2.7	0.2	<0.2	<0.2
Chromium	µg/L	50	2.0	2.7	<2.0
Cobalt	µg/L	3.8	0.5	17.7	17.3
Copper	µg/L	87	1.0	2.9	3.3
Lead	µg/L	10	0.5	<0.5	0.5
Molybdenum	µg/L	70	0.5	2.2	2.2
Nickel	µg/L	100	1.0	22.1	22.2
Silver	µg/L	1.5	0.2	<0.2	<0.2
Thallium	µg/L	2	0.3	<0.3	<0.3
Uranium	µg/L	20	0.5	1.5	1.6
Vanadium	µg/L	6.2	0.4	0.5	0.5
Zinc	µg/L	1100	5.0	13.9	20.9

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current

Certified By:



AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

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ATTENTION TO: Christi Groves

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
3652353	MW12-5	T2(PGW) - Current	O. Reg. 153(511) - Metals (Abbrev) (Water)	Cobalt	3.8	5.5
3652367	MW12-6	T2(PGW) - Current	O. Reg. 153(511) - Metals (Abbrev) (Water)	Cobalt	3.8	4.3

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Trace Organics Analysis

RPT Date: Sep 05, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - VOCs (Water)															
Dichlorodifluoromethane	1		< 0.20	< 0.20	0.0%	< 0.20	84%	50%	140%	95%	50%	140%	93%	50%	140%
Vinyl Chloride	1		< 0.17	< 0.17	0.0%	< 0.17	91%	50%	140%	106%	50%	140%	105%	50%	140%
Bromomethane	1		< 0.20	< 0.20	0.0%	< 0.20	93%	50%	140%	108%	50%	140%	91%	50%	140%
Trichlorofluoromethane	1		< 0.40	< 0.40	0.0%	< 0.40	84%	50%	140%	99%	50%	140%	97%	50%	140%
Acetone	1		< 1.0	< 1.0	0.0%	< 1.0	119%	50%	140%	108%	50%	140%	118%	50%	140%
1,1-Dichloroethylene	1		< 0.30	< 0.30	0.0%	< 0.30	106%	50%	140%	101%	60%	130%	104%	50%	140%
Methylene Chloride	1		< 0.30	< 0.30	0.0%	< 0.30	108%	50%	140%	107%	60%	130%	88%	50%	140%
trans- 1,2-Dichloroethylene	1		< 0.20	< 0.20	0.0%	< 0.20	97%	50%	140%	101%	60%	130%	96%	50%	140%
Methyl tert-butyl ether	1		< 0.20	< 0.20	0.0%	< 0.20	109%	50%	140%	108%	60%	130%	107%	50%	140%
1,1-Dichloroethane	1		< 0.30	< 0.30	0.0%	< 0.30	110%	50%	140%	106%	60%	130%	96%	50%	140%
Methyl Ethyl Ketone	1		< 1.0	< 1.0	0.0%	< 1.0	NA	50%	140%	107%	50%	140%	100%	50%	140%
cis- 1,2-Dichloroethylene	1		< 0.20	< 0.20	0.0%	< 0.20	91%	50%	140%	104%	60%	130%	94%	50%	140%
Chloroform	1		< 0.20	< 0.20	0.0%	< 0.20	105%	50%	140%	106%	60%	130%	98%	50%	140%
1,2-Dichloroethane	1		< 0.20	< 0.20	0.0%	< 0.20	110%	50%	140%	109%	60%	130%	104%	50%	140%
1,1,1-Trichloroethane	1		< 0.30	< 0.30	0.0%	< 0.30	100%	50%	140%	102%	60%	130%	94%	50%	140%
Carbon Tetrachloride	1		< 0.20	< 0.20	0.0%	< 0.20	99%	50%	140%	102%	60%	130%	96%	50%	140%
Benzene	1		< 0.20	< 0.20	0.0%	< 0.20	115%	50%	140%	105%	60%	130%	98%	50%	140%
1,2-Dichloropropane	1		< 0.20	< 0.20	0.0%	< 0.20	107%	50%	140%	107%	60%	130%	100%	50%	140%
Trichloroethylene	1		< 0.20	< 0.20	0.0%	< 0.20	105%	50%	140%	103%	60%	130%	96%	50%	140%
Bromodichloromethane	1		< 0.20	< 0.20	0.0%	< 0.20	112%	50%	140%	104%	60%	130%	100%	50%	140%
Methyl Isobutyl Ketone	1		< 1.0	< 1.0	0.0%	< 1.0	79%	50%	140%	97%	50%	140%	98%	50%	140%
1,1,2-Trichloroethane	1		< 0.20	< 0.20	0.0%	< 0.20	110%	50%	140%	95%	60%	130%	90%	50%	140%
Toluene	1		< 0.20	< 0.20	0.0%	< 0.20	95%	50%	140%	88%	60%	130%	84%	50%	140%
Dibromochloromethane	1		< 0.10	< 0.10	0.0%	< 0.10	107%	50%	140%	92%	60%	130%	88%	50%	140%
Ethylene Dibromide	1		< 0.10	< 0.10	0.0%	< 0.10	105%	50%	140%	93%	60%	130%	88%	50%	140%
Tetrachloroethylene	1		< 0.20	< 0.20	0.0%	< 0.20	88%	50%	140%	86%	60%	130%	79%	50%	140%
1,1,1,2-Tetrachloroethane	1		< 0.10	< 0.10	0.0%	< 0.10	NA	50%	140%	88%	60%	130%	84%	50%	140%
Chlorobenzene	1		< 0.10	< 0.10	0.0%	< 0.10	97%	50%	140%	89%	60%	130%	84%	50%	140%
Ethylbenzene	1		< 0.10	< 0.10	0.0%	< 0.10	94%	50%	140%	88%	60%	130%	83%	50%	140%
m & p-Xylene	1		< 0.20	< 0.20	0.0%	< 0.20	98%	50%	140%	89%	60%	130%	82%	50%	140%
Bromoform	1		< 0.10	< 0.10	0.0%	< 0.10	105%	50%	140%	92%	60%	130%	88%	50%	140%
Styrene	1		< 0.10	< 0.10	0.0%	< 0.10	94%	50%	140%	92%	60%	130%	85%	50%	140%
1,1,2,2-Tetrachloroethane	1		< 0.10	< 0.10	0.0%	< 0.10	NA	50%	140%	93%	60%	130%	94%	50%	140%
o-Xylene	1		< 0.10	< 0.10	0.0%	< 0.10	100%	50%	140%	89%	60%	130%	82%	50%	140%
1,3-Dichlorobenzene	1		< 0.10	< 0.10	0.0%	< 0.10	107%	50%	140%	91%	60%	130%	87%	50%	140%
1,4-Dichlorobenzene	1		< 0.10	< 0.10	0.0%	< 0.10	103%	50%	140%	93%	60%	130%	85%	50%	140%
1,2-Dichlorobenzene	1		< 0.10	< 0.10	0.0%	< 0.10	110%	50%	140%	92%	60%	130%	90%	50%	140%
1,3-Dichloropropene	1		< 0.30	< 0.30	0.0%	< 0.30	107%	50%	140%	100%	60%	130%	97%	50%	140%
Xylene Mixture	1		< 0.20	< 0.20	0.0%	< 0.20	99%	50%	140%	89%	60%	130%	82%	50%	140%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Trace Organics Analysis (Continued)

RPT Date: Sep 05, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
n-Hexane	1		< 0.20	< 0.20	0.0%	< 0.20	NA	50%	140%	86%	60%	130%	71%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)															
F1 (C6 to C10)	1		< 25	< 25	0.0%	< 25	112%	60%	140%	94%	60%	140%	83%	60%	140%
F2 (C10 to C16)	1		< 100	< 100	0.0%	< 100	105%	60%	140%	72%	60%	140%	84%	60%	140%
F3 (C16 to C34)	1		< 100	< 100	0.0%	< 100	103%	60%	140%	98%	60%	140%	91%	60%	140%
F4 (C34 to C50)	1		< 100	< 100	0.0%	< 100	105%	60%	140%	88%	60%	140%	88%	60%	140%
O. Reg. 153(511) - PAHs (Water)															
Naphthalene	1		< 0.20	< 0.20	0.0%	< 0.20	77%	50%	140%	78%	50%	140%	72%	50%	140%
Acenaphthylene	1		< 0.20	< 0.20	0.0%	< 0.20	92%	50%	140%	90%	50%	140%	78%	50%	140%
Acenaphthene	1		< 0.20	< 0.20	0.0%	< 0.20	92%	50%	140%	89%	50%	140%	77%	50%	140%
Fluorene	1		< 0.20	< 0.20	0.0%	< 0.20	88%	50%	140%	90%	50%	140%	83%	50%	140%
Phenanthrene	1		< 0.10	< 0.10	0.0%	< 0.10	88%	50%	140%	96%	50%	140%	90%	50%	140%
Anthracene	1		< 0.10	< 0.10	0.0%	< 0.10	99%	50%	140%	105%	50%	140%	90%	50%	140%
Fluoranthene	1		< 0.20	< 0.20	0.0%	< 0.20	88%	50%	140%	99%	50%	140%	84%	50%	140%
Pyrene	1		< 0.20	< 0.20	0.0%	< 0.20	93%	50%	140%	92%	50%	140%	86%	50%	140%
Benz(a)anthracene	1		< 0.20	< 0.20	0.0%	< 0.20	105%	50%	140%	92%	50%	140%	86%	50%	140%
Chrysene	1		< 0.10	< 0.10	0.0%	< 0.10	120%	50%	140%	93%	50%	140%	96%	50%	140%
Benzo(b)fluoranthene	1		< 0.10	< 0.10	0.0%	< 0.10	95%	50%	140%	93%	50%	140%	85%	50%	140%
Benzo(k)fluoranthene	1		< 0.10	< 0.10	0.0%	< 0.10	129%	50%	140%	99%	50%	140%	114%	50%	140%
Benzo(a)pyrene	1		< 0.01	< 0.01	0.0%	< 0.01	121%	50%	140%	88%	50%	140%	89%	50%	140%
Indeno(1,2,3-cd)pyrene	1		< 0.20	< 0.20	0.0%	< 0.20	80%	50%	140%	73%	50%	140%	62%	50%	140%
Dibenz(a,h)anthracene	1		< 0.20	< 0.20	0.0%	< 0.20	79%	50%	140%	75%	50%	140%	72%	50%	140%
Benzo(g,h,i)perylene	1		< 0.20	< 0.20	0.0%	< 0.20	75%	50%	140%	73%	50%	140%	66%	50%	140%
2-and 1-methyl Naphthalene	1		< 0.20	< 0.20	0.0%	< 0.20	85%	50%	140%	80%	50%	140%	74%	50%	140%

Certified By:



Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Water Analysis															
RPT Date: Sep 05, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - Metals (Abbrev) (Water)

Barium	1	3652415	406	421	3.6%	< 2.0	110%	70%	130%	97%	80%	120%	96%	70%	130%
Beryllium	1	3652415	< 0.5	< 0.5	0.0%	< 0.5	110%	70%	130%	100%	80%	120%	101%	70%	130%
Boron	1	3652415	1160	1190	2.6%	< 10.0	103%	70%	130%	96%	80%	120%	97%	70%	130%
Cadmium	1	3652415	< 0.2	< 0.2	0.0%	< 0.2	100%	70%	130%	101%	80%	120%	114%	70%	130%
Chromium	1	3652415	< 2.0	< 2.0	0.0%	< 2.0	104%	70%	130%	100%	80%	120%	99%	70%	130%
Cobalt	1	3652415	17.3	17.1	1.2%	< 0.5	107%	70%	130%	101%	80%	120%	98%	70%	130%
Copper	1	3652415	3.3	3.3	0.0%	< 1.0	99%	70%	130%	94%	80%	120%	98%	70%	130%
Lead	1	3652415	0.5	0.5	0.0%	< 0.5	99%	70%	130%	101%	80%	120%	95%	70%	130%
Molybdenum	1	3652415	2.2	2.5	12.8%	< 0.5	95%	70%	130%	98%	80%	120%	99%	70%	130%
Nickel	1	3652415	22.2	22.6	1.8%	< 1.0	106%	70%	130%	100%	80%	120%	101%	70%	130%
Silver	1	3652415	< 0.2	< 0.2	0.0%	< 0.2	97%	70%	130%	110%	80%	120%	99%	70%	130%
Thallium	1	3652415	< 0.3	< 0.3	0.0%	< 0.3	100%	70%	130%	104%	80%	120%	97%	70%	130%
Uranium	1	3652415	1.6	1.6	0.0%	< 0.5	99%	70%	130%	97%	80%	120%	99%	70%	130%
Vanadium	1	3652415	0.5	0.6	18.2%	< 0.4	102%	70%	130%	100%	80%	120%	100%	70%	130%
Zinc	1	3652415	20.9	20.9	0.0%	< 5.0	105%	70%	130%	110%	80%	120%	100%	70%	130%

Inorganic Chemistry (Water) - Revised Final Report

Mercury	1	3652397	< 0.02	< 0.02	0.0%	< 0.02	101%	70%	130%	98%	80%	120%	95%	70%	130%
Chromium VI	1		< 5	< 5	0.0%	< 5	102%	70%	130%	104%	80%	120%	87%	70%	130%
Cyanide	1		< 2	< 2	0.0%	< 2	94%	70%	130%	99%	80%	120%	88%	70%	130%
Sodium	1	3652353	26400	26500	0.4%	< 500	96%	70%	130%	97%	80%	120%	103%	70%	130%
Chloride	1	3652353	3030	2950	2.7%	< 100	91%	70%	130%	96%	70%	130%	93%	70%	130%
Nitrate as N	1	3652353	< 50	< 50	0.0%	< 50	92%	70%	130%	96%	70%	130%	97%	70%	130%
Nitrite as N	1	3652353	< 50	< 50	0.0%	< 50	NA	70%	130%	99%	70%	130%	105%	70%	130%
Electrical Conductivity	1	3652415	1670	1660	0.6%	< 2	102%	90%	110%	NA			NA		
pH	1	3652415	8.01	8.02	0.1%	NA	100%	90%	110%	NA			NA		
Sodium Adsorption Ratio	1	3652353	0.547	0.546	0.0%	NA	NA	0%	0%	NA	0%	0%	NA	0%	0%
Calcium	1	3652353	120000	121000	0.8%	< 50	102%	90%	110%	104%	90%	110%	103%	70%	130%
Magnesium	1	3652353	33800	34100	0.9%	< 50	107%	90%	110%	108%	90%	110%	107%	70%	130%
Ammonia as N	1		99	87	12.9%	< 20	100%	90%	110%	99%	90%	110%	110%	80%	120%
Potassium	1	3652353	4920	4980	1.2%	< 50	100%	90%	110%	101%	90%	110%	98%	70%	130%
Sulphate	1	3652353	66100	66500	0.6%	< 100	93%	90%	110%	95%	90%	110%	97%	80%	120%
Alkalinity (as CaCO3)	1	3652415	838	836	0.2%	< 5	96%	80%	120%	NA	0%	0%		0%	0%

Comments: NA - Not Applicable.

Certified By:



Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL -91- 5010	MOE PHC- E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Acetone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T635314

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Mercury	MET-93-6100	EPA SW-846 7470 & 245.1	CVAAS
Chromium VI	INOR-93-6034	SM 3500-Cr B	SPECTROPHOTOMETER
Cyanide	INOR-93-6052	MOE METHOD CN- 3015 & SM 4500 CN- I	TECHNICON AUTO ANALYZER
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Electrical Conductivity	INOR-93-6000	SM 2510 B	PC TITRATE
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE
Sodium Adsorption Ratio			CALCULATION
Calcium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Magnesium	MET-93-6105	EPA SW 846-6010C & 200.7	ICP/OES
Ammonia as N	INOR-93-6002	AQ2 EPA-103A & SM 4500 NH3-F	AQ-2 DISCRETE ANALYZER
Potassium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Sulphate	INOR 1004	SM 4110 B	ION CHROMATOGRAPH
Alkalinity (as CaCO ₃)	INOR-93-6000	SM 2320 B	PC TITRATE
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS

CLIENT NAME: GOLDER ASSOCIATES LTD.
121 COMMERCE PARK DRIVE, UNIT L
BARRIE, ON L4N8X1
(705) 722-4492

ATTENTION TO: Christi Groves

PROJECT NO: 11-1170-0079

AGAT WORK ORDER: 12T640741

TRACE ORGANICS REVIEWED BY: Inga Kuzmina, Organic Laboratory Supervisor

WATER ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

DATE REPORTED: Sep 21, 2012

PAGES (INCLUDING COVER): 17

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



Certificate of Analysis

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - PAHs (Water)

DATE SAMPLED: Sep 11, 2012		DATE RECEIVED: Sep 12, 2012		DATE REPORTED: Sep 21, 2012		SAMPLE TYPE: Water	
Parameter	Unit	G / S	RDL	MW12-2 3698718			
Naphthalene	µg/L	11	0.20	<0.20			
Acenaphthylene	µg/L	1	0.20	<0.20			
Acenaphthene	µg/L	4.1	0.20	<0.20			
Fluorene	µg/L	120	0.20	<0.20			
Phenanthrene	µg/L	1	0.10	0.12			
Anthracene	µg/L	2.4	0.10	<0.10			
Fluoranthene	µg/L	0.41	0.20	<0.20			
Pyrene	µg/L	4.1	0.20	<0.20			
Benz(a)anthracene	µg/L	1.0	0.20	<0.20			
Chrysene	µg/L	0.1	0.10	<0.10			
Benzo(b)fluoranthene	µg/L	0.1	0.10	<0.10			
Benzo(k)fluoranthene	µg/L	0.1	0.10	<0.10			
Benzo(a)pyrene	µg/L	0.01	0.01	<0.01			
Indeno(1,2,3-cd)pyrene	µg/L	0.2	0.20	<0.20			
Dibenz(a,h)anthracene	µg/L	0.2	0.20	<0.20			
Benzo(g,h,i)perylene	µg/L	0.2	0.20	<0.20			
2-and 1-methyl Naphthalene	µg/L	3.2	0.20	0.38			
Surrogate	Unit	Acceptable Limits					
Chrysene-d12	%	50-140	70				

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2/PGWA - Current

3698718-3698777 Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&

rs because the isomers co-elute on the GC column.

Certified By:



AGAT Laboratories

Certificate of Analysis

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - PHCs F1 - F4 (-BTEX) (Water)

DATE SAMPLED: Sep 11, 2012

DATE RECEIVED: Sep 12, 2012

DATE REPORTED: Sep 21, 2012

SAMPLE TYPE: Water

Parameter	Unit	G / S	RDL	FieldBlank
				3698792
F1 (C6 to C10)	µg/L		25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25
F2 (C10 to C16)	µg/L	150	100	<100
F3 (C16 to C34)	µg/L	500	100	<100
F4 (C34 to C50)	µg/L	500	100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA
Surrogate	Unit	Acceptable Limits		
Terphenyl	%	60-140		78

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current

3698792

The C6-C10 fraction is calculated using Toluene response factor.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and nC34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.
Total C6-C50 results are corrected for BTEX and PAH contributions.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified without the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)

DATE SAMPLED: Sep 11, 2012

DATE RECEIVED: Sep 12, 2012

DATE REPORTED: Sep 21, 2012

SAMPLE TYPE: Water

Parameter	Unit	G / S	RDL	MW12-2
				3698718
F1 (C6 to C10)	µg/L		25	<25
F1 (C6 to C10) minus BTEX	µg/L	750	25	<25
F2 (C10 to C16)	µg/L	150	100	<100
F2 (C10 to C16) minus Naphthalene	µg/L	150	100	<100
F3 (C16 to C34)	µg/L	500	100	<100
F3 (C16 to C34) minus PAHs	µg/L	500	100	<100
F4 (C34 to C50)	µg/L	500	100	<100
Gravimetric Heavy Hydrocarbons	µg/L	500	500	NA
Surrogate	Unit	Acceptable Limits		
Terphenyl	%	60-140	66	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current

3698718-3698777 The C6-C10 fraction is calculated using Toluene response factor.

The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.

Gravimetric Heavy Hydrocarbons are not included in the Total C16 - C50 and are only determined if the chromatogram of the C34 - C50 Hydrocarbons indicated that hydrocarbons >C50 are present.

Total C6-C50 results are corrected for BTEX and PAH contributions.

This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.

nC6 and nC10 response factors are within 30% of Toluene response factor.

nC10, nC16 and nC34 response factors are within 10% of their average.

C50 response factor is within 70% of nC10 + nC16 nC34 average.

Linearity is within 15%.

Extraction and holding times were met for this sample.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Water)

DATE SAMPLED: Sep 06, 2012

DATE RECEIVED: Sep 12, 2012

DATE REPORTED: Sep 21, 2012

SAMPLE TYPE: Water

Parameter	Unit	G / S	RDL	MW12-2		FieldBlank
				3698718	RDL	3698792
Dichlorodifluoromethane	µg/L	590	0.40	<0.40	0.20	<0.20
Vinyl Chloride	µg/L	0.5	0.34	<0.34	0.17	<0.17
Bromomethane	µg/L	0.89	0.40	<0.40	0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.80	<0.80	0.40	<0.40
Acetone	µg/L	2700	2.0	<2.0	1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	0.60	<0.60	0.30	<0.30
Methylene Chloride	µg/L	50	0.60	<0.60	0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.40	<0.40	0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.40	<0.40	0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.60	<0.60	0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	2.0	<2.0	1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.40	<0.40	0.20	<0.20
Chloroform	µg/L	2.4	0.40	<0.40	0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	0.40	<0.40	0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.60	<0.60	0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	0.40	<0.40	0.20	<0.20
Benzene	µg/L	5.0	0.40	<0.40	0.20	<0.20
1,2-Dichloropropane	µg/L	5	0.40	<0.40	0.20	<0.20
Trichloroethylene	µg/L	1.6	0.40	<0.40	0.20	<0.20
Bromodichloromethane	µg/L	16	0.40	<0.40	0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	2.0	<2.0	1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	0.40	<0.40	0.20	<0.20
Toluene	µg/L	24	0.40	<0.40	0.20	<0.20
Dibromochloromethane	µg/L	25	0.20	<0.20	0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.20	<0.20	0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.40	<0.40	0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.20	<0.20	0.10	<0.10
Chlorobenzene	µg/L	30	0.20	<0.20	0.10	<0.10
Ethylbenzene	µg/L	2.4	0.20	<0.20	0.10	<0.10
m & p-Xylene	µg/L		0.40	<0.40	0.20	<0.20
Bromoform	µg/L	25	0.20	<0.20	0.10	<0.10
Styrene	µg/L	5.4	0.20	<0.20	0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.20	<0.20	0.10	<0.10

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Certificate of Analysis

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
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<http://www.agatlabs.com>

CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Water)

DATE SAMPLED: Sep 06, 2012		DATE RECEIVED: Sep 12, 2012		DATE REPORTED: Sep 21, 2012		SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	MW12-2 3698718	RDL	FieldBlank 3698792
o-Xylene	µg/L		0.20	<0.20	0.10	<0.10
1,3-Dichlorobenzene	µg/L	59	0.20	<0.20	0.10	<0.10
1,4-Dichlorobenzene	µg/L	1	0.20	<0.20	0.10	<0.10
1,2-Dichlorobenzene	µg/L	3	0.20	<0.20	0.10	<0.10
1,3-Dichloropropene	µg/L	0.5	0.60	<0.60	0.30	<0.30
Xylene Mixture	µg/L	300	0.40	<0.40	0.20	<0.20
n-Hexane	µg/L	51	0.40	<0.40	0.20	<0.20
Surrogate	Unit	Acceptable Limits				
Toluene-d8	% Recovery	50-140		96		105
4-Bromofluorobenzene	% Recovery	50-140		96		85

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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Water)

DATE SAMPLED: Sep 06, 2012

DATE RECEIVED: Sep 12, 2012

DATE REPORTED: Sep 21, 2012

SAMPLE TYPE: Water

Parameter	Unit	G / S	RDL	TripBlank 3698804
Dichlorodifluoromethane	µg/L	590	0.20	<0.20
Vinyl Chloride	µg/L	0.5	0.17	<0.17
Bromomethane	µg/L	0.89	0.20	<0.20
Trichlorofluoromethane	µg/L	150	0.40	<0.40
Acetone	µg/L	2700	1.0	<1.0
1,1-Dichloroethylene	µg/L	1.6	0.30	<0.30
Methylene Chloride	µg/L	50	0.30	<0.30
trans- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20
Methyl tert-butyl ether	µg/L	15	0.20	<0.20
1,1-Dichloroethane	µg/L	5	0.30	<0.30
Methyl Ethyl Ketone	µg/L	1800	1.0	<1.0
cis- 1,2-Dichloroethylene	µg/L	1.6	0.20	<0.20
Chloroform	µg/L	2.4	0.20	<0.20
1,2-Dichloroethane	µg/L	1.6	0.20	<0.20
1,1,1-Trichloroethane	µg/L	200	0.30	<0.30
Carbon Tetrachloride	µg/L	0.79	0.20	<0.20
Benzene	µg/L	5.0	0.20	<0.20
1,2-Dichloropropane	µg/L	5	0.20	<0.20
Trichloroethylene	µg/L	1.6	0.20	<0.20
Bromodichloromethane	µg/L	16	0.20	<0.20
Methyl Isobutyl Ketone	µg/L	640	1.0	<1.0
1,1,2-Trichloroethane	µg/L	4.7	0.20	<0.20
Toluene	µg/L	24	0.20	<0.20
Dibromochloromethane	µg/L	25	0.10	<0.10
Ethylene Dibromide	µg/L	0.2	0.10	<0.10
Tetrachloroethylene	µg/L	1.6	0.20	<0.20
1,1,1,2-Tetrachloroethane	µg/L	1.1	0.10	<0.10
Chlorobenzene	µg/L	30	0.10	<0.10
Ethylbenzene	µg/L	2.4	0.10	<0.10
m & p-Xylene	µg/L		0.20	<0.20
Bromoform	µg/L	25	0.10	<0.10
Styrene	µg/L	5.4	0.10	<0.10
1,1,2,2-Tetrachloroethane	µg/L	1	0.10	<0.10

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AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

5835 COOPERS AVENUE
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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - VOCs (Water)

DATE SAMPLED: Sep 06, 2012		DATE RECEIVED: Sep 12, 2012		DATE REPORTED: Sep 21, 2012	SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	TripBlank 3698804	
o-Xylene	µg/L		0.10	<0.10	
1,3-Dichlorobenzene	µg/L	59	0.10	<0.10	
1,4-Dichlorobenzene	µg/L	1	0.10	<0.10	
1,2-Dichlorobenzene	µg/L	3	0.10	<0.10	
1,3-Dichloropropene	µg/L	0.5	0.30	<0.30	
Xylene Mixture	µg/L	300	0.20	<0.20	
n-Hexane	µg/L	51	0.20	<0.20	
Surrogate	Unit	Acceptable Limits			
Toluene-d8	% Recovery	50-140		105	
4-Bromofluorobenzene	% Recovery	50-140		80	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current
3698718 Dilution factor=2
The sample was diluted because it was foamy. The reporting detection limit has been corrected for the dilution factor used.

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AGAT WORK ORDER: 12T640741

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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

Inorganic Chemistry (Water)

DATE SAMPLED: Sep 11, 2012		DATE RECEIVED: Sep 12, 2012		DATE REPORTED: Sep 21, 2012		SAMPLE TYPE: Water
Parameter	Unit	G / S	RDL	MW12-2 3698718		
Chloride	mg/L	790	0.20	86.4		
Nitrate as N	mg/L		0.10	<0.10		
Nitrite as N	mg/L		0.10	<0.10		
Sulphate	mg/L		0.20	4.28		
Calcium	mg/L		0.05	215		
Magnesium	mg/L		0.05	25.8		
Sodium	mg/L	490	0.05	99.9		
Potassium	mg/L		0.05	23.7		
pH	pH Units		NA	8.05		
Ammonia as N	mg/L		0.02	48.2		
Alkalinity (as CaCO ₃)	mg/L		5	830		
Total Hardness (as CaCO ₃)	mg/L		0.5	643		

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current

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AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

O. Reg. 153(511) - Metals (Abbrev) (Water) incl. Fe, Mn

DATE SAMPLED: Sep 11, 2012

DATE RECEIVED: Sep 12, 2012

DATE REPORTED: Sep 21, 2012

SAMPLE TYPE: Water

Parameter	Unit	G / S	RDL	MW12-2
				3698718
Barium	µg/L	1000	2.0	405
Beryllium	µg/L	4.0	0.5	<0.5
Boron	µg/L	5000	10.0	1080
Cadmium	µg/L	2.7	0.2	<0.2
Chromium	µg/L	50	2.0	4.2
Cobalt	µg/L	3.8	0.5	20.0
Copper	µg/L	87	1.0	2.9
Lead	µg/L	10	0.5	0.5
Molybdenum	µg/L	70	0.5	2.5
Nickel	µg/L	100	1.0	15.9
Silver	µg/L	1.5	0.2	<0.2
Thallium	µg/L	2	0.3	<0.3
Uranium	µg/L	20	0.5	1.8
Vanadium	µg/L	6.2	0.4	0.7
Zinc	µg/L	1100	5.0	14.1
Iron	mg/L		0.010	5.08
Manganese	mg/L		0.002	2.22

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(PGW) - Current

Certified By:



AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

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CLIENT NAME: GOLDER ASSOCIATES LTD.

ATTENTION TO: Christi Groves

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
3698723	MW12-5	T2(PGW) - Current	O. Reg. 153(511) - Metals (Abbrev) (Water) incl. Fe, Mn	Cobalt	3.8	4.3
3698739	Dup1	T2(PGW) - Current	O. Reg. 153(511) - Metals (Abbrev) (Water) incl. Fe, Mn	Cobalt	3.8	4.6

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Trace Organics Analysis															
RPT Date: Sep 21, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - VOCs (Water)															
Dichlorodifluoromethane	1		< 0.20	< 0.20	0.0%	< 0.20	106%	50%	140%	114%	50%	140%	109%	50%	140%
Vinyl Chloride	1		< 0.17	< 0.17	0.0%	< 0.17	91%	50%	140%	114%	50%	140%	110%	50%	140%
Bromomethane	1		< 0.20	< 0.20	0.0%	< 0.20	79%	50%	140%	108%	50%	140%	112%	50%	140%
Trichlorofluoromethane	1		< 0.40	< 0.40	0.0%	< 0.40	99%	50%	140%	115%	50%	140%	113%	50%	140%
Acetone	1		< 1.0	< 1.0	0.0%	< 1.0	86%	50%	140%	106%	50%	140%	98%	50%	140%
1,1-Dichloroethylene	1		< 0.30	< 0.30	0.0%	< 0.30	117%	50%	140%	105%	60%	130%	111%	50%	140%
Methylene Chloride	1		< 0.30	< 0.30	0.0%	< 0.30	115%	50%	140%	100%	60%	130%	96%	50%	140%
trans- 1,2-Dichloroethylene	1		< 0.20	< 0.20	0.0%	< 0.20	94%	50%	140%	103%	60%	130%	107%	50%	140%
Methyl tert-butyl ether	1		< 0.20	< 0.20	0.0%	< 0.20	101%	50%	140%	115%	60%	130%	115%	50%	140%
1,1-Dichloroethane	1		< 0.30	< 0.30	0.0%	< 0.30	100%	50%	140%	106%	60%	130%	112%	50%	140%
Methyl Ethyl Ketone	1		< 1.0	< 1.0	0.0%	< 1.0	89%	50%	140%	110%	50%	140%	83%	50%	140%
cis- 1,2-Dichloroethylene	1		< 0.20	< 0.20	0.0%	< 0.20	101%	50%	140%	99%	60%	130%	104%	50%	140%
Chloroform	1		< 0.20	< 0.20	0.0%	< 0.20	111%	50%	140%	109%	60%	130%	112%	50%	140%
1,2-Dichloroethane	1		< 0.20	< 0.20	0.0%	< 0.20	98%	50%	140%	110%	60%	130%	113%	50%	140%
1,1,1-Trichloroethane	1		< 0.30	< 0.30	0.0%	< 0.30	102%	50%	140%	104%	60%	130%	100%	50%	140%
Carbon Tetrachloride	1		< 0.20	< 0.20	0.0%	< 0.20	101%	50%	140%	106%	60%	130%	104%	50%	140%
Benzene	1		< 0.20	< 0.20	0.0%	< 0.20	96%	50%	140%	101%	60%	130%	103%	50%	140%
1,2-Dichloropropane	1		< 0.20	< 0.20	0.0%	< 0.20	93%	50%	140%	109%	60%	130%	99%	50%	140%
Trichloroethylene	1		< 0.20	< 0.20	0.0%	< 0.20	97%	50%	140%	87%	60%	130%	94%	50%	140%
Bromodichloromethane	1		< 0.20	< 0.20	0.0%	< 0.20	107%	50%	140%	107%	60%	130%	104%	50%	140%
Methyl Isobutyl Ketone	1		< 1.0	< 1.0	0.0%	< 1.0	74%	50%	140%	100%	50%	140%	96%	50%	140%
1,1,2-Trichloroethane	1		< 0.20	< 0.20	0.0%	< 0.20	102%	50%	140%	120%	60%	130%	119%	50%	140%
Toluene	1		< 0.20	< 0.20	0.0%	< 0.20	114%	50%	140%	110%	60%	130%	110%	50%	140%
Dibromochloromethane	1		< 0.10	< 0.10	0.0%	< 0.10	118%	50%	140%	114%	60%	130%	111%	50%	140%
Ethylene Dibromide	1		< 0.10	< 0.10	0.0%	< 0.10	115%	50%	140%	109%	60%	130%	114%	50%	140%
Tetrachloroethylene	1		< 0.20	< 0.20	0.0%	< 0.20	110%	50%	140%	112%	60%	130%	101%	50%	140%
1,1,1,2-Tetrachloroethane	1		< 0.10	< 0.10	0.0%	< 0.10	NA	50%	140%	110%	60%	130%	108%	50%	140%
Chlorobenzene	1		< 0.10	< 0.10	0.0%	< 0.10	107%	50%	140%	109%	60%	130%	107%	50%	140%
Ethylbenzene	1		< 0.10	< 0.10	0.0%	< 0.10	97%	50%	140%	102%	60%	130%	98%	50%	140%
m & p-Xylene	1		< 0.20	< 0.20	0.0%	< 0.20	101%	50%	140%	103%	60%	130%	101%	50%	140%
Bromoform	1		< 0.10	< 0.10	0.0%	< 0.10	116%	50%	140%	114%	60%	130%	108%	50%	140%
Styrene	1		< 0.10	< 0.10	0.0%	< 0.10	82%	50%	140%	89%	60%	130%	85%	50%	140%
1,1,2,2-Tetrachloroethane	1		< 0.10	< 0.10	0.0%	< 0.10	NA	50%	140%	91%	60%	130%	118%	50%	140%
o-Xylene	1		< 0.10	< 0.10	0.0%	< 0.10	105%	50%	140%	105%	60%	130%	104%	50%	140%
1,3-Dichlorobenzene	1		< 0.10	< 0.10	0.0%	< 0.10	83%	50%	140%	85%	60%	130%	83%	50%	140%
1,4-Dichlorobenzene	1		< 0.10	< 0.10	0.0%	< 0.10	96%	50%	140%	99%	60%	130%	95%	50%	140%
1,2-Dichlorobenzene	1		< 0.10	< 0.10	0.0%	< 0.10	94%	50%	140%	98%	60%	130%	94%	50%	140%
1,3-Dichloropropene	1		< 0.30	< 0.30	0.0%	< 0.30	81%	50%	140%	87%	60%	130%	87%	50%	140%
Xylene Mixture	1		< 0.20	< 0.20	0.0%	< 0.20	103%	50%	140%	104%	60%	130%	103%	50%	140%

Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Trace Organics Analysis (Continued)

RPT Date: Sep 21, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
n-Hexane	1		< 0.20	< 0.20	0.0%	< 0.20	NA	50%	140%	104%	60%	130%	92%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Water)															
F1 (C6 to C10)	1		< 25	< 25	0.0%	< 25	110%	60%	140%	88%	60%	140%	79%	60%	140%
F2 (C10 to C16)	1	3698723	<100	<100	0.0%	< 100	104%	60%	140%	60%	60%	140%	76%	60%	140%
F3 (C16 to C34)	1	3698723	<100	<100	0.0%	< 100	103%	60%	140%	84%	60%	140%	85%	60%	140%
F4 (C34 to C50)	1	3698723	<100	<100	0.0%	< 100	102%	60%	140%	93%	60%	140%	92%	60%	140%
O. Reg. 153(511) - PAHs (Water)															
Naphthalene	1		< 0.20	< 0.20	0.0%	< 0.20	93%	50%	140%	94%	50%	140%	90%	50%	140%
Acenaphthylene	1		< 0.20	< 0.20	0.0%	< 0.20	98%	50%	140%	98%	50%	140%	86%	50%	140%
Acenaphthene	1		< 0.20	< 0.20	0.0%	< 0.20	100%	50%	140%	93%	50%	140%	85%	50%	140%
Fluorene	1		< 0.20	< 0.20	0.0%	< 0.20	96%	50%	140%	90%	50%	140%	94%	50%	140%
Phenanthrene	1		< 0.10	< 0.10	0.0%	< 0.10	98%	50%	140%	88%	50%	140%	91%	50%	140%
Anthracene	1		< 0.10	< 0.10	0.0%	< 0.10	100%	50%	140%	100%	50%	140%	96%	50%	140%
Fluoranthene	1		< 0.20	< 0.20	0.0%	< 0.20	101%	50%	140%	95%	50%	140%	97%	50%	140%
Pyrene	1		< 0.20	< 0.20	0.0%	< 0.20	98%	50%	140%	98%	50%	140%	93%	50%	140%
Benz(a)anthracene	1		< 0.20	< 0.20	0.0%	< 0.20	92%	50%	140%	91%	50%	140%	77%	50%	140%
Chrysene	1		< 0.10	< 0.10	0.0%	< 0.10	99%	50%	140%	100%	50%	140%	89%	50%	140%
Benzo(b)fluoranthene	1		< 0.10	< 0.10	0.0%	< 0.10	103%	50%	140%	71%	50%	140%	89%	50%	140%
Benzo(k)fluoranthene	1		< 0.10	< 0.10	0.0%	< 0.10	99%	50%	140%	98%	50%	140%	97%	50%	140%
Benzo(a)pyrene	1		< 0.01	< 0.01	0.0%	< 0.01	97%	50%	140%	78%	50%	140%	90%	50%	140%
Indeno(1,2,3-cd)pyrene	1		< 0.20	< 0.20	0.0%	< 0.20	99%	50%	140%	92%	50%	140%	82%	50%	140%
Dibenz(a,h)anthracene	1		< 0.20	< 0.20	0.0%	< 0.20	96%	50%	140%	96%	50%	140%	99%	50%	140%
Benzo(g,h,i)perylene	1		< 0.20	< 0.20	0.0%	< 0.20	101%	50%	140%	91%	50%	140%	87%	50%	140%
2-and 1-methyl Naphthalene	1		< 0.20	< 0.20	0.0%	< 0.20	96%	50%	140%	94%	50%	140%	89%	50%	140%

Certified By:



Quality Assurance

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T640741

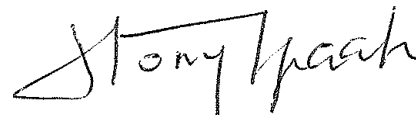
PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

Water Analysis															
RPT Date: Sep 21, 2012			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Abbrev) (Water) incl. Fe, Mn															
Barium	1	3698718	405	418	3.2%	< 2.0	100%	70%	130%	104%	80%	120%	112%	70%	130%
Beryllium	1	3698718	< 0.5	< 0.5	0.0%	< 0.5	102%	70%	130%	100%	80%	120%	90%	70%	130%
Boron	1	3698718	1080	944	13.4%	< 10.0	102%	70%	130%	95%	80%	120%	80%	70%	130%
Cadmium	1	3698718	< 0.2	< 0.2	0.0%	< 0.2	100%	70%	130%	109%	80%	120%	102%	70%	130%
Chromium	1	3698718	4.2	4.7	11.2%	< 2.0	98%	70%	130%	104%	80%	120%	99%	70%	130%
Cobalt	1	3698718	20.0	19.9	0.5%	< 0.5	101%	70%	130%	99%	80%	120%	104%	70%	130%
Copper	1	3698718	2.9	2.9	0.0%	< 1.0	101%	70%	130%	110%	80%	120%	100%	70%	130%
Lead	1	3698718	0.5	0.5	0.0%	< 0.5	98%	70%	130%	105%	80%	120%	86%	70%	130%
Molybdenum	1	3698718	2.5	2.5	0.0%	< 0.5	99%	70%	130%	99%	80%	120%	103%	70%	130%
Nickel	1	3698718	15.9	15.3	3.8%	< 1.0	102%	70%	130%	111%	80%	120%	101%	70%	130%
Silver	1	3698718	< 0.2	< 0.2	0.0%	< 0.2	98%	70%	130%	114%	80%	120%	100%	70%	130%
Thallium	1	3698718	< 0.3	< 0.3	0.0%	< 0.3	100%	70%	130%	105%	80%	120%	94%	70%	130%
Uranium	1	3698718	1.8	1.8	0.0%	< 0.5	96%	70%	130%	104%	80%	120%	85%	70%	130%
Vanadium	1	3698718	0.7	0.8	13.3%	< 0.4	100%	70%	130%	103%	80%	120%	106%	70%	130%
Zinc	1	3698718	14.1	14.3	1.4%	< 5.0	101%	70%	130%	105%	80%	120%	105%	70%	130%
Iron	1	3698718	5.08	5.07	0.2%	< 0.010	97%	90%	110%	106%	90%	110%	102%	70%	130%
Manganese	1	3698718	2.22	2.20	0.9%	< 0.002	100%	90%	110%	108%	90%	110%	105%	70%	130%
Inorganic Chemistry (Water)															
Chloride	1	3698723	3.43	3.32	3.3%	< 0.20	95%	90%	110%	99%	90%	110%	95%	80%	120%
Nitrate as N	1	3698723	< 0.10	< 0.10	0.0%	< 0.10	97%	90%	110%	103%	90%	110%	105%	80%	120%
Nitrite as N	1	3698723	< 0.10	< 0.10	0.0%	< 0.10	NA	90%	110%	95%	90%	110%	99%	80%	120%
Sulphate	1	3698723	65.4	64.7	1.1%	< 0.20	91%	90%	110%	95%	90%	110%	88%	80%	120%
Calcium	1	3698718	199	197	1.0%	< 0.05	105%	90%	110%	106%	90%	110%	111%	70%	130%
Magnesium	1		44.2	44.4	0.5%	< 0.05	108%	90%	110%	110%	90%	110%	113%	70%	130%
Sodium	1		12.0	12.1	0.8%	< 0.05	98%	90%	110%	99%	90%	110%	101%	70%	130%
Potassium	1		1.08	1.08	0.0%	< 0.05	101%	90%	110%	101%	90%	110%	106%	70%	130%
pH	1		7.85	7.91	0.8%	NA	100%	90%	110%	NA	0%	0%	NA	0%	0%
Ammonia as N	1		< 0.02	< 0.02	0.0%	< 0.02	98%	90%	110%	97%	90%	110%	112%	80%	120%
Alkalinity (as CaCO3)	1		326	329	0.9%	< 5	95%	80%	120%	NA	0%	0%	NA	0%	0%

Comments: NA - Not Applicable.

Certified By:



Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Acenaphthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluorene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Phenanthrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benz(a)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(b)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(k)fluoranthene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(a)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Dibenz(a,h)anthracene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Benzo(g,h,i)perylene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
2-and 1-methyl Naphthalene	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
Chrysene-d12	ORG-91-5105	EPA SW-846 3510 & 8270	GC/MS
F1 (C6 to C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC / FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC / FID
F4 (C34 to C50)	VOL-91-5010	MOE PHC E3421	GC / FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
F1 (C6 to C10)	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5010	MOE PHC E3421	(P&T)GC/FID
F2 (C10 to C16)	VOL-91-5010	MOE PHC E3421	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34)	VOL-91-5010	MOE PHC E3421	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5010	MOE PHC E3421	GC/FID
F4 (C34 to C50)	VOL -91- 5010	MOE PHC- E3421	GC/FID
Gravimetric Heavy Hydrocarbons	VOL-91-5010	MOE PHC E3421	BALANCE
Terphenyl	VOL-91-5010		GC/FID
Dichlorodifluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Vinyl Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromomethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Acetone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methylene Chloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
trans- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl tert-butyl ether	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
cis- 1,2-Dichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chloroform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Carbon Tetrachloride	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Benzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Trichloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromodichloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Dibromochloromethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Chlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Ethylbenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
m & p-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Bromoform	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Styrene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
o-Xylene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
1,3-Dichloropropene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Xylene Mixture	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
n-Hexane	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
Toluene-d8	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5001	EPA SW-846 5030 & 8260	(P&T)GC/MS

Method Summary

CLIENT NAME: GOLDER ASSOCIATES LTD.

AGAT WORK ORDER: 12T640741

PROJECT NO: 11-1170-0079

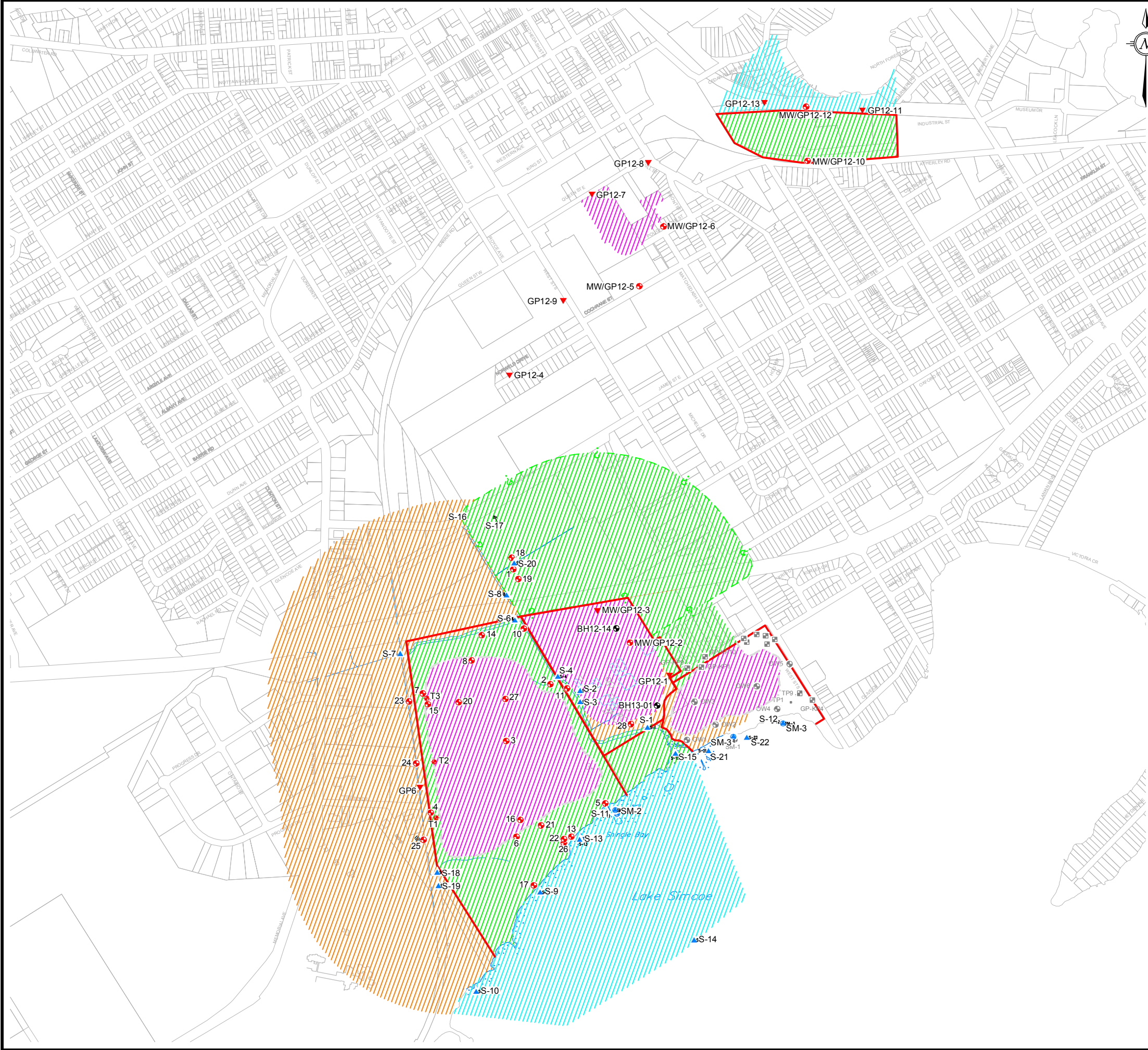
ATTENTION TO: Christi Groves

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Water Analysis			
Chloride	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Nitrate as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Nitrite as N	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Sulphate	INOR-93-6004	SM 4110 B	ION CHROMATOGRAPH
Calcium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Magnesium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Sodium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
Potassium	MET-93-6105	EPA SW-846 6010C & 200.7	ICP/OES
pH	INOR-93-6000	SM 4500-H+ B	PC TITRATE
Ammonia as N	INOR-93-6002	AQ2 EPA-103A & SM 4500 NH3-F	AQ-2 DISCRETE ANALYZER
Alkalinity (as CaCO ₃)	INOR-93-6000	SM 2320 B	PC TITRATE
Total Hardness (as CaCO ₃)	MET-93-6105	EPA SW-846 6010C & 200.7 & SM 2340 B	ICP/OES
Barium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Boron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Chromium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Copper	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Lead	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Nickel	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Silver	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Thallium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Uranium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Zinc	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Iron	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS
Manganese	MET-93-6103	EPA SW-846 6020A & 200.8	ICP-MS



APPENDIX L

D-4 Assessment Area Summary



LEGEND

- Waste Site Limit
- Estimated Extent of Landfill
- D4 Assessment Required due to Possible Landfill Waste
- D4 Assessment Required due to Possible Landfill Gas
- D4 Assessment Required due to Possible Groundwater Impacts
- D4 Assessment Require 500 m Offset Area from Active Landfill
- Observation Well
- Borehole
- Gas Probe
- Groundwater level Monitoring Location
- Surface Water Quality Station / Seepage Monitor

NOTE

- DATUM IS UTM NAD83 Zone 17
- ALL MAPPED BOUNDARIES, LIMITS, AND INTERPOLATED FEATURES ARE APPROXIMATE
- REFER TO KWDS REPORT FOR D-4 REQUIRED 500 m OFFSET AREA
- SITE X4129 CAN BE DE-LISTED FROM MOE DATABASE

0 100 200 400 800
SCALE 1:12500
Plotted Tabloid 11x17
metres

UTM NAD 83 ZONE 17
CAD base Courtesy CITY OF ORILLIA; Digital 1:2000 OBM Mapping

TITLE		
D4 ASSESSMENT AREA SUMMARY		
HISTORICAL LANDFILL SITES CITY OF ORILLIA		
	SCALE	AS SHOWN
	DATE	05 JUL 2013
	DESIGN	
	CAD	S BOWERMAN
FILE No.	1111700079IBD4SUMMARY.dwg	
PROJECT No.	11-1170-0079	REV.
	CHECK	CLG
	REVIEW	FIGURE L-1

At Golder Associates we strive to be the most respected global company providing consulting, design, and construction services in earth, environment, and related areas of energy. Employee owned since our formation in 1960, our focus, unique culture and operating environment offer opportunities and the freedom to excel, which attracts the leading specialists in our fields. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees who operate from offices located throughout Africa, Asia, Australasia, Europe, North America, and South America.

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